

**Subject: Antitrust Modernization Commission - New Economy-Patents**

**Date:** Monday, July 10, 2006 1:03 PM

**From:** Quillen, Cecil

**To:**

**Cc:** <comments@amc.gov>

**Conversation:** Antitrust Modernization Commission - New Economy-Patents

John,  
Boy, am I ever "a day late and a dollar short." In this case, I am a year late.

I had no idea until this past weekend that your Antitrust Modernization Commission was interested in patent issues.

I have taken a quick (very quick) look at the June 14 report of the AMC Staff to the Commissioners titled "New Economy-Patents Discussion Memorandum," which mostly reviewed the FTC/DOJ and NAS STEP Reports and submitted comments.

Neither the FTC/DOJ nor the NAS STEP Reports (nor the submitted comments) give sufficient weight to the role of competition in fostering innovation in our economy. In this regard I want to draw attention to Will Baumol's book "The Free Market Innovation Machine" that is cited in footnote 6 of my attached Essay. For reasons that are a total mystery to me the Baumol book was not cited or discussed in the FTC/DOJ Report event though copies were provided to the authors of the report.

Both reports, and the submitted comments, largely focus on symptoms, and the recommendations, even if implemented, will do little or nothing to fix the problems of the U.S. patent system. They will, however, provide even more enhanced work opportunities for patent attorneys and other members of the "patent crowd."

The major problems of the U.S. patent system are attributable to the Federal Circuit Court of Appeals which, while paying lip service to the Supreme Court, has promulgated lowered and less certain standards for patentability in defiance of the Supreme Court. This is the "sea change" you and Rich Klapper described in your certiorari petition in Polaroid v. Kodak. In addition the Federal Circuit has pronounced damages law that frequently results in excessive damages (which Rich K. is also familiar with), and it has been unable to articulate rules for resolving infringement claims that can be understood and applied by District Court judges (or by subsequent Federal Circuit panels).

The net is that innovators can no longer rely on the courts to protect them from patent harm, and they instead have had to seek more and more patents in the hope of preempting others from obtaining patents that might impede their innovations. Patent proliferation and increased patent litigation are the results.

Increasing PTO resources does not address the problem, which originates with the

Federal Circuit. The PTO is obliged to follow the Federal Circuit, and it cannot be expected to upgrade its performance unless the standards for patentability are upgraded. The one useful immediate change at the PTO would be to abolish continuing applications. Under the current statute applicants can "refile" their applications as many times as they wish, and the PTO can rid itself of such determined applicants only by allowing their applications. In addition, the current PTO performance and pay system encourages examiners to stimulate the filing of continuing applications. Refiled continuing applications currently comprise about 31% of the applications filed in 2005, and are rework imposed on the PTO, which consumes PTO resources that otherwise could be applied to the examination of original applications.

I am attaching the current version of an Essay that is to be published this fall in the Virginia Law and Business Review that describes the current problems of the U.S. patent system and their origins, and sets forth recommendations for changes, the most important of which is restoration of appellate jurisdiction in patent infringement cases to the regular Courts of Appeals in the expectation they will follow the Supreme Court and restore the standards for patentability that prevailed prior to the advent of the Federal Circuit. I have also included a presentation dealing with the continuing application problem and its effect on patent quality that I made in 2004 at a conference sponsored by the Intellectual Property Owners Association.

I hope these thoughts (and materials) are of interest to you . I am sending a copy along to the AMC staff as well so that they will have copies for any who may be interested.

Please let me know if I can be of assistance to you or the Commission.

Best.

Cecil Quillen

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*ESSAY*

**INNNOVATION AND THE CURRENT U.S. PATENT SYSTEM**

**Cecil D. Quillen, Jr**

**Forthcoming in the Virginia Law and Business Review**

**Note: This version of the Essay has not yet been edited for publication.**

## ESSAY

### INNOVATION AND THE CURRENT U.S. PATENT SYSTEM

Cecil D. Quillen, Jr.\*

There is a current ferment about possible reform of the U.S. patent system. Scholars have taken an interest, and law review articles,<sup>1</sup> economic analyses,<sup>2</sup> and books<sup>3</sup> on the topic have boomed. Both the Federal Trade Commission (FTC) and the National Research Council (NRC) of the National Academy of Sciences published reports,<sup>4</sup> and legislation has been introduced.<sup>5</sup> The patent lawyer lobby groups in Washington have waded in with comments, and the FTC and NRC, in conjunction with the American Intellectual Property Law Association (AIPLA), one of the patent lawyer lobby groups, held “town meetings” around the country to “drum up” support.

The topic of this essay is innovation and patents, and the effect of the current U.S. patent system on innovation in the United States. This topic is large, and the essay will touch only high spots. But it will conclude with my own prescription for reform.

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\* This Essay is adapted from a presentation by Mr. Quillen at the Joint Meeting of the Washington State and Oregon Patent Law Associations on April 22, 2005. Mr. Quillen is the former General Counsel of Eastman Kodak Company where he was a Senior Vice President and member of the Board of Directors. He is currently a Senior Advisor at Cornerstone Research, an economic consulting firm. He holds a Bachelor of Science with Honors in Chemical Engineering from Virginia Polytechnic Institute and State University, and a Bachelor of Laws (L.L.B.) from the Law School of the University of Virginia. Comments on drafts of the presentation by Robert Barr and Ogden (Slim) Webster were especially helpful, as were comments by James Dabney on a draft of the Essay. The views expressed are those of Mr. Quillen and should not be attributed to those who provided comments, or to Eastman Kodak or Cornerstone Research.

<sup>1</sup> Merges, *As Many As Six Impossible Patents Before Breakfast: Property Rights for Business Concepts and Patent Reform*, Berkeley Technology Law Journal, Vol. 14, pp. 577-615 (1999), certainly wins the prize for the most imaginative title.

<sup>2</sup> Hunt, *Patent Reform: A Mixed Blessing for the U.S. Economy*, November/December 1999 Business Review, Federal Reserve Bank of Philadelphia, page 15. Also see Dr. Hunt’s working Paper No. 99-3 titled *Nonobviousness and the Incentive to Innovate: an Economic Analysis of Intellectual Property Reform*, available at [www.phil.org/econ/wps/wp99.html](http://www.phil.org/econ/wps/wp99.html).

<sup>3</sup> Jaffe and Lerner, *Innovation and Its Discontents: How Our Broken Patent System Is Endangering Innovation and Progress, And What To Do About It*, Princeton University Press (2004), is an especially thought-provoking treatment of the subject.

<sup>4</sup> The FTC report is available at <http://www.ftc.gov/os/2003/10/innovationrpt.pdf>. The NRC report is available at <http://www.nap.edu/html/patentsystem/0309089107.pdf>.

<sup>5</sup> For example, see HR 2795.

One must start with an understanding of what innovation is, and what it is not, and the relationship between innovation and patents.

Innovation is the commercialization of new products, processes, and services. It is entrepreneurial, even when done by large companies, and requires investment and risk taking. Invention may precede innovation. But invention alone is not innovation. Nor is obtaining a patent innovation.<sup>6</sup>

Only commercialization qualifies as innovation. And it is innovation whether the commercialized product, process, or service is patented or not. And it is even innovation if it turns out to be an infringement of another's patent. After all, the infringer/innovator commercialized a product, process, or service, and made the investment and took the business risk necessary to do so.

Since a patent gives its owner the right to exclude others from practicing the patented invention, it follows that innovation depends on the absence of patents owned by others affecting the innovation, or at least the ability to obtain licenses under such others' patents. If someone else owns a valid patent that covers a proposed innovation, the would-be innovator is stymied if he or she cannot obtain a license.<sup>7</sup> And, if the would-be innovator is stymied, the investment made in the potential innovation is wasted, which is a loss to society as well as to the would-be innovator.

If one's business falls within any of the classes of patentable subject matter, and it is difficult now to imagine any that do not,<sup>8</sup> then you are a participant in the U.S. patent system

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<sup>6</sup> Many economists have argued that competition, not monopoly, is the principal driving force for innovation in capitalist economies such as ours. For example, see Baumol, *The Free Market Innovation Machine, Analyzing the Growth Miracle of Capitalism*, Princeton University Press ( 2002).

<sup>7</sup> Ownership of a patent does not authorize its owner to practice the patented invention. The patent owner may practice his or her patented invention only if it is not covered by the patent of another, or if he or she secures a license under the other's patent.

<sup>8</sup> For example, decisions by the Court of Appeals for the Federal Circuit have extended the availability of patent coverage to intangibles such as business methods and computer software per se. See State Street Bank v. Signature Financial, 149 F.3d 1368 (Fed. Cir. 1998) and AT&T v. Excel Communications, 172 F.3d 1352 (Fed. Cir. 1999). It remains to be seen whether the Supreme Court will approve of these Federal Circuit decisions. Cf. *Laboratory*

whether you like it or not. Your participation is involuntary. You cannot "opt out," even if you want to.

So a central task for would-be innovators is to devise and follow strategies for preventing or blocking others from obtaining patents that might impede or preclude their innovations. They do this by seeking patents on their own inventions they might commercialize in the hope of preempting or blocking others from obtaining such patents and being in a position to impede their innovations.

This is called "defensive patenting," and it is a universal strategy for innovators. The paramount motivation is not the expectation of a patent monopoly, but rather the hope of preempting others and blocking them from obtaining patents that might impede their innovations, or at least being in a position to extract licenses when needed.

This was succinctly stated by a venture capitalist quoted in the San Jose Mercury who said:

None of my companies seek patent protection because they actually think it will protect them from competition . . . . Rather, they seek patents to protect themselves from other people who have patents.<sup>9</sup>

It follows that high standards for patentability are conducive to innovation, because there are fewer patents to impede innovation, and low standards are an impediment because the resulting patent proliferation means there are more patents to affect innovators and impede their innovations.

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*Corp. of Am. Holdings v. Metabolite Corp.*, \_\_ S. Ct. \_\_ No. 04-607 (granting certiorari to review whether and to what extent patent protection is available for a method that comprises use of unpatentable law of nature).

<sup>9</sup> Quote taken from Lemley, *Rational Ignorance at the Patent Office*, Northwestern University Law Review, Vol. 95, No. 4 (2001). Cohen, Nelson, and Walsh, in their survey of why firms seek patents, found that "Blocking," i.e., preempting others from obtaining patents, is the second most common reason given for seeking patents, closely followed by "Prevent Suits," and "For Use in Negotiations," all of which are aspects of defensive patenting. See *Protecting Their Intellectual Assets: Appropriability Conditions and Why U.S. Manufacturing Firms Patent (or Not)*, NBER Working Paper 7522 (2000).

Discussion of the impact of the current U.S. patent system on innovation in the United States must begin with formation of the Federal Circuit Court of Appeals in 1982. Not counting extensions to subjects that previously could not be patented, there are three major changes affecting innovation in the United States brought about by the Federal Circuit, all on its own, without benefit of statutory changes or Supreme Court decisions.<sup>10</sup> These are lowered standards for patentability, increased uncertainty and unpredictability as to the outcome of patent litigation, and excessive damages for patent infringement.

Prior to the advent of the Federal Circuit, high standards for patentability prevailed in the United States. Gloria Koenig, in a study of Court of Appeals decisions from the passage of the current United States patent statute in 1952 through 1977, found that 65.7% (nearly 2/3) of patents reaching the Circuit Courts of Appeals for which there were validity decisions were ruled invalid.<sup>11</sup> The remainder, only about 1/3, were valid and capable of being infringed. The courts, in effect, were protecting innovators from patents that never should have issued in the first place.

The Federal Circuit, when it commenced its work, immediately lowered the standards, with the initial result that something like 2/3 of the patents that reached it were ruled valid and capable of being infringed, and only about 1/3 were invalid, a reversal of the prior statistic.<sup>12</sup> The Federal Circuit validity statistic has diminished somewhat over time. The most recent studies of which I am aware place the Federal Circuit validity rate at about 55-60%, still almost twice the previous rate.<sup>13</sup>

For innovators the consequence was that they were suddenly at risk from the newly valid patents that would have been invalid under the prior, higher standards.

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<sup>10</sup> For example, see Klitzman, *The Federal Circuit is Making New Law*, presented at PIPA Congress, Chicago, Illinois (October, 1985) and Adelman, *The New World of Patents Created by the Court of Appeals for the Federal Circuit*, 20 U.Mich.J.L. Reform 979 (1987) for discussion of some of the changes by the Federal Circuit.

<sup>11</sup> Koenig, *Patent Invalidity: A Statistical and Substantive Analysis (rev. ed. 1980)*, Clark Boardman (1980). See Table 15 at page 4-32.

<sup>12</sup> Jerome Lee (Senior Partner, Morgan & Finnegan), *The Most Significant Patent Cases Relating to the Question of Obviousness Under 35 U.S.C. Sec. 103*, read at the Annual Meeting of the American Bar Association, August 12, 1986.

<sup>13</sup> Allison and Lemley, *Empirical Evidence on the Validity of Licensed Patents*, 26 AIPLA Q.J. 185 (1998), and Lemley, *An Empirical Study of the Twenty-Year Patent Term*, 22 AIPLA Q.J. 369 (1994).

The lowering of the standard for patentability was brought about by two concurrent changes by the Federal Circuit Court of Appeals in the application of the nonobviousness requirement from that prescribed by the Supreme Court in Graham v. John Deere and U.S. v. Adams,<sup>14</sup> and subsequently reiterated by the Supreme Court in Anderson's-Black Rock, Dann v. Johnston, and Sakraida.<sup>15</sup>

The first of the changes by the Federal Circuit involved the "person of ordinary skill in the art." In the Supreme Court cases that person was someone of intelligence and imagination who kept himself or herself informed of developments pertinent to his or her work. The Supreme Court in Graham said that:

[T]he ambit of applicable art in given fields of science has widened by disciplines unheard of half a century ago. It is but an evenhanded application to require that those persons granted the benefit of a patent monopoly be charged with an awareness of these changed conditions.<sup>16</sup>

This is to be contrasted with the person of ordinary skill in the Federal Circuit cases who is said to be:

[O]ne who thinks along the line of conventional wisdom . . . and is not one who undertakes to innovate.<sup>17</sup>

The Federal Circuit's person of ordinary skill apparently is a literalist, without imagination or creativity, unaware of developments pertinent to his or her work; one who is

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<sup>14</sup> Graham v. John Deere, 383 U.S. 1 (1966), and United States v. Adams, 383 U.S. 39 (1966), decided by the Supreme Court on the same day in 1966, prescribed the statutory test for determining whether an invention has met the nonobviousness requirement of 35 U.S.C. Sec. 103. The statutory test required a three-step factual analysis: (1) determining the scope and content of the prior art, (2) ascertaining the differences between the prior art and the claims at issue, and (3) resolving the level of ordinary skill in the pertinent art. The question of obviousness or nonobviousness is resolved against this factual background.

<sup>15</sup> Anderson's-Black Rock v. Pavement Salvage, 396 U.S. 57 (1969), Dann v. Johnston, 425 U.S. 219 (1976), and Sakraida v. Ag Pro, 425 U.S. 273 (1976).

<sup>16</sup> Graham, previously cited, at page 19.

<sup>17</sup> Standard Oil v. American Cyanamid, 774 F.2d 448, 454 (Fed. Cir. 1985).

incapable of considering collectively the combined teachings of relevant prior art unless "motivated" to do so by explicit directions in the prior art references themselves.<sup>18</sup>

This requirement for "motivation" is absent from the Supreme Court cases, which assumed that the person of ordinary skill had sufficient imagination to consider collectively the teachings of relevant art, even if the references did not themselves suggest that they be considered together.<sup>19</sup> This change by the Federal Circuit narrowed the scope of prior art to be considered, and has rendered patentable inventions that once could not have been the subject of a valid patent. The effect is tantamount to having read Sec. 103, the nonobviousness requirement, out of the statute entirely, and to have made patentable all inventions that are not "identically described or disclosed" in a single reference. A consequence of this Federal Circuit change is that it regularly upholds the validity of patents on inventions that are no more than routine applications of textbook principles of science and engineering.<sup>20</sup>

The second of the Federal Circuit changes bearing on the standard for patentability is the elevation of nonstatutory factors, the so-called "secondary considerations," from their position of conditional relevance under the Supreme Court cases, where they were to be considered only if doubt remained after application of the three-step statutory test, to primary factors that are

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<sup>18</sup> Federal Circuit "motivation" cases include (but are not limited to) Medtronic v. Cardiac, 721 F.2d 1563, 1575 (Fed. Cir. 1983), ACS Hospital v. Montefiore, 732 F.2d 1572, 1577 (Fed. Cir. 1984), Lindemann v. American Hoist, 730 F.2d 1452, 1462 (Fed. Cir. 1984), Ashland Oil v. Delta Resins, 776 F.2d 281, 293 (Fed. Cir. 1985), Panduit v. Dennison, 774 F.2d 1082, 1093 (Fed. Cir. 1985), and more recently, Ecolochem v. Southern California Edison, (Fed. Cir. Case No. 99-1043, decided September 7, 2000), Cardiac Pacemakers v. St. Jude Medical, Fed. Cir. Case No. 02-1532, -1559, decided August 31, 2004, and Teleflex v. KSR International, Fed. Cir. Case No. 04-1152, decided January 6, 2005.

<sup>19</sup> See Dann v. Johnston, previously cited, in which the Court said "[I]t can be assumed that such a hypothetical person would have been aware both of the extensive use of data processing systems in the banking industry and of the system encompassed in the Dirks patent" (emphasis supplied) even though there was no such suggestion in the Dirks patent. By contrast, under Federal Circuit decisions, "motivation" is a "factual" issue for trial by a jury that must be proved by "clear and convincing evidence." See for example, Group One Ltd. v. Hallmark Cards, Inc., 407 F.3d 1297, 1304 (Fed. Cir. 2005); McGinley v. Franklin Sports, Inc., 262 F.3d 1339, 1351 (Fed. Cir. 2001).

<sup>20</sup> An example is the patent in Warner-Jenkinson v. Hilton Davis, 520 U.S. 17 (1997) that went to the Supreme Court on a "doctrine of equivalents" issue which was for the use of a commercially available filter to filter. Another example is the patent in Ecolochem v. Southern California Edison, previously cited, which, when the magic of patent claiming is penetrated, amounts to the use of an ion exchange resin to deionize water. And the patent in Teleflex v. KSR, also previously cited, involved the use with an adjustable accelerator pedal of an electronic position sensor that previously had been used with a non-adjustable accelerator pedal.

always relevant and always must be considered,<sup>21</sup> and which, if sufficiently present, can even render patentable inventions that are obvious by the statutory test.<sup>22</sup>

This second change by the Federal Circuit not only lowered the standard, but, by compounding the number of issues required to be discovered and tried, increased the cost and complexity of patent litigation, and injected uncertainty into the evaluation of patents because the only analysis prescribed by the Federal Circuit for weighing the newly relevant nonstatutory factors against a determination of obviousness under the statutory test is to consider the evidence "collectively," whatever that may mean.<sup>23</sup> Thus one cannot know in the absence of litigation and appeal to the Federal Circuit whether a patent that is obvious under the statutory test is nonetheless valid because of the presence of some undefined quantum of nonstatutory secondary factors.

Judge Easterbrook, of the 7th Circuit Court of Appeals and the University of Chicago, in his famous Texas Law Review article on antitrust, said, with respect to the antitrust Rule of Reason:

When everything is relevant, nothing is dispositive. Any one factor might or might not outweigh another, or all of the others, in the fact finder's contemplation. The formulation offers no help to businesses planning their conduct. Faced with a list of such imponderables, lawyers must engage in ceaseless discovery. (They might find something bearing on a factor, and the factor might be dispositive.) The higher the stakes, the more firms are willing to spend on discovery and litigation. The marginal week of discovery or

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<sup>21</sup> See Stratoflex v. Aeroquip, 713 F.2d 1530 (Fed. Cir. 1983) and Fromson v. Advance Offset Plate, 755 F.2d 1549 (Fed. Cir. 1985). Graham, Adams, and subsequent Supreme Court and regional Court of Appeals cases made it plain that nonstatutory factors, the so-called "secondary considerations," are only of conditional relevance in ascertaining whether the nonobviousness requirement has been met, to be considered only if there is doubt after application of the three-step statutory test. Also see Whelan, *A Critique of the Use of Secondary Considerations in Applying the Section 103 Nonobviousness Test For Patentability*, 28 B.C.L.Rev. 357 (1987) and Merges, *Commercial Success and Patent Standards: Economic Perspectives on Innovation*, 76 Cal.L.Rev. 805 (1988).

<sup>22</sup> No amount of "secondary considerations" could overcome a determination of obviousness under the three-step statutory test prescribed in the Supreme Court cases. This is not true of Federal Circuit cases which have ruled that evidence of secondary considerations must always be considered, and "may ... establish that an invention appearing to be obvious in light of prior art was not." Alco Standard v. TVA, 808 F.2d 1490, 1501 (Fed. Cir. 1986). See Simmons Fastener v. Illinois Tool Works, 739 F.2d 1573, 1575-76 (Fed. Cir. 1984) and Demaco v. von Langdorff, 851 F.2d 1387 (Fed. Cir. 1988). Also see Harris, *The Emerging Primacy of "Secondary Considerations" as Validity Ammunition: Has the Federal Circuit Gone Too Far?*, 71 J.Pat. & Trademark Off. Soc'y 185 (1989).

<sup>23</sup> See Simmons Fastener v. Illinois Tool Works, previously cited, at 1576. As with the "motivation" inquiry, the Federal Circuit has ruled that juries are properly entrusted with weighing and balancing primary and secondary factors bearing on patentability. Hallmark, 407 F.3d at 1304-06; McGinley, 262 F.3d at 1351.

trial just might mean a saving of a few millions or tens of millions of dollars. Litigation costs are the product of vague rules combined with high stakes, and nowhere is that combination more deadly than in antitrust litigation under the Rule of Reason.<sup>24</sup>

This statement is applicable with equal force to patent litigation and the standardless, everything relevant inquiry mandated by the Federal Circuit for the obviousness/nonobviousness question.

Another area of uncertainty is claim construction. The Supreme Court in Markman<sup>25</sup> affirmed a Federal Circuit decision that claim construction is a question of law for judges, and district court judges began holding "Markman hearings" to construe patent claims.

Unfortunately for the district court judges and those who had hoped this decision would bring clarity, the Federal Circuit accords no deference to claim construction decisions by district court judges, treating such decisions as purely "legal" in nature subject to de novo review at the Federal Circuit.<sup>26</sup> This has led many district court judges to hold only perfunctory "Markman hearings" since the Federal Circuit treats them as if they didn't exist.<sup>27</sup> Professor Merges is said to have suggested that claim construction may be a more difficult task than previously thought.<sup>28</sup> Another possibility is that claims susceptible to multiple interpretations are ambiguous, and the patents containing them should have been declared invalid for failing to comply with Sec. 112.<sup>29</sup>

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<sup>24</sup> Frank H. Easterbrook, *The Limits of Antitrust*, 63 Tex. L. Rev. 1, 12-13 (1983), quoted at 66 Antitrust Law Journal 787 (1998).

<sup>25</sup> Markman v. Westview Instruments, 517 U.S. 370 (1996).

<sup>26</sup> According to a 1998 report the Federal Circuit reversed 40 percent of district court claim construction decisions (See the June 15, 1998 National Law Journal). In addition, it was reported that the Federal Circuit reversed, in whole or in part, 53 percent of patent infringement decisions by district court judges. The 40% figure is consistent with figures reported in Judge Rader's dissenting opinion in Cybor v. FAS Technologies, Federal Circuit Case No. 96-1286, 1287, decided March 25, 1998, and in the certiorari petition filed on behalf of American Axle in Dana Corporation v. American Axle, Federal Circuit Case No. 04-1116, decided August 27, 2004.

<sup>27</sup> National Law Journal, January 15, 2001.

<sup>28</sup> Professor Merges is on the faculty of the law school at the University of California at Berkeley and is the author of *As Many As Six Impossible Patents Before Breakfast: Property Rights for Business Concepts and Patent Reform*, previously cited.

<sup>29</sup> 35 U.S.C. Sec. 112 requires that "The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention."

The uncertainties that exist in U.S. patent law, those introduced by the Federal Circuit and those that were already there, are perhaps its worst failing. Any legal regime is supposed to inform those affected by it of their rights and duties in advance so they can act accordingly. Our system of patent laws certainly fails that test!

The Polaroid v. Kodak case illustrates the uncertainty that now pervades U.S. patent law. Kodak was found to have followed “a patent clearance process that could serve as a model for what the law requires.”<sup>30</sup> Yet Kodak lost on 7 of the 12 patents in suit for a 0.417 “batting average.” Uncertainty has certainly triumphed when the best a “model process” can do is 0.417.

The third area of change by the Federal Circuit that affects innovation is excessive damages. The statute (35 U.S.C. Sec. 284) states that damages are to be “adequate to compensate for the infringement, but in no event less than a reasonable royalty.” The Supreme Court, in the Aro case,<sup>31</sup> told us this means that patent damages are to be:

[T]he difference between [the patentee's] pecuniary condition after the infringement, and what his [pecuniary] position would have been if the infringement had not occurred.”

That is to say the object of the patent damages statute is to restore the patentee to the position he or she would have enjoyed had there been no infringement.

However, damages determined in accordance with decisions of the Federal Circuit frequently place the patentee in a better position than if the infringement had never occurred.

Just one example should suffice. Federal Circuit cases require that the patentee recover lost profits damages on the infringer's sales the patentee would have made in the absence of the infringement (i.e., on the “but for” assumption that the infringer was absent from the market), and, in addition, award reasonable royalty damages on the infringer’s sales the patentee could not have made (i.e., on the contrary “but for” assumption that the infringer was present in the market and licensed by the patentee). This “but-for” (“make believe”?) world in which the alleged

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<sup>30</sup> Polaroid v. Eastman Kodak, 16 USPQ2d 1481 (D. Mass 1990), at 1538.

<sup>31</sup> Aro v. Convertible Top, 377 U.S. 476 (1964).

infringer is simultaneously absent from and present in the market at the same time is not at all like the real world, which the Supreme Court in Aro said we are supposed to emulate. In the real world, licensing and not licensing are mutually exclusive, and the patentee does one or the other, but not both simultaneously.

A damages rule that would emulate the real world in accordance with the Supreme Court's decision in Aro would not combine lost profits and reasonable royalty damages as the Federal Circuit mandates, but instead would award the patentee his or her lost profits on their lost sales, or a reasonable royalty on all of the infringer's sales, whichever is greater, but not some combination of the two that is larger than either and which puts the patentee in better financial position than if the infringement had never occurred.

The Polaroid v. Kodak damages award combined lost profits and reasonable royalty, as mandated by the Federal Circuit, and the completeness of District Judge Mazzone's findings permits the excess to be determined.<sup>32</sup> A compensatory damages award would have been about \$197 million, based on a reasonable royalty on all of Kodak's sales at the royalty rate Judge Mazzone said would have been acceptable to Polaroid, since that was more than an award based on Polaroid's lost profits from its lost sales. So much for the Federal Circuit's belief that lost profits damages are always to be preferred.

But the district court believed it was required by Federal Circuit decisions to award damages that combined lost profits and reasonable royalties (and to impose a higher royalty rate than it said would have been acceptable to Polaroid), and the final judgment was for \$873 million (\$437 million damages, \$436 million prejudgment interest). Now the difference between \$873 million and the \$197 million that would have been adequate to compensate Polaroid is a lot of money and a real windfall, and gives patentees a tremendous incentive to sue rather than settle. The undoubted consequence is that a lot of patent infringement suits that

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<sup>32</sup> A complete analysis of the Polaroid damages award can be found at Quillen, *Innovation and the United States Patent System Today*, presented October 19, 1992 at Antitrust and Intellectual Property: Practice and Policy Issues for the 1990s, ABA Continuing Legal Education Institute.

should have settled, or never been brought, were pursued by patentees hoping to win the lottery.<sup>33</sup>

Turning now to the effect of these changes. With the advent of the Federal Circuit and the lowered standards brought by it, innovators could no longer rely on the courts to protect them from patent harm. Instead they had to engage in "self help" and seek patents on their once unpatentable inventions in the hope of preempting or blocking others.

I have included a couple of charts I used at Kodak to illustrate the thought process a company whose business depends on innovation should follow in deciding which inventions to seek to patent, and how that was changed by the Federal Circuit's lowered standards. This first chart illustrates the point that such a company should seek patents on those of its inventions on which patents can be obtained and which it might use commercially, or that its competitors might use commercially to compete with it. These, after all, are the only patents of value to a company whose business depends on innovation, and where the object is to offer new innovations with as little interference from others' patents as possible. This, of course, is the logic for defensive patenting.

[Chart 1 about here]

The chart changed with the lowered standards brought upon us by the Federal Circuit. And, as shown on this second chart, as the standards came down and more inventions became patentable, a "patentability gap" was created, and it became necessary for innovator companies to seek patents on their once unpatentable inventions in their effort to preempt competitors and block them from obtaining patents that could impede their innovations.

[Chart 2 about here]

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<sup>33</sup> A comprehensive critique of the economics of Federal Circuit damages law can be found in O'Brien, *Economics and Key Patent Damages Cases*, University of Baltimore Intellectual Property Law Journal, Vol. 9, No. 1 (Fall 2000). For a critique of just one facet of the Federal Circuit's approach see Quillen, *Income, Cash and Lost Profits Damages Awards in Patent Infringement Cases*, The Federal Circuit Bar Journal, Vol. 2, No. 2 (Summer 1992).

But their competitors had the same necessity to seek and obtain patents on their once unpatentable inventions. As a consequence, all filed more patent applications and obtained more patents. All had higher costs. No one obtained an advantage

The increase in application filings as a consequence of the lowered standards has been quite dramatic. This slide from a paper by Jon Merz and Nicholas Pace published in 1994 shows the increase in application filings, patent grants, and patent lawsuits that followed formation of the Federal Circuit in 1982.

[Merz and Pace slide titled Trends in Patent Litigation about here]

And this slide based on data from USPTO Annual Reports shows that increased application filings have continued unabated through 2005.

[U.S. Patent Applications Filed (1973-2005) about here]

These additional filings are a direct consequence of the Federal Circuit's lowered standards for patentability that made it necessary for innovators to file more patent applications than otherwise would have been required had higher standards prevailed.

The increased application filings, given the lack of rigor by the U.S. Patent Office, have resulted in more patents, as shown on the previous Merz and Pace slide, and on this slide, which shows the continued increase in allowances and grants through 2005. Clearly the "patent thicket" has thickened.

[U.S. Allowances and Patent Grants (1973-2005) about here]

The increased numbers of patents resulting from the increased filings and lowered standards mean that innovators face more patents of others that must be considered for possible infringements and dealt with in the course of commercializing their innovations.<sup>34</sup> This means

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<sup>34</sup> The decline in allowances and grants after 2003 is not a consequence of increased rigor at the USPTO but rather reflects an increase of more than 200,000 in the USPTO backlog of pending applications, from 674,691 in 2003 to 885,002 in 2005.

more infringement studies,<sup>35</sup> more validity investigations, more consultations with outside patent advisers, and, of course, more licensing, since patents that once could safely have been disregarded as not infringed or invalid can no longer be ignored.<sup>36</sup> And sometimes it has meant no new product or process, because a license is unavailable or too costly, even though the patent is one that would have been invalid under the prior, higher standards.

The result is increased costs for innovators. In order to get more patents, and do more infringement and validity studies, one has to employ more patent attorneys. More frequent consultations with outside patent advisers mean higher legal fees. And to take (and grant) more licenses, one has to increase the size of one's licensing staff -- and pay more and larger licensing fees. And perhaps one has to defend more infringement suits as well.

Turning now to the increased uncertainty and the costs it imposes, there are two effects to be taken into account, one easily quantified, and a larger one, not so easily quantified.

The more easily quantified of the two is the increase in the amount and cost of patent litigation, since answers to many of the questions, e.g., whether there is infringement, or whether the nonstatutory secondary factors trump a determination of obviousness under the statutory test, are uncertain and cannot be known in the absence of litigation and appeal to the Federal Circuit. That uncertainty, and the risk of excessive, possibly crippling damages, combine to make patent lawsuits and threats thereof frequent instruments of extortion.

Merz and Pace documented this increase in patent litigation and tied it directly to the Federal Circuit. This slide, also from their 1994 paper, shows the statistical line through the “cloud” of monthly litigation filings.

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<sup>35</sup> In some industries this task has become so overwhelming that infringement studies are seldom done in the expectation that the threat of reciprocal litigation can induce cross-licensing if infringement issues ever arise. See Hall and Ziedonis, *The Patent Paradox Revisited: An Empirical Study of Patenting in the U.S. Semiconductor Industry, 1979-95*, RAND Journal of Economics, Vol. 32, No. 1 (Spring 2001).

<sup>36</sup> In the semiconductor industry studied by Hall and Ziedonis, previously cited, bilateral field-of-use portfolio cross licenses are frequently used to eliminate patent issues in advance. Such cross licensing is employed in other industries as well. The effect of such bilateral field-of-use cross licenses is to render the patent system irrelevant, at least for a time, as between the parties to the cross licenses.

[Merz and Pace Monthly Patent Litigation slide about here]

The essential facts are that the litigation line was flat (at about 70 cases per month, about 850 cases per year), until the Federal Circuit came into existence, jumped as a consequence, and has continued to rise ever since as shown by this slide from the recent book by Adam Jaffe and Josh Lerner, and has now reached nearly 3000 per year.<sup>37</sup>

[Jaffe and Lerner Number of Patent Suits Initiated slide about here]

This increased litigation, of course, must be paid for, and those costs manifest themselves as increased innovation costs.

The larger effect that is more difficult to quantify is the increased cost of capital for innovation investments resulting from the additional uncertainty. Financial markets deal with risk and uncertainty through the cost of capital. Capital costs are higher for risky and uncertain projects than for less risky, more certain projects. And for some projects the risk and uncertainty is so great that the cost of capital exceeds the expected return and the project does not get done.

The Polaroid v. Kodak case illustrates the effect of patent uncertainty on the cost of capital. The case was bifurcated and the liability decision was in 1985, five years before the initial damages judgment in 1990. During this interval there was uncertainty as to the amount Kodak would be required to pay. The damages judgment was announced in 1990 at \$905 million (later reduced to \$873 million), and the equity market value of Kodak immediately increased by \$921 million, \$16 million more than the announced amount of the judgment.<sup>38</sup>

Thus elimination of uncertainty as to the amount of damages Kodak would be required to pay was followed by an immediate increase in Kodak's equity value, and a corresponding

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<sup>37</sup> The Wall Street Journal for March 2, 2005 reports that 2,978 patent suits were filed in the U.S. in the 12 months ended March 31, 2004. For an analysis of the growth in patent litigation from 1990 through 2000 see Prakash-Canjels, *Trends in Patent Cases: 1990-2000*, Idea-The Journal of Law and Technology, Vol. 41, No. 2 (2001).

<sup>38</sup> Demasi, *Essays on the Effects of Public Policy*, Harvard University Thesis for Ph.D. in Economics, page 50 (1991).

decrease in the cost of Kodak's equity capital. Given that Kodak's equity value was \$11.2 billion immediately prior to the judgment, this was a decrease of about 8% in the cost of Kodak's equity capital. Imagine the savings if Kodak's cost of capital had been 8% less for the entire fifteen years the Polaroid litigation was pending, or even the five-year interval between the liability judgment and the initial damages decision. These are astonishing sums and give some appreciation of the additional cost of capital for innovation investments caused by the uncertainty that pervades our present patent system.

The consequence of increased innovation costs can be illustrated with a couple of charts from Economics 101.

If the law of supply and demand applies to innovation -- and it almost certainly does -- this chart illustrates how the equilibrium quantity of innovation in any economy might be determined. This is a conventional supply-demand chart, and the intersection of the demand curve and the marginal cost (supply) curve determines the equilibrium quantity, and cost/price of innovation.

[Innovation Chart 3 about here]

And, if through our patent system we have increased the cost of innovation, then this second chart illustrates the inevitable result. The intersection of the demand curve and the marginal cost curve moves up (higher cost/price) and to the left (reduced quantity). We get less innovation, and it costs us more.

[Innovation Chart 4 about here]

The next question is how did we get here. To answer that, we need to go back long before creation of the Federal Circuit. There has always been a symbiotic relationship between the Patent Office and those who practice before it. Each has depended on the other for their livelihoods. The way it worked was that the each year the Patent Office would issue a few more patents, which would require a few more patent applications, which would require a few more patent attorneys and patent examiners, and on and on and on. The gradual growth in the

numbers of patent applications (and patents) from 1840 until about 1982, when the Federal Circuit came into existence, as well as the explosion that followed, is shown in this slide from the Jaffe and Lerner book.

[Jaffe and Lerner Annual Patent Applications and Awards slide about here]

The gradual increases in the numbers of patents and patent applications, and the consequent growth in the need for more patent attorneys and patent bureaucrats and examiners, assured job security and attractive incomes for all, and also assured that none had the slightest interest in changing the system.

The Supreme Court and the Courts of Appeals, however, applied substantially higher standards, and regularly admonished the Patent Office to follow. The Supreme Court's admonition in Graham is typical:

We have observed a notorious difference between the standards applied by the Patent Office and by the courts. While many reasons can be adduced to explain this discrepancy, one may well be the free rein often exercised by Examiners in their use of the concept of "invention." In this connection we note that the Patent Office is confronted with a most difficult task. Almost 100,000 applications for patents are filed each year. Of these 50,000 are granted and the backlog now runs well over 200,000. [Citation omitted] This is itself a compelling reason for the Commissioner to strictly adhere to the 1952 Act as interpreted here. This would, we believe, not only expedite disposition but bring about a closer concurrence between administrative and judicial precedent.<sup>39</sup>

Such judicial admonitions hung like a "Sword of Damocles" over the "patent crowd," the patent attorneys and patent bureaucrats and examiners whose jobs and incomes depended on filing patent applications and granting patents. Had the Patent Office ever followed the Supreme Court's admonition and strictly adhered to the 1952 Act as interpreted in Graham, the number of patents would have been reduced, perhaps by as much as two-thirds, with the consequence that the number of patent applications soon would have been reduced by a similar amount.<sup>40</sup> And,

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<sup>39</sup> Graham, 383 U.S. 1, at 27-28.

<sup>40</sup> Recall the 65.7% invalidity rate found by Koenig, previously cited.

with fewer patent applications, the number of patent attorneys and patent bureaucrats and examiners would have been reduced as well.

But opportunity presented itself in the late 1970s with a proposal to merge the Court of Customs & Patent Appeals (CCPA) and the Court of Claims into a new Federal appellate court with exclusive jurisdiction over all patent appeals, and several other areas of Federal law. The CCPA heard appeals from the Patent Office, and had always managed to ignore the high standards prescribed by the Supreme Court. As the proposal progressed, all except patent appeals and a few specialized areas of Federal law escaped the jurisdiction of the proposed new appellate court.

The patent bar was split, to an extent. The Washington patent bar and most corporate patent attorneys (who for the most part determined the positions of their employers) were strongly in favor of the proposed new court. These were the people who made their livings practicing before the Patent Office, and whose incomes were most in jeopardy if the Patent Office ever followed the Supreme Court's admonitions. But, if the new court turned out to be dominated by the CCPA, then it too might evade the Supreme Court's high standards, just as the CCPA had done, with the result there would no longer be judicial pressure on the Patent Office to adopt higher standards.

Private patent practitioners outside of Washington, who did patent litigation in the regular Circuit Courts of Appeals, were less enthusiastic. The chairman of the ABA Litigation Section characterized the proposal for a specialist patent court as "A solution in search of a problem." And there was a concern that creating such a court in Washington might make Washington the center of the "patent universe," to the disadvantage of those outside Washington.

The debate, of course, was not conducted in such crass terms. The proponents pointed to circuit-to-circuit variations in the outcome of patent cases, and even claimed, incorrectly, there was one circuit that had never found a patent valid. Neither the variation in outcomes nor the possibility of the absence of a valid patent in one of the circuits should have been surprising given that there was very little patent litigation in those days, and, with only about 1/3 of

litigated patents being valid, there just weren't enough valid patents to go around among the eleven Circuit Courts of Appeals then existing.<sup>41</sup>

Another claim by the proponents was that circuit-to-circuit variations led to forum shopping that resulted in "unseemly" races to the courthouse that would be eliminated by creation of a single appellate court for patent cases. This assertion was untrue. Forum shopping was not a problem.<sup>42</sup> And even if true and a problem, it could have been remedied by amendment of the venue and declaratory judgment statutes, and did not require a new court. This assertion has turned out to be among the most persistent of the propaganda "spun" by the proponents of the combined specialist court, and even today is repeated by people who should know better.<sup>43</sup>

A further claim was that the Supreme Court had paid insufficient attention to patent law. This too was false. The Supreme Court had revisited and reaffirmed the nonobviousness standard of Graham and Adams on at least three subsequent occasions.<sup>44</sup> As of the commencement of the debate regarding formation of the Federal Circuit, there were no significant patent law issues that had not recently been dealt with by the Supreme Court,<sup>45</sup> save for one or two not yet ripe for Supreme Court review. The Supreme Court problem for the proponents was its decisions imposing high standards that were being followed by the Circuit

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<sup>41</sup> There was never any showing that the variability in outcomes was anything other than normal statistical variation.

<sup>42</sup> In the Koenig study, previously cited, the 10<sup>th</sup> Circuit was the most favorable to patentees with a 59.6% validity rate and the 8<sup>th</sup> Circuit was the most favorable to alleged infringers with an 88.8% invalidity rate. Had forum shopping been a problem these two circuits would have been swamped with patent litigation initiated by patentees and alleged infringers seeking the most favorable jurisdictions for their cases. But these two Courts had fewer patent validity/invalidity decisions over the 1953-1977 time span than any other court except the Circuit Court for the District of Columbia. See Table 15 of Koenig at page 4-32. Together the 8<sup>th</sup> Circuit and 10<sup>th</sup> Circuit had only 8% of the validity decisions. (8<sup>th</sup> Circuit, 4.1%, 10<sup>th</sup> Circuit, 3.9%).

<sup>43</sup> The Jaffe-Lerner book, at page 9, repeats a fanciful and colorful tale of foot races at the USPTO on issue day between patentees and potential infringers to be first to the pay phones to instruct their lawyers to file suit. This didn't happen! It was unnecessary for patentees, who had advance notice from the USPTO of the issue date and patent number for their patents, and was legally impossible for potential infringers given the constitutional requirement for an actual threat of litigation to support a declaratory judgment action. But the fact that two competent scholars repeat this fiction in a serious book is testimony to the power of the propaganda.

<sup>44</sup> See Anderson's-Black Rock, Dann v. Johnston, and Sakraida v. Ag Pro, all previously cited.

<sup>45</sup> Dann v. Johnston and Sakraida were decided in 1976, contemporaneous with commencement of the discussion that resulted in the proposal to create the Federal Circuit.

Courts of Appeals and which, if ever followed by the Patent Office, would have resulted in fewer patents and patent applications, and thus less work for them.<sup>46</sup>

The legislation passed and the Federal Circuit began its work on October 1, 1982. It immediately fulfilled the hopes of its proponents. The standards for patentability were promptly lowered, and the "Sword of Damocles" that had threatened the jobs of patent attorneys and patent bureaucrats and examiners was removed. The Federal Circuit decisions that mandated consideration of the non-statutory secondary factors (which introduced additional uncertainty into patent litigation), and those which mandated excessive damages awards, assured there would be more patent litigation, and that it would be more complicated and more costly, all to the benefit of the litigating attorneys who conducted it, including those outside Washington who had feared what the new court might do to them.

The reward for those who advocated creation of the Federal Circuit is illustrated by this chart from a paper by John Barton<sup>47</sup> that shows the ratio, over time, of the number of intellectual property lawyers in the United States to research and development expenditures in the United States.

[Barton's IP Lawyer to R&D ratio slide about here]

It is obvious that the growth in IP lawyers following creation of the Federal Circuit has vastly exceeded growth in R&D expenditures. These additional lawyers are required to file the additional patent applications made necessary by the lowered standards brought to us by the Federal Circuit, to evaluate the increased numbers of patents that result from the lowered standards, and to deal with the additional litigation that results from the additional uncertainty and excessive damages.

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<sup>46</sup> Janicke, *To Be or Not to Be: The Long Gestation of the U.S. Court of Appeals for the Federal Circuit (1887-1982)*, *Antitrust Law Journal*, Vol. 69, pp. 645-667 (2002), can be read as a confession that the "patent crowd" supported the proposed new appellate court in the hope of deliverance from the Supreme Court's high standards rather than for the reasons given by them at the time, and as an assertion that the new court (the Federal Circuit) ignored (or defied) the Supreme Court as its proponents had hoped. See pp. 660-662 for Janicke's catalogue of Federal Circuit deviations from Supreme Court precedent.

<sup>47</sup> Barton, *Reforming the Patent System*, *Science*, Vol. 287, No. 5460, pages 1933-1934 (2000). Mr. Barton is the George E. Osborne Professor of Law, Emeritus, at Stanford Law School.

The Patent Office, with the blessing of the Federal Circuit, has continued to expand the scope of its activities, and job opportunities for its employees, those who practice before it, and those who litigate its results. We now have patents on computer software per se and business methods solely as a result of administrative and judicial decisions, and without any legislative determination that those industries were suffering from a lack of innovation, or that they would benefit from having the patent system and its costs imposed on them.<sup>48</sup>

The U.S. Patent Office does not set the standards for patentability in the United States, but is obliged to follow those prescribed by the Federal Circuit. Studies by myself and others tracking examination performance of the Patent Office over time found that USPTO examination standards declined rapidly following the advent of the Federal Circuit and the lowered standards promulgated by it.<sup>49</sup> This is not surprising given the relative roles of the Federal Circuit and the USPTO (the Federal Circuit has appellate supervision over the USPTO), but does suggest that at least some of the current criticism of the USPTO is misplaced and should be aimed at the Federal Circuit instead, and that "fixes" aimed at the USPTO (rather than the Federal Circuit) are likely to be ineffective.

We also found examination performance at the European Patent Office (EPO) and Japanese Patent Office (JPO) to be more rigorous than at the U.S. Patent Office. This too should not be surprising given that standards for patentability in Europe and Japan, which the EPO and JPO, respectively, are obliged to apply, have not been lowered as have standards in the United States. For example, the U.K. House of Lords, in Sabaf v. MFI, following European law, applied a patentability analysis virtually identical to that of the U.S. Supreme Court in Graham, Adams,

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<sup>48</sup> See Hunt, *You Can Patent That? Are Patents on Computer Programs and Business Methods Good for the New Economy*, Q1 2001 Business Review, Federal Reserve Bank of Philadelphia, page 5. For a quantitative assessment of software innovation following the availability of software patents, see Bessen and Maskin, *Sequential Innovation, Patents and Imitation*, MIT Dept. of Economics Working Paper No. 00-01, available at SSRN: <http://ssrn.com/abstract=206189>. Also see Bessen and Hunt, *An Empirical Look at Software Patents (March 2004)*, FRB of Philadelphia Working Paper No. 03-17, Available at SSRN: <http://ssrn.com/abstract=461701>.

<sup>49</sup> Quillen, Webster, and Eichmann, *Continuing Patent Applications and Performance of the U.S. Patent and Trademark Office – Extended*, The Federal Circuit Bar Journal, Vol. 12, No. 1 (August 2002), and Quillen and Webster, *Continuing Patent Applications and Performance of the U.S. Patent and Trademark Office – Updated*, forthcoming in the May, 2006 issue of The Federal Circuit Bar Journal. See also Quillen and Webster, *Continuing Applications and Performance of the U.S. Patent and Trademark Office*, The Federal Circuit Bar Journal, Vol. 11, No. 1 (August 2001),

and the subsequent Supreme Court cases.<sup>50</sup> And a study published in 2004 by the Organization for Economic Co-Operation and Development (OECD) found that during the 1980s and 1990s grant rates for patents applied for at both the USPTO and the EPO (i.e., for essentially the same application population) were around 30 percentage points higher at the USPTO than at the EPO, suggesting lower patenting requirements in the United States.<sup>51</sup> These findings of the OECD study are consistent with and confirmed by findings in later studies by Stuart Graham and Dietmar Harhoff, and by Paul Jensen, Alfons Palangkaraya and Elizabeth Webster.<sup>52</sup>

I should also point out the absence from our patent system of the self-correcting structure that applies to other areas of American federal law. Under the normal structure of our Federal court system neither a regional Circuit Court of Appeals nor the district courts within a region are constrained by a decision of another Circuit Court of Appeals. Issues that have been decided by one of the Circuit Courts of Appeals can be reconsidered on their merits when they subsequently arise in another circuit. Eventually, if the Circuit Courts disagree, the Supreme Court can take a case that presents the issue as to which the circuits have split and resolve the matter confident that all sides of the issue have been debated time and again, and that it will hear the most compelling arguments, and have a reasonable opportunity for reaching the right result.

However, in our current patent system, once the Federal Circuit has decided a case, there is no opportunity for alternative views to develop free of the constraints of stare decisis, and it is a rare district court judge who will disagree with the Federal Circuit knowing his or her judgment may be appealed to it. In fact, I know of only one, and it was not a district judge but rather Judge Easterbrook of the 7th Circuit, the same Judge Easterbrook who was quoted earlier.

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<sup>50</sup> The Sabaf case is available at <http://www.publications.parliament.uk/pa/ld200304/ldjudgmt/jd041014/sabaf.pdf>.

<sup>51</sup> The OECD report is available at <http://www.oecd.org/dataoecd/48/12/24508541.pdf>.

<sup>52</sup> Graham and Harhoff found that only 80.3% of European patent applications corresponding to a group of litigated U.S. patents were granted by the European Patent Office (EPO), and only 67.9% of European applications corresponding to a group of non-litigated U.S. patents were granted. See Graham and Harhoff, *Would the U.S. Benefit from Patent Post-Grant Reviews? Evidence from a 'Twinning' Study*, copy on file. Jensen et al found that only 72.5% of EPO applications and 44.5% of Japanese Patent Office (JPO) applications corresponding to a selection of ~70,000 United States patents were granted by the EPO and JPO, respectively. See Jensen et al, *Disharmony in International Patent Office Decisions*, forthcoming in the May 2006 issue of The Federal Circuit Bar Journal.

The case was Grain Processing v. American Maize and Judge Easterbrook tried the damages part of the case after the death of the district judge who had tried liability. Judge Easterbrook decided the patentee was not entitled to lost profits, and that the reasonable royalty to which the patentee was entitled should be no more than the additional cost for manufacturing a noninfringing substitute. The case was appealed to the Federal Circuit, which reversed on the basis that the noninfringing substitute was not commercially available to the defendant during the infringement period and did not have all the features of the patented product.

Judge Easterbrook did not follow the Federal Circuit when the case was returned. Instead he wrote a second opinion in which, in very polite judge-talk, he said he was right the first time, that the Federal Circuit was wrong in reversing him and didn't even understand its own cases, and that he was re-entering his earlier judgment. The case was appealed again. The second time around the Federal Circuit, either convinced by Judge Easterbrook's logic or intimidated by his reputation, did not follow its earlier decision, but instead reversed itself and affirmed Judge Easterbrook.

Judge Easterbrook's second opinion, the one written in polite judge-talk that was affirmed by the Federal Circuit is a treasure!<sup>53</sup> It should be read by everyone.

The important point of course is that U.S. patent law should be given the benefit of the same self-correcting structure that governs other areas of American federal law, and not have to rely on super-courageous district court judges (or Court of Appeals judges sitting by designation) to correct erroneous doctrine promulgated by the Federal Circuit.

Now for my recommendations:<sup>54</sup>

1. We need to undo the Federal Circuit's misinterpretations of Graham, Adams, and the subsequent Supreme Court obviousness/nonobviousness cases, and restore the higher, more certain standards mandated by those cases that prevailed prior to the advent of the Federal

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<sup>53</sup> Judge Easterbrook's second opinion, the one written in polite judge talk, can be found at 979 F. Supp. 1233 (1997). The Federal Circuit opinion affirming Judge Easterbrook is at 51 USPQ2d 1556 (Fed. Cir. 1999).

<sup>54</sup> Many of these recommendations can be found in my earlier article, *Proposal for the Simplification and Reform of the United States Patent System*, 21 AIPLA Q.J. 189-212 (1993).

Circuit.<sup>55</sup> We also need to implement economically sound damages law consistent with the Supreme Court's Aro decision. The best way for doing this would be to return exclusive appellate jurisdiction in patent infringement cases to the regular Courts of Appeals, which are not as likely as the Federal Circuit to ignore Supreme Court precedent. Such a restoration of exclusive appellate jurisdiction to the regular Courts of Appeals would have the additional virtue of returning patent law to the legal mainstream, and patent appeals would again be heard by courts that regularly deal with significant questions of economic policy and thus afford the opportunity for patent policy to be made by judges familiar with a broader economic context. Equally important, the return of appellate jurisdiction to the regular Circuit Courts of Appeals would restore to U.S. patent law the self-correcting judicial structure that governs other areas of federal law, and the Supreme Court could again become the final arbiter of innovation policy involving patents, but would face those issues only after arguments on all sides had been developed and articulated in at least two of the regular Courts of Appeals.

2. The USPTO should be required to adhere to the restored higher standards. The ability of the USPTO to do this would be greatly aided by abolition of all continuing applications and Requests for Continued Examination (RCEs), except for Sec. 121 divisionals, so as to enable the USPTO to obtain final decisions as to the patentability of applications it has examined.<sup>56</sup> Of greater importance, continuing applications are a source of abuses that threaten the integrity of the U.S. patent system and should be abolished for that reason alone.<sup>57</sup> In addition, changes in

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<sup>55</sup> This could happen if the Supreme Court grants certiorari in the Teleflex v. KSR case, previously cited, and reverses the Federal Circuit, and reimposes the nonobviousness test prescribed in Graham v. John Deere and U.S. v. Adams, and the subsequent Supreme Court cases. The certiorari petition was filed on April 6, 2005. Amicus briefs in support of the KSR certiorari petition have been filed by a group of twenty-four leading intellectual property law professors, by an industry group that included Microsoft and Cisco Systems, among others, and by the Progress & Freedom Foundation.

<sup>56</sup> The ability for patent applicants to avoid a final decision as to the patentability of their applications by refiling a continuing application and restarting the examination process all over again is unique to the United States. Such refilings place the USPTO in the position of being able to rid itself of such persistent applicants only by allowing their refiled applications. This may account, at least to some extent, for the high Allowance and Patent Percentages and Grant Rates at the USPTO. Refiled continuing applications are rework for the USPTO and currently comprise more than 30% of its examination workload. Abolition of all continuing applications (including RCEs), except for divisional applications filed pursuant to 35 U.S.C. 121, would free-up examination resources currently devoted to the rework they impose and increase USPTO resources available for the examination of original applications by about 1/3 without any increase in staff or funding.

<sup>57</sup> See Lemley and Moore, *Ending Abuse of Patent Continuations*, 84 Boston U. Law Rev. 63 (2004), for a comprehensive catalogue of such abuses. See also Koker, *Patent Continuations: A Threat to the System*, Note forthcoming in Boston U. Journal of Science and Technology Law, for a further discussion of the abuses. Ms.

management expectations and policies and practices at the USPTO will also be necessary, perhaps even soliciting contributions of used science and engineering textbooks for distribution to and use by the examining corps.

3. We should eliminate remaining sources of unnecessary uncertainty, including:<sup>58</sup>

- 1). Return the statutory presumption of validity to the preponderance of the evidence standard that generally prevailed among the regular Circuit Courts of Appeals prior to the advent of the Federal Circuit.<sup>59</sup>
- 2). Abolish the doctrine of equivalents.<sup>60</sup>
- 3). Abolish entirely the nonstatutory “secondary factors” as indicators of nonobviousness.<sup>61</sup>
- 4). Publish all pending U.S. patent applications 18 months after their “effective” filing dates, unless the applicant chooses to abandon the application prior to publication and requests that it not be published.
- 5). Adopt a “first inventor to file” system," except provide by statute an affirmative "prior independent inventor" noninfringement defense that there is no infringement if the accused article or process (or the feature that causes it to be accused) was actually reduced to practice by the alleged infringer prior to the effective filing date of the asserted patent.<sup>62</sup>

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Koker notes that patent continuations serve no useful purpose not otherwise available, and permit abuses that diminish public faith and confidence in the integrity of the U.S. patent system. Both papers recommend abolition of all continuing applications except for Sec. 121 divisionals, although the Lemley and Moore paper recognizes the political difficulty of doing so and proposes lesser solutions as well.

<sup>58</sup> All of these recommendations are discussed in greater detail in my earlier article, *Proposal for the Simplification and Reform of the United States Patent System*, previously cited.

<sup>59</sup> This change most likely would become unnecessary if exclusive appellate jurisdiction is returned to the regular Circuit Courts of Appeals to the exclusion of the Federal Circuit.

<sup>60</sup> The doctrine of equivalents is the patent system's Catch-22. The diligent innovator who has found all of the patents potentially relevant to his or her proposed innovation, and has carefully designed the innovation so as to avoid all of the patents' claims (which are supposed to define the invention with particularity) is nonetheless at risk, and can be found to be an infringer even though the innovation is outside all of the patents' claims. Neither the innovator nor their advisors can know in advance whether the innovation will be found to be an infringement, and they must endure a lawsuit and wait until it is over for the answer.

<sup>61</sup> This change would eliminate some (but not all) of the unnecessary uncertainty that presently pervades our patent system, would simplify patent litigation, and reduce costs for innovators and patentees alike.

<sup>62</sup> The availability of this defense would minimize the need for innovators to file "defensive" patent applications only to assure their right to use their own work, which would reduce the USPTO's workload and free up the

6). Eliminate "hidden" prior art (e.g., Sec. 102(e), Sec. 102(g)), but provide an affirmative noninfringement defense, available to all, that there is no infringement if the accused article, process, or service (or the feature that causes it to be accused) is disclosed in or obvious in view of prior art to the asserted patent and any U.S. patent or published U.S. application having an effective filing date prior to the effective filing date of the asserted patent.

4. Undertake legislative reconsideration of the administrative/judicial decisions extending patentable subject matter beyond the "new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof" authorized by statute to include intangibles such as business methods, computer software per se, etc.<sup>63</sup>

Notice I said nothing about implementing an opposition system, which is the principal recommendation of the FTC and NRC that has been endorsed by the USPTO and the patent lawyer lobby groups. For reasons known only to them the FTC and NRC made no recommendations that would resolve the fundamental problem for the U.S. patent system, namely the Federal Circuit and the lowered and less certain standards for patentability promulgated it, or that would result in restoration of the higher, more certain standards that prevailed prior to the Federal Circuit. Changes that do not address this fundamental problem are simply "band-aids" that add additional costs and complexity to an already overly costly, excessively complex system. In the absence of restoration of such higher standards the proposed opposition tribunal will be obliged to apply the current lower Federal Circuit standards, and will approve, with the blessing of the Federal Circuit, patents that are no more than routine applications of textbook principles of science and engineering. The beneficiaries will again be patent attorneys and patent bureaucrats and examiners who will have more work to do and whose jobs will be made even more secure and remunerative. The proponents all agree that our

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examination resources now devoted to such defensive applications. This "prior independent inventor" noninfringement defense should be adopted even if we don't change to a "first-to-file" system! Why should a prior inventor/innovator be deprived of the opportunity to commercialize his or her own prior independent invention free and clear of the claims of a later patent applicant because he or she didn't seek a patent and the later applicant did? An alternative "cut off" date would be the publication date of the application on which the asserted patent was granted.

<sup>63</sup> This latter recommendation could become irrelevant depending on the Supreme Court's decision in Laboratory Corporation v. Metabolite Laboratories which is scheduled for argument and decision in the Court's 2006 term. The Federal Circuit decision in the case is reported at 370 F.3d 1354 (Fed. Cir. 2004).

reexamination system hasn't worked, but haven't told us how a USPTO that can't make reexaminations work will muster the management skills to make an even more complicated opposition system work. And besides, if we return appellate jurisdiction in patent infringement cases to the regular Courts of Appeals, and restore the higher and more certain standards for patentability that prevailed prior to the Federal Circuit, and the Patent Office can be made to apply those higher, more certain standards, then an opposition system might well prove unnecessary.

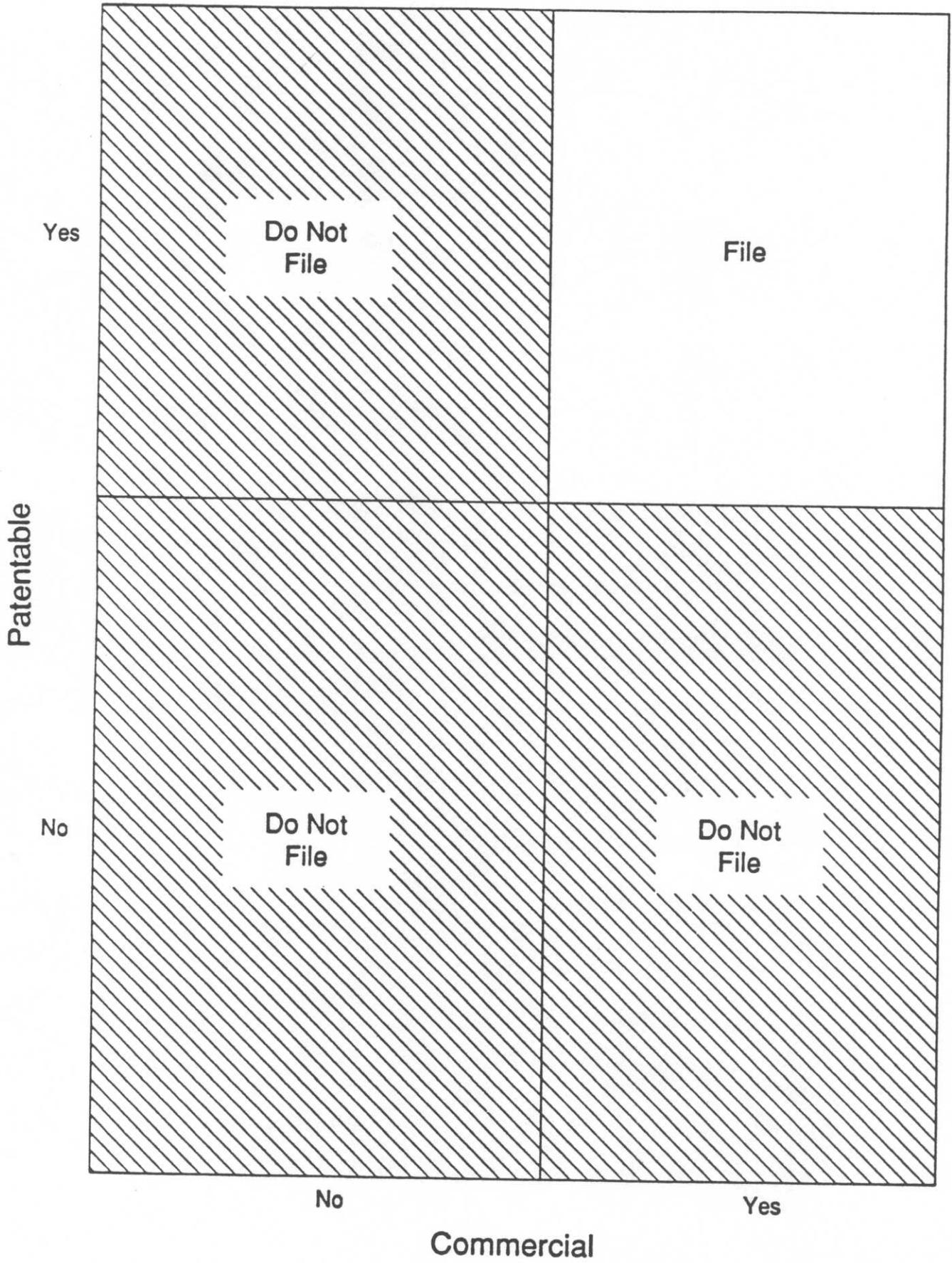
Slides for the ESSAY

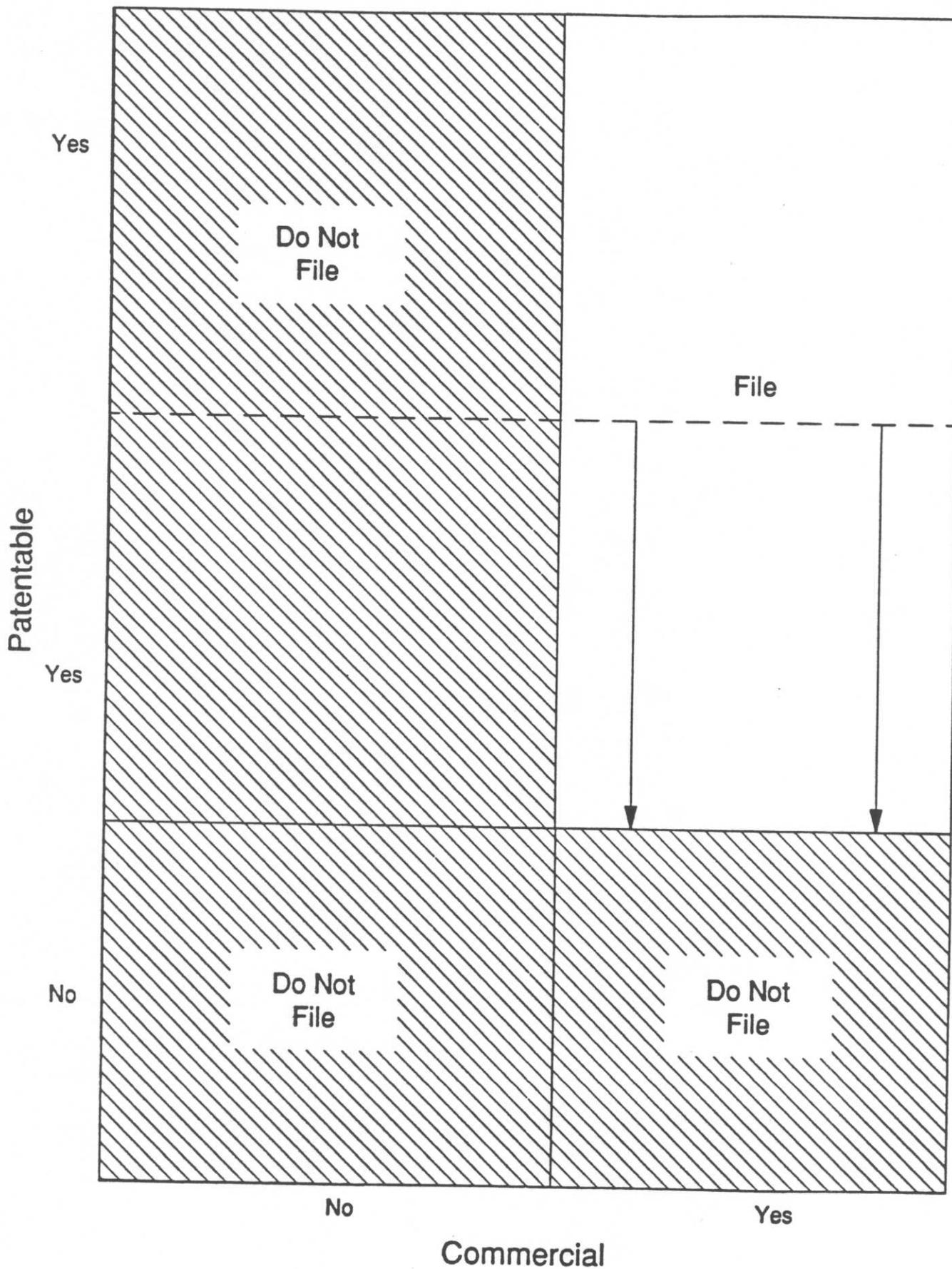
INNOVATION AND THE CURRENT U.S. PATENT SYSTEM

To Be Published in

VIRGINIA LAW & BUSINESS REVIEW

Chart 1





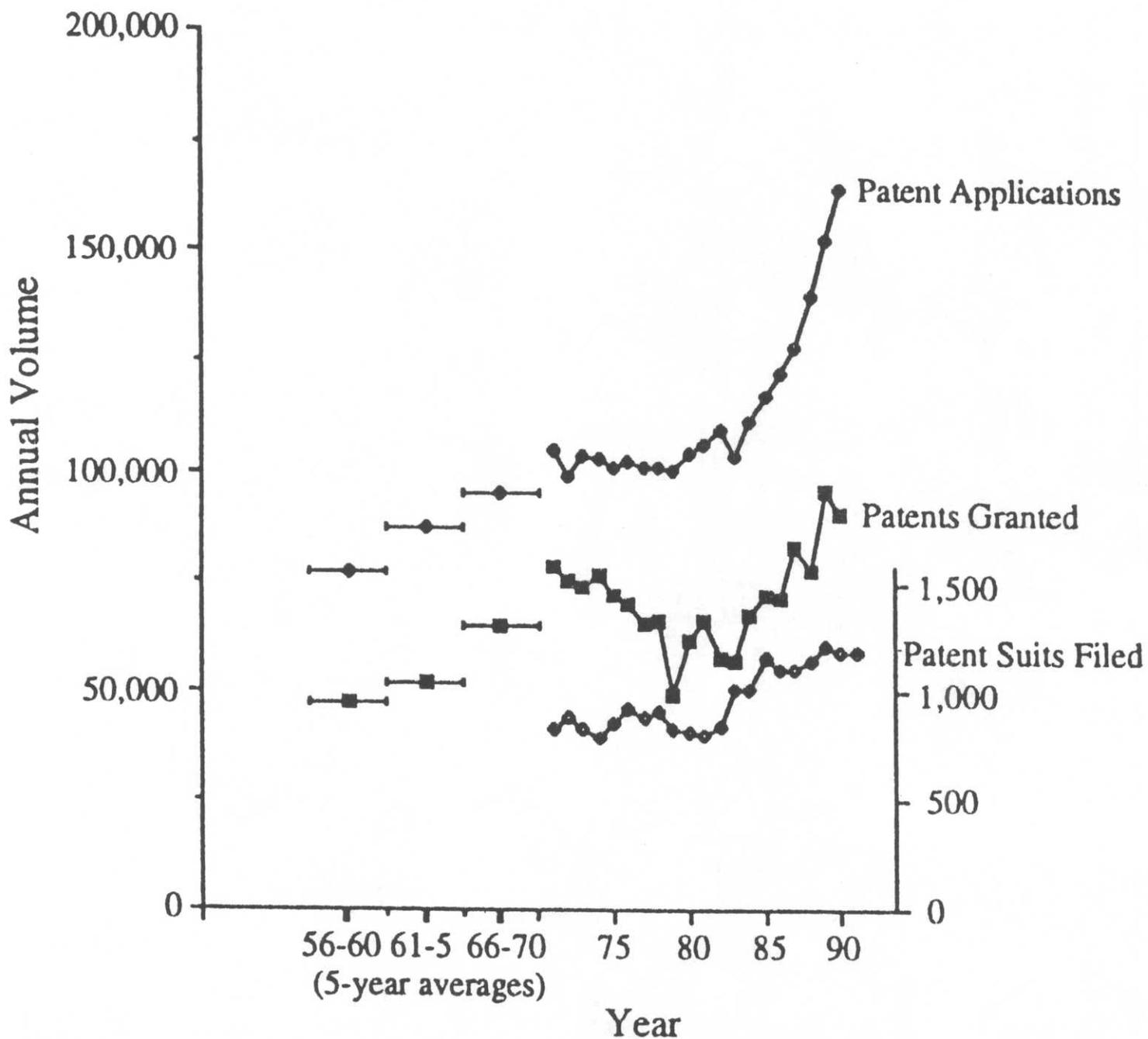
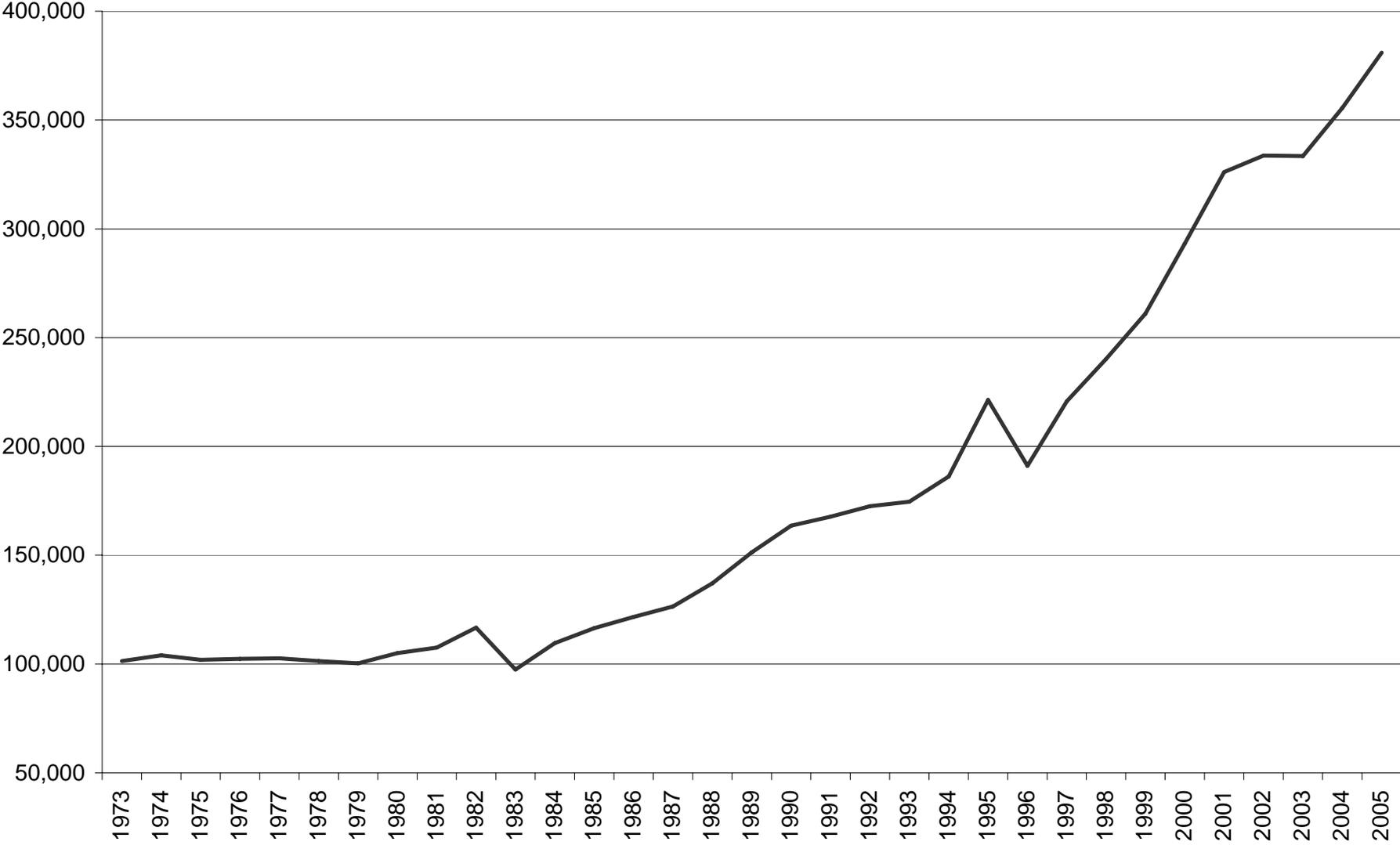
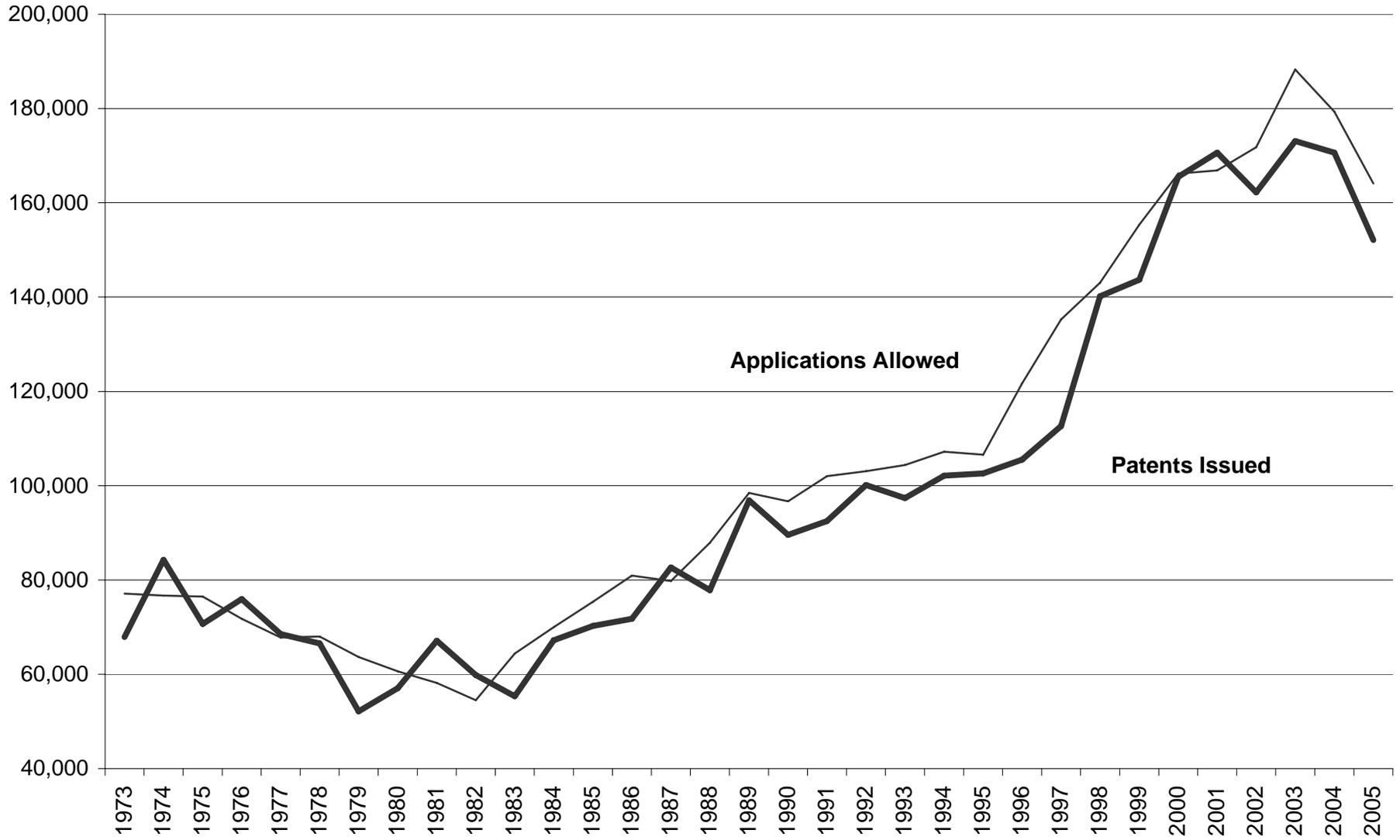


Figure 3 Utility patent grants and applications, 1956 through 1991 (calendar years), and patent suit filings for the period 1971 to 1991 (statistical years). Note that the left scale applies to the patenting activity curves and the right scale applies to patent litigation.

U.S. Patent Applications Filed (1973 - 2005)



**U.S. Application Allowances and Patent Grants (1973 - 2005)**



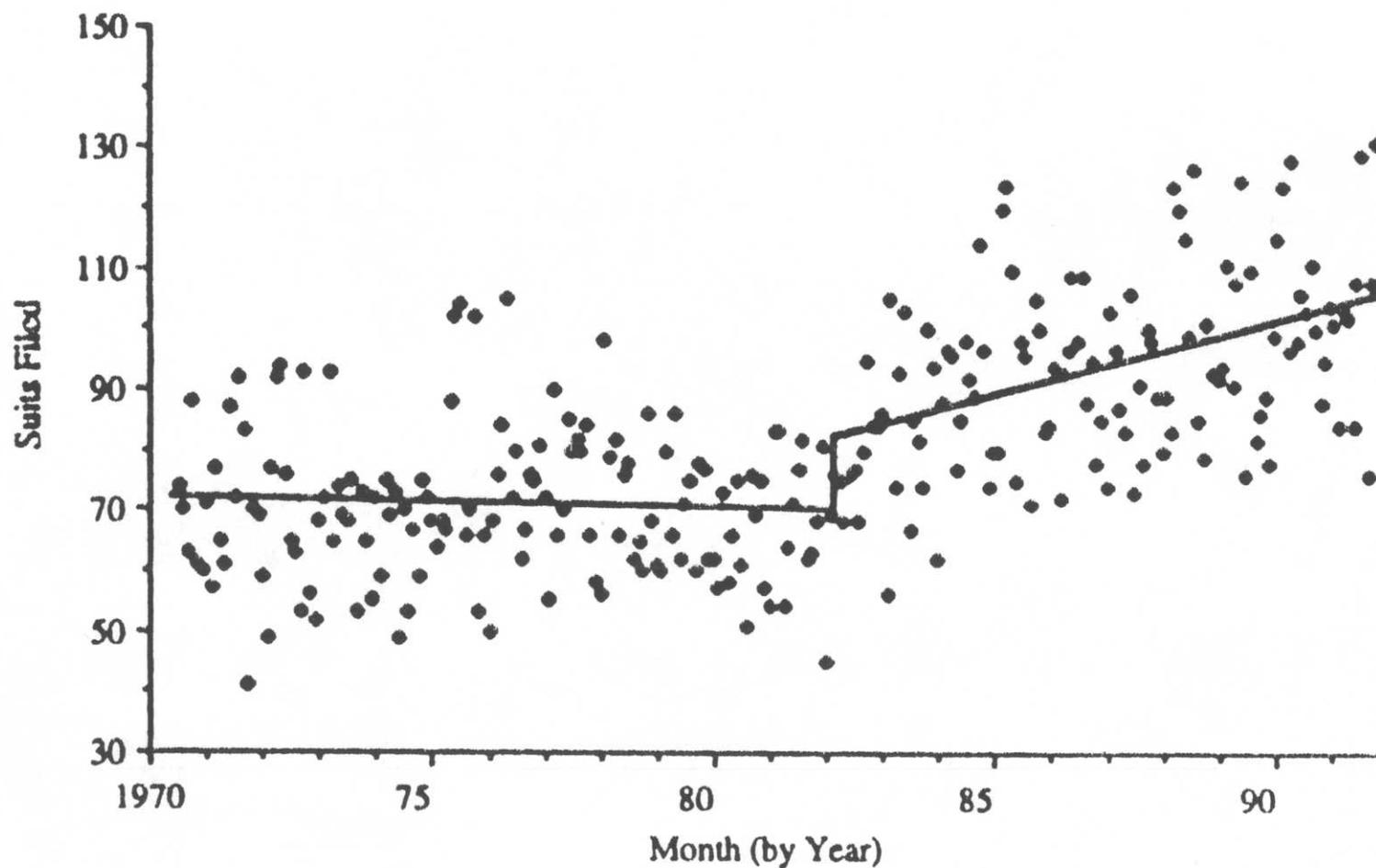
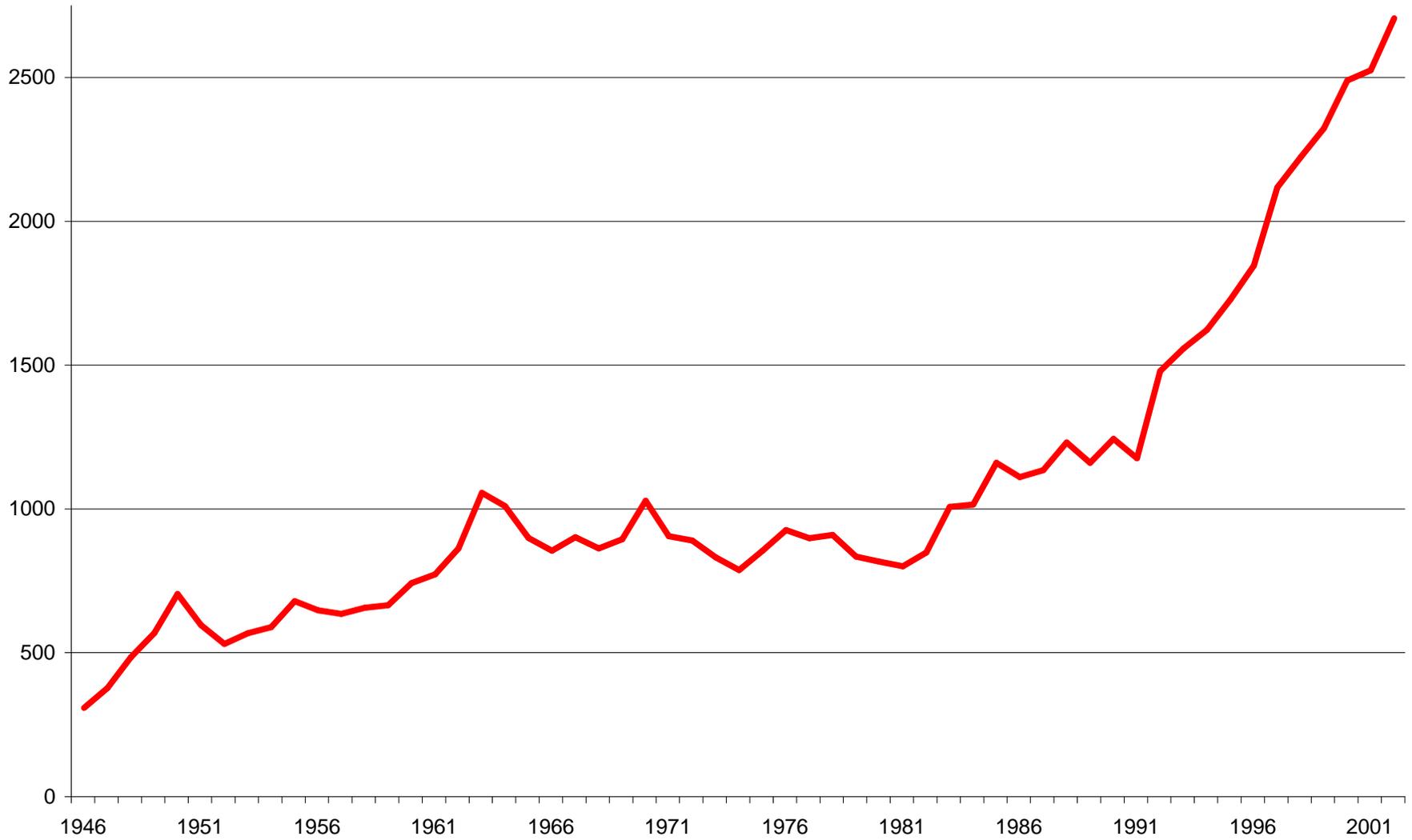
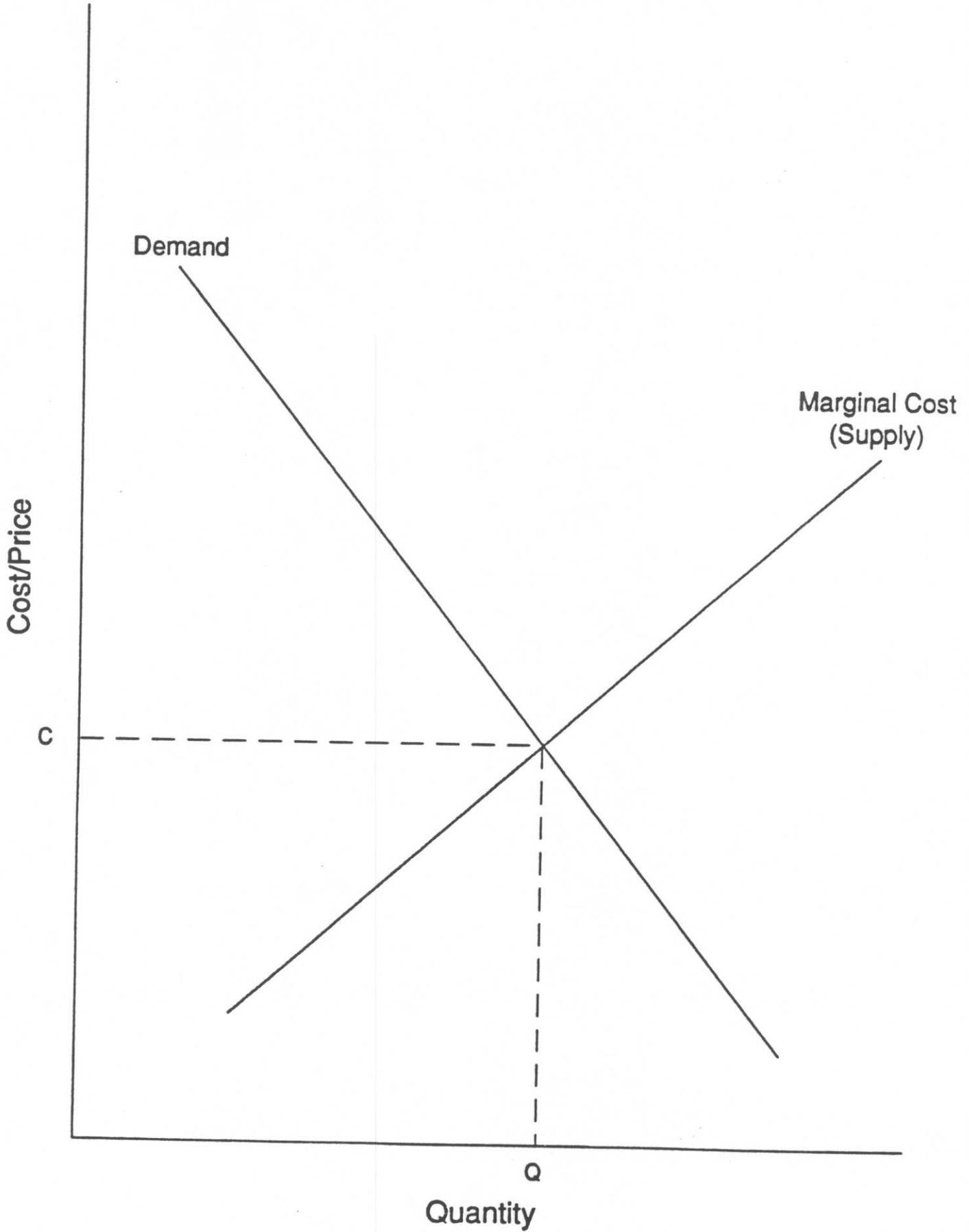


Figure 2 Monthly patent litigation, with fitted regression line.

I-2: Number of Patent Suits Initiated

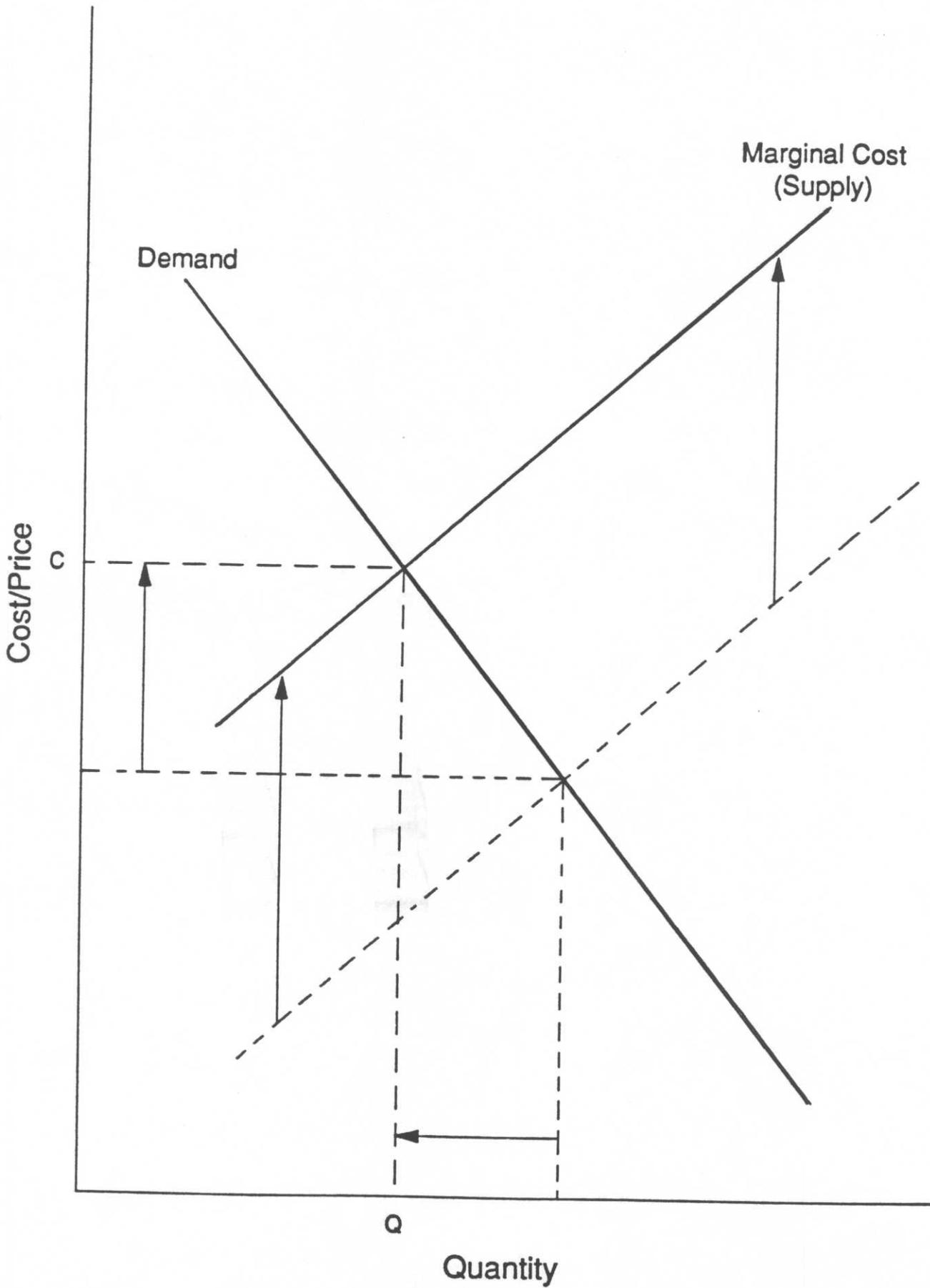


# Innovation

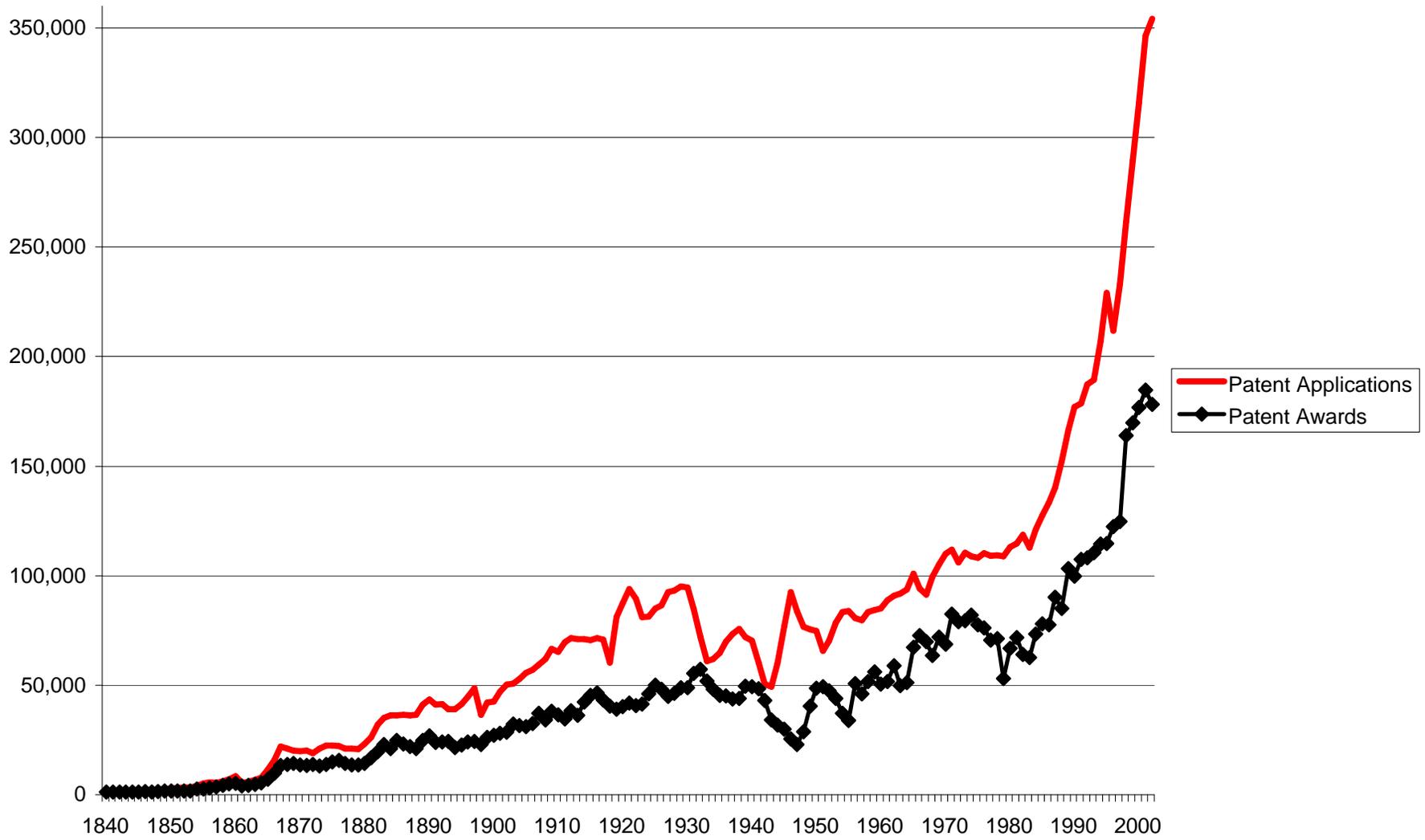


# Innovation

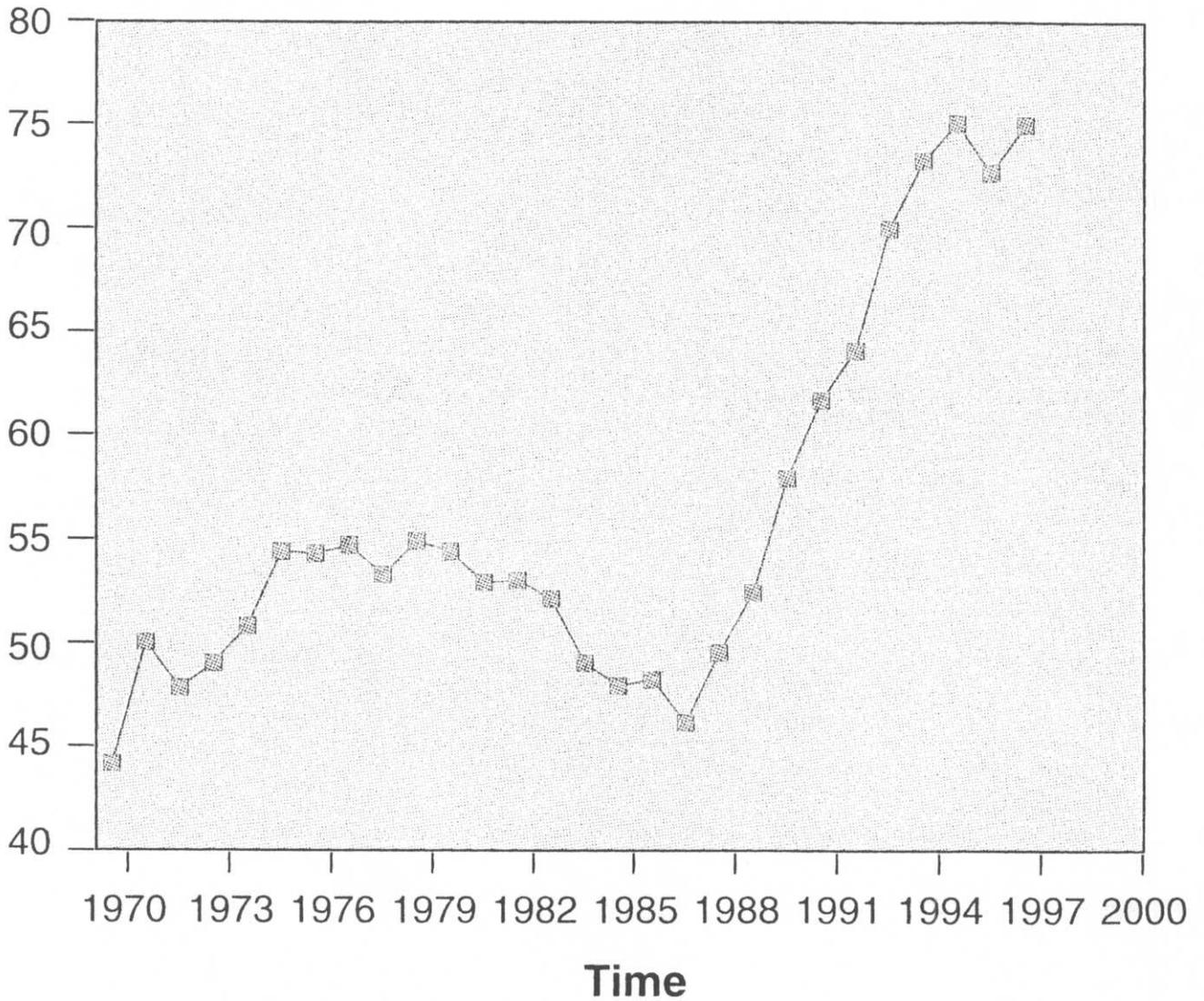
Chart 4



I-1: Annual Patent Applications and Awards



Trend of lawyer numbers/R&D expenditure  
(billions of dollars)



Numbers of intellectual property lawyers per unit of research expenditures in billions of dollars (1).

## **ABOLISH CONTINUING PATENT APPLICATIONS ?**

(Cecil D. Quillen, Jr.<sup>1</sup>)

Harry, thank you. This is really old home week for me! Those of you who read resumes may have noticed that Harry and I both served as Chief Patent Counsels for what is now Eastman Chemical Company. It was Kodak's Chemicals Division when I was there.

Slim Webster, who is coauthor of the studies that are the predicate for my remarks, was Kodak's Assistant General Counsel and Chief Patent Counsel throughout my time as general counsel. He is here today. Jeff Hawley is Slim's successor at Kodak.

I should say a word about how Slim and I got interested in the effects of continuing applications. David Saxon, who was one of Kodak's outside Directors when I was on the Board, was MIT's president and had made his professional career in academic science. David thought the number of patents we got was a measure of the productivity of our research labs. I wanted to make sure David understood we could get as many patents as we were willing to pay for, and that the number of patents we got was certainly no indication of the productivity of our labs. I was afraid that if David persisted in his views, and our Research Director ever learned of it, and believed his performance was judged by the number of patents we got, we might bankrupt the company buying patents for him.

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<sup>1</sup> Presented April 19, 2004 at the Patent Quality Conference sponsored by the Intellectual Property Owners Association. Cecil Quillen is the former General Counsel of Eastman Kodak Company where he was a Senior Vice President and member of the Board of Directors. He is currently a Senior Advisor at Cornerstone Research, an economic consulting firm. Comments on drafts of this presentation by Robert Barr, Mark Lemley, and Ogden (Slim) Webster were especially helpful. The views expressed herein should not be attributed to those who provided comments, or to Eastman Kodak Company or Cornerstone Research.

I was even hoping that David, and the rest of the Board for that matter, would come to understand that a well-managed patent program would result in fewer, rather than more, patents.

To aid my discussions with David, Slim checked with the USPTO to find out how many continuing applications were filed each year. They said they didn't keep records of continuing applications. That was a truly astonishing answer in the midst of the Quality Management revolution. Continuing applications are rework for the USPTO, and for it to fail to keep records of the rework required of it, much less not attempt to manage it, violated the most elementary principles of Quality Management.

In 1998, long after I had retired from Kodak, I became interested in attempting a study relating to innovation and the U.S. patent system, and needed to know the number of original patent applications filed each year. I looked at the USPTO's 1997 Annual Report, and discovered they weren't reported, and that you couldn't determine them from the Annual Reports.

So I requested information as to filings of original applications and continuing applications a couple of times in 1998 that went unanswered, and again late in 1999 in a fairly "snarky" letter to then Commissioner Dickinson that made the point the information I was seeking was elementary management information which surely would have been collected by the USPTO.

About a month later I got a call from the USPTO telling me they had found information that might be responsive to my FOIA request, and asked if I wanted

it. I didn't realize I had made a FOIA request, and wasn't sure I understood exactly what the information was, but asked that it be sent along anyway.

As you will see, this information enabled us to determine, for the first time ever so far as I know, the number of Original Applications filed in the USPTO, the portion of the USPTO workload that was rework comprised of refiled Continuing Applications, and, when combined with information from Annual Reports, examination performance of the USPTO for the years covered by the data. This first study was published in the August 2001 Federal Circuit Bar Journal.<sup>2</sup>

This **first slide** is a simplified depiction of application flow through the USPTO.

The Total Applications workload is made up of two kinds of applications, Original Applications and Continuing Applications. Continuing Applications claim priority from an earlier filed non-provisional application. Original Applications do not.

After Examination, applications are either Allowed or Abandoned, and Allowed Applications, or at least most of them, go on to become Patents. Many of the Abandoned Applications, however, are not in fact "abandoned" but are refiled as Continuing Applications and restart Examination all over again. And even some Allowed Applications are refiled.

USPTO Annual Reports, as I mentioned, do not report the number of Original Applications, or the number of refiled Continuing Applications, nor do they

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<sup>2</sup> *The Federal Circuit Bar Journal*, Vol. 11, No. 1 (August 2001), pages 1-21.

report the number of Abandoned Applications the subject matter of which was not in fact abandoned but was instead included in a refiled Continuing Application. Thus it is not possible from the Annual Reports to determine USPTO examination performance, nor is it possible to determine the number of Original Applications, or the portion of the USPTO workload that is rework from refiled Continuing Applications.

This **next slide** is a copy of FOIA data<sup>3</sup> provided by the USPTO. The data reported all continuing applications activity for utility, plant and reissue (UPR) applications for the USPTO's fiscal years 1993-1998.

And this **next slide** summarizes USPTO Annual Report data for those years, along with the FOIA data, and calculations using both.

With the FOIA data we were able to determine the total number of refiled Continuing Applications and their impact on the USPTO workload. As you can see, they comprised 28.4% of the applications filed in fiscal years 1993-1998. Because refiled Continuing Applications are directed to subject matter that has already been examined, or could have been, they represent rework for the USPTO.

By subtracting Continuing Applications from Total Applications we determined the number of Original Applications filed in those years. We also determined the number of Original + Divisional applications.

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<sup>3</sup> See USPTO FOIA Request No. 00-044.

And, by subtracting refiled Continuing Applications from Abandoned Applications, we were able to estimate the number of Net Abandonments, i.e., the number of applications abandoned without refileing, calculated (1) on the assumption that the parents of all continuing applications were abandoned in favor of the continuing applications, and (2) on the assumption that only the parents of continuations and CIPs were so abandoned.

Knowing the numbers of Original Applications, Net Abandonments, and Allowed Applications, we were able to calculate the actual examination performance of the USPTO.

We determined, as shown on this **next slide**, two measures of examination performance, Allowance Percentage and Grant Rate.

Allowance Percentage is the number of Applications Allowed divided by the number of Original Applications Filed. In our “refined” calculation, this included a two-year allowance for prosecution time.

Grant Rate is defined on the Trilateral Website as the number of Applications Allowed in a given period divided by the number of Application Disposals (Allowances + Abandonments) in the same period. The USPTO, EPO, and JPO all report Grant Rates on the Trilateral Website.

This **next slide** is from Table 7 of our first paper and summarizes the results of our first study. When corrected for continuing applications, and with a two-year prosecution lag, the Allowance Percentage for the USPTO was 95%. That is to say, the number of applications allowed in 1995-1998 was 95% of the number of

Original Applications filed in 1993-1996. And, even if divisional applications are treated as if they were Original Applications, the two-year lagged Allowance Percentage was 86%.

Allowance Percentages were also determined for the EPO and JPO, using all of the data then available for them. The lagged Allowance Percentages for the EPO and the JPO were 68% and 65%, respectively, both well below the USPTO numbers.

The champ though was the German Patent Office where Mike Scherer, Dietmar Harhoff, and Katrin Vopel had found that only 41.7% of the 1977 applications were allowed.

As to Grant Rates, as I indicated, the USPTO, EPO, and JPO all publish Grant Rates on the Trilateral Website. The averaged Grant Rates for the EPO and JPO for 1995-1999, as published on the Trilateral Website, were 67% and 64%, respectively.

USPTO Grant Rates on the Trilateral Website are not corrected for Continuing Applications. The uncorrected Grant Rate for the USPTO for its fiscal years 1993-1998 is 66%. But, when corrected for all refiled Continuing Applications, the USPTO Grant Rate is 97%, dropping to 87% when divisional applications are treated as if they were Original Applications. Both are above the averaged Grant Rates for the EPO and JPO.

One point made to us in connection with our first study was that it is possible for a patent to be granted on a continuation application and its parent, even though

both are supposed to be for the same invention. This was discussed in footnote 17 of our first paper.

After our first paper had been published we were able to borrow a database from John Allison and Mark Lemley and estimate the numbers of such patents and their effects on our published results, which are shown in red on this **slide**.

Allowance Percentages drop by about three percentage points and Grant Rates by about two percentage points, all of which are still above the results for the EPO and the JPO. These adjusted results are reported in our second paper.

The impetus for our second study, of which Rick Eichmann is also a coauthor, was the observation that virtually every reported patent statistic showed a major discontinuity following formation of the Federal Circuit.

For example, as illustrated by this **slide**, Jon Merz and Nicholas Pace, in a study published in the JPTOS in 1994,<sup>4</sup> found increases in application filings, patent grants, and patent litigation, all attributed to formation of the Federal Circuit.

Application filings, as shown on this **slide**, were level at about 100,000 per year from 1973 until formation of the Federal Circuit in 1982, and then commenced a dramatic rise, reaching nearly 350,000 in 2002.

This **slide** shows allowances and issuances from 1973 through 2002. Both began climbing after formation of the Federal Circuit. The decline prior to then, when considered with the relatively level patent filings shown on the prior slide,

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<sup>4</sup> *Journal of the Patent and Trademark Office Society*, Vol. 76 (August 1994), pages 579-590.

suggests that the USPTO was perhaps becoming more rigorous in the years immediately prior to the Federal Circuit.

Perhaps most important for those of us in this room is the effect on demand for IP lawyers. This **slide**, from an article by John Barton of Stanford that was published in *Science*, the Journal of the American Association for the Advancement of Science, shows dramatic growth in the ratio of IP lawyers to R&D expenditures in the United States following formation of the Federal Circuit.

So, curious as to the effect of the Federal Circuit and the lowered and less certain standards for patentability promulgated by it on USPTO examination performance, we asked for data going back to 1975, or earlier, if available, so we would have data for both before and after formation of the Federal Circuit, and could determine its effect on the USPTO.

Unfortunately the USPTO had no reliable data for continuing applications for years prior to 1980, but they did provide us with data for the 1980-2000 period. This **slide** is a copy of the information.<sup>5</sup>

We have since obtained data for the 1980-2002 period for all three patent offices,<sup>6</sup> which will be reflected in the table and charts I will present shortly. The second of our studies, published in the August 2002 Federal Circuit Bar

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<sup>5</sup> See USPTO FOIA Request No. 01-183. Paper copies of the relevant parts of USPTO Annual Reports for 1975-1980 and 1982-1992 were provided pursuant to USPTO FOIA Request No. 01-327.

<sup>6</sup> See USPTO FOIA Request No. 04-031 for the USPTO data for 1980-2002.

Journal,<sup>7</sup> is limited to data through 2000, since that was we all we had at the time of our work.

This **slide** shows Continuing Applications as a percent of Total Applications from 1980 through 2002. The percentage of Continuing Applications has nearly doubled, rising from about 15% in 1980 to about 28% in 2002. Divisional applications have been level at about 5%, except for the 1995 spike occasioned by the 20-year patent term. Continuing applications declined following the 1995 spike, but growth has resumed, and, as I said, comprised about 28% of applications filed in 2002.

This **next slide** shows the number of applications in the 1980-2002 period. All have grown dramatically, but, as was apparent from the previous slide, Continuing Applications have grown more than Original Applications.

This **slide** summarizes overall performance of the USPTO, EPO, and JPO, averaged over the twenty-three year period from 1980 through 2002. The USPTO numbers are lower than others you may have seen. But they don't reflect improved performance. Remember they are averages over a twenty-three year period in which performance in earlier years was better than performance in later years, as you will see momentarily. And, in all instances, performance of the USPTO was less rigorous than the EPO or JPO.

This **next slide** shows USPTO performance over time, which was the object of our second study. There is a rapid decline in examination performance following formation of the Federal Circuit as shown by the rise in Allowance

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<sup>7</sup> *The Federal Circuit Bar Journal*, Vol. 12, No. 1 (August 2002), pages 35-55.

Percentages, which peaked in 1990, and thereafter oscillated between about 85% and about 95% (or between about 80% and 90% if divisional applications are treated as if they were original applications).

This **next slide** compares USPTO performance with that of the EPO and JPO over the same time period, as measured by Allowance Percentage. It shows the USPTO to be less rigorous throughout the whole period, except for a year or so in the mid to late 1990s when the EPO Allowance Percentage was higher.

This **next slide** shows Grant Rates for the USPTO. Corrected Grant Rates also increased following formation of the Federal Circuit. Corrected for continuation and continuation-in-part applications they rose from about 72% in 1984 to more than 90% in 2002. Uncorrected Grant Rates (the bottom line) have been essentially flat. And, as you can see from the bottom line, Grant Rates reported by the USPTO on the Trilateral Website are not corrected for continuing applications.

There are a couple of intervals where the calculated Grant Rate, corrected for all continuing applications, is over 100%, which is impossible. The reason for this anomaly is the assumption, for this calculation, that the parent application of every continuing application was abandoned in favor of the continuing application. This frequently is not the case for divisional applications, and occasionally for continuations and CIPs as well. The first of the anomalous periods is 1995 when divisional and other continuing application filings spiked because of the 20-year term.

This **next slide** compares Grant Rates for 1995-2002. The EPO, JPO, and Uncorrected USPTO Grant Rates are those reported on the Trilateral Website. Grant Rates for the USPTO, corrected for continuation and continuation-in-part applications, are about 20 percentage points higher than the uncorrected USPTO Grant Rates.

The USPTO was not thrilled with our finding that its performance trailed the EPO and JPO and published a critique of our first paper in the April 2003 JPTOS.<sup>8</sup> Their critique, which relied on unpublished data for a time period (1994-2000) that differed from that available to us for our first paper (1993-1998), did get different numbers, but by counting issued patents instead of allowed applications, and by omitting patents in which there was already a patent claiming the same priority filing date. The two-year lagged Allowance Percentage for their sample, which they didn't calculate, was 95%, the same as for ours. Their change from allowed applications to issued patents dropped their percentage to 88%, simply because of the time interval between allowance and issue, and their omission of issued patents where there was already a patent claiming the same priority date further dropped their percentage from 88% to 75%, which is still above Allowance Percentages for the EPO and the JPO. They did not mention our second paper although it was published eight months prior to theirs and addressed many of their criticisms. Nor did they examine changes over time in the numbers of continuing applications or in USPTO examination performance.

The latest, but probably not the last, word on this topic is a new report by the Organization for Economic Co-operation and Development (OECD) that Herb

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<sup>8</sup> *Journal of the Patent and Trademark Office Society*, Vol. 85 (April 2003), pages 335-349.

Wamsley brought to my attention a couple of weeks ago.<sup>9</sup> The OECD paper reports “grant rates” for the EPO and USPTO for essentially the same population of applications, i.e., for EPO applications claiming a U.S. priority date, and for U.S. applications that were subsequently filed in the EPO. They found that USPTO “grant rates” for this application population were “around 30 percentage points” higher than EPO “grant rates” for the same application population. This **slide** is Figure 7 from the OECD report. USPTO “grant rates” (the top line) are consistently between 80% and 90%. EPO “grant rates” for the same application population (the bottom line) start at about 65% and decline to about 50%. The OECD “grant rate” is not the same as the Grant Rate reported on the Trilateral Website. It is more akin to our Allowance Percentage.

Now to turn to the question of the day: patent quality and what these findings suggest.

Continuation and continuation-in-part applications are unique to the U.S. They currently represent nearly one-fourth of the examination workload of the USPTO. Because the subject matter of these refiled applications has already been examined, or could have been, they represent rework for the USPTO.

As we have just seen, the increase in refiled continuing applications has been accompanied by a decline in USPTO examination performance, whether measured by Allowance Percentage or Grant Rate. Perhaps this is because applicants can refile as often as they wish and avoid final decisions as to the patentability of their applications, leaving the USPTO without the ability to

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<sup>9</sup> *Patents and Innovation: Trends and Policy Challenges*, OECD (2004), available through the OECD website, [www.oecd.org](http://www.oecd.org).

obtain final patentability decisions, and in the position of being unable to rid itself of determined applicants except by allowing their applications. These inabilities are almost certainly a major reason why USPTO examination performance trails that of the EPO and JPO.

We have just gone through a legislative season in which patent quality was much discussed. The IPO, for example, through John Williamson when he was president, said:

“IPO members believe patent quality is deficient. They are being fettered by increasing numbers of invalid patents.”

Other patent lobby groups, e.g., AIPLA, the ABA IP Section, the 21<sup>st</sup> Century Coalition, BIO, etc., expressed similar sentiments. And the remedy proposed was to increase examination resources at the USPTO.

The quickest way to increase USPTO examination resources would be to abolish all continuing applications (except for Sec. 121 divisionals). This would immediately increase resources available for examination of Original Applications by about one-third, and would not require additional funding.

So, if the IPO and its sister lobby groups really believe the way to decrease the number of invalid patents and improve patent quality is to increase examination resources, they should demand immediate abolition of all continuing applications (except for Sec. 121 divisionals) so that resources now devoted to the rework such applications represent can instead be directed to the examination of Original Applications. Giving the USPTO the ability to obtain

final patentability decisions should certainly reduce the number of invalid patents and enhance patent quality.

As to the USPTO, it claims to be a “Performance-Based Organization.” But it tolerates a rework rate that has grown from something like 10% in 1980 to about 25% today. Certainly, no commercial enterprise (or its managers) would long survive a 25% rework rate, or growth from 10% to 25%. But the only way for the USPTO to gain control over this rework is for continuation and continuation-in-part applications to be abolished. So if the USPTO wants to make good its claim to be a “Performance-Based Organization,” it too should demand immediate abolition of all continuation and continuation-in-part applications.

And if the USPTO is genuinely interested in improving patent quality and decreasing the number of invalid patents, it should want the ability to obtain final decisions as to the patentability of applications it has examined and not continue in the position of having to allow patent applications to rid itself of determined applicants.

It seems to me that these data alone make an overwhelming case for abolition of continuation and continuation-in-part applications, so I am not going to discuss the many abuses made possible by such applications that would be eliminated by their abolition. Some are mentioned in our two papers. A far more comprehensive list is in a new article by Mark Lemley and Kimberly Moore in the February 2004 issue of the *Boston University Law Review*,<sup>10</sup> which recommends abolition of all continuing applications, except for Sec. 121 divisionals.

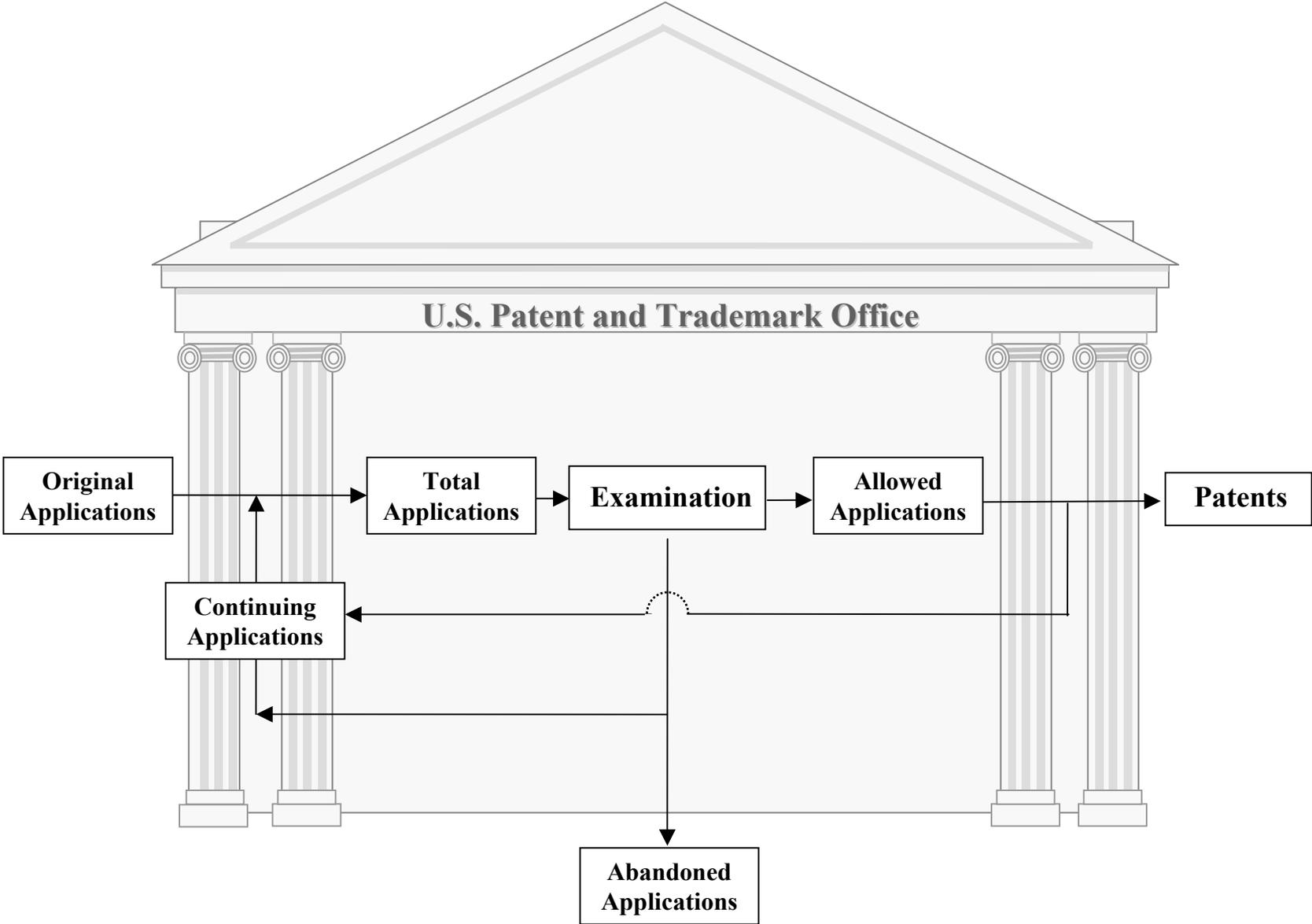
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<sup>10</sup> *Boston University Law Review*, Vol. 84. (February 2004), pages 101-159.

Abolition undoubtedly would require administrative changes at the USPTO. Some resources made available would need to be applied to dealing with additional appeals by applicants who could no longer refile and instead appealed from Final Rejections rather than abandon their applications. And examiners should receive as much credit for filing appeal briefs as they do for first actions or disposals so they have as much incentive to persist in a rejection as to allow a case.

Although abolition of continuation and continuation-in-part applications is a necessary step for increasing patent quality and reducing the number of invalid patents, it will not by itself be sufficient to remove all of the impediments to innovation in the United States imposed by our current patent system. More, and more difficult, changes will be required. I am not going to discuss those other changes here today. I have written and spoken about them elsewhere and will be happy to share my thoughts with any of you who may be interested.

Questions?



	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998
<b>Corps Totals - UPR</b>						
Serialized UPR Filings	174,598	185,900	219,354	155,618	215,147	216,261
R 129 Filings	0	0	1,599	5,020	3,734	2,343
ACPA Filings	0	0	0	0	0	17,174
DCPA Filings	0	0	0	0	0	395
<b>Subtotal</b>	<b>0</b>	<b>0</b>	<b>1,599</b>	<b>5,020</b>	<b>3,734</b>	<b>19,912</b>
Divisional Filings (Rule 53 only)	9,602	10,596	26,413	9,825	12,448	10,945
Continuation Filings (Rule 53 only)	28,339	32,041	37,849	23,955	28,829	13,294
CIP Filings (Rule 53 only)	12,889	13,912	15,914	10,469	10,574	10,639
<b>Subtotal</b>	<b>50,830</b>	<b>56,549</b>	<b>80,176</b>	<b>44,249</b>	<b>51,851</b>	<b>34,878</b>
8129, ACPA, and Cont. Filings	28,339	32,041	39,448	28,975	32,563	32,811
DCPA and Divisional Filings	9,602	10,596	26,413	9,825	12,448	11,340
CIP Filings	12,889	13,912	15,914	110,469	10,574	10,639
<b>Rule 53s, R129s, CPAs</b>	<b>50,830</b>	<b>56,549</b>	<b>81,775</b>	<b>49,269</b>	<b>55,585</b>	<b>54,790</b>
<b>As a Percent of Total UPR Filings:</b>						
8129 Filings	0.0%	0.0%	0.7%	2.6%	1.7%	1.0%
ACPA Filings	0.0%	0.0%	0.0%	0.0%	0.0%	7.3%
DCPA Filings	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%
<b>Subtotal</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.7%</b>	<b>2.6%</b>	<b>1.7%</b>	<b>8.4%</b>
Divisional Filings (Rule 53 only)	5.5%	5.7%	12.0%	5.2%	5.7%	4.6%
Continuation Filings (Rule 53 only)	16.2%	17.2%	17.1%	12.6%	13.2%	5.6%
CIP Filings (Rule 53 only)	7.4%	7.5%	7.2%	5.5%	4.8%	4.5%
<b>Subtotal</b>	<b>29.1%</b>	<b>30.4%</b>	<b>36.3%</b>	<b>23.2%</b>	<b>23.7%</b>	<b>14.8%</b>
Continuations (11129, ACPA, and Cont.)	16.2%	17.2%	17.9%	15.2%	14.9%	13.9%
Divisionals (DCPA and Divisionals)	5.5%	5.7%	12.0%	5.2%	5.7%	4.8%
CIP Filings	7.4%	7.5%	7.2%	5.5%	4.8%	4.5%
<b>Rule 53s, R129s, CPAs</b>	<b>29.1%</b>	<b>30.4%</b>	<b>37.0%</b>	<b>25.8%</b>	<b>25.4%</b>	<b>23.2%</b>
<b>Corps Total Filings - UPR</b>	<b>174,598</b>	<b>185,900</b>	<b>220,953</b>	<b>190,638</b>	<b>218,881</b>	<b>236,173</b>

**USPTO ANNUAL REPORT DATA**

	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>Total</b>
Total UPR Applications Filed	174,553	186,123	221,304	191,116	220,773	240,090	1,233,959
UPR Applications Allowed	104,351	107,221	106,566	121,694	135,240	143,045	718,117
UPR Applications Abandoned	60,763	64,932	66,460	58,358	61,367	60,102	371,982
UPR Patents Issued	97,386	102,130	102,579	105,529	112,646	140,159	660,429

**USPTO FOIA DATA**

	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>Total</b>
Total UPR Applications Filed	174,598	185,900	220,953	190,638	218,881	236,173	1,227,143
Continuation Application Filings	28,339	32,041	39,448	28,975	32,563	32,811	194,177
Divisional Application Filings	9,602	10,596	26,413	9,825	12,448	11,340	80,224
Continuation-In-Part Filings	12,889	13,912	15,914	10,469	10,574	10,639	74,397
Total - Continuing Applications	50,830	56,549	81,775	49,269	55,585	54,790	348,798
Continuing Applications as % of Total	29.1%	30.4%	37.0%	25.8%	25.4%	23.2%	28.4%

**CALCULATIONS**

	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>Total</b>
Total UPR Applications Filed	174,598	185,900	220,953	190,638	218,881	236,173	1,227,143
Continuing Applications	50,830	56,549	81,775	49,269	55,585	54,790	348,798
Original Applications	123,768	129,351	139,178	141,369	163,296	181,383	878,345
Original Applications + Divisionals	133,370	139,947	165,591	151,194	175,744	192,723	958,569
UPR Applications Abandoned	60,763	64,932	66,460	58,358	61,367	60,102	371,982
Continuing Applications	50,830	56,549	81,775	49,269	55,585	54,790	348,798
Net Abandoned (Continuing Applications)	9,933	8,383	(15,315)	9,089	5,782	5,312	23,184
Net Abandoned (Continuations & CIPs)	19,535	18,979	11,098	18,914	18,230	16,652	103,408

$$\text{Allowance Percentage} = \frac{\text{Applications Allowed}}{\text{Applications Filed}}$$

$$\text{Grant Rate} = \frac{\text{Applications Allowed}}{\text{Application Disposals}}$$

**TABLE 7**  
**SUMMARY**

**ALLOWANCE PERCENTAGES**

**(Applications Allowed as Percentage of Applications Filed/Examinations Requested)**

	<u>Overall</u>	<u>Two Year Lag</u>
United States Patent & Trademark Office (1993-1998)		
Based on Original Applications	82%	95%
Based on Original + Divisional Applications	75%	86%
Based on Original + Divisional + CIP Applications	69%	78%
European Patent Office (1978-1999)	60%	68%
Japanese Patent Office (1988-1999)	57%	65%
German Patent Office (1977 Cohort)		41.7%

**GRANT RATES**

**(Applications Allowed As Percentage Of Net Disposals)**

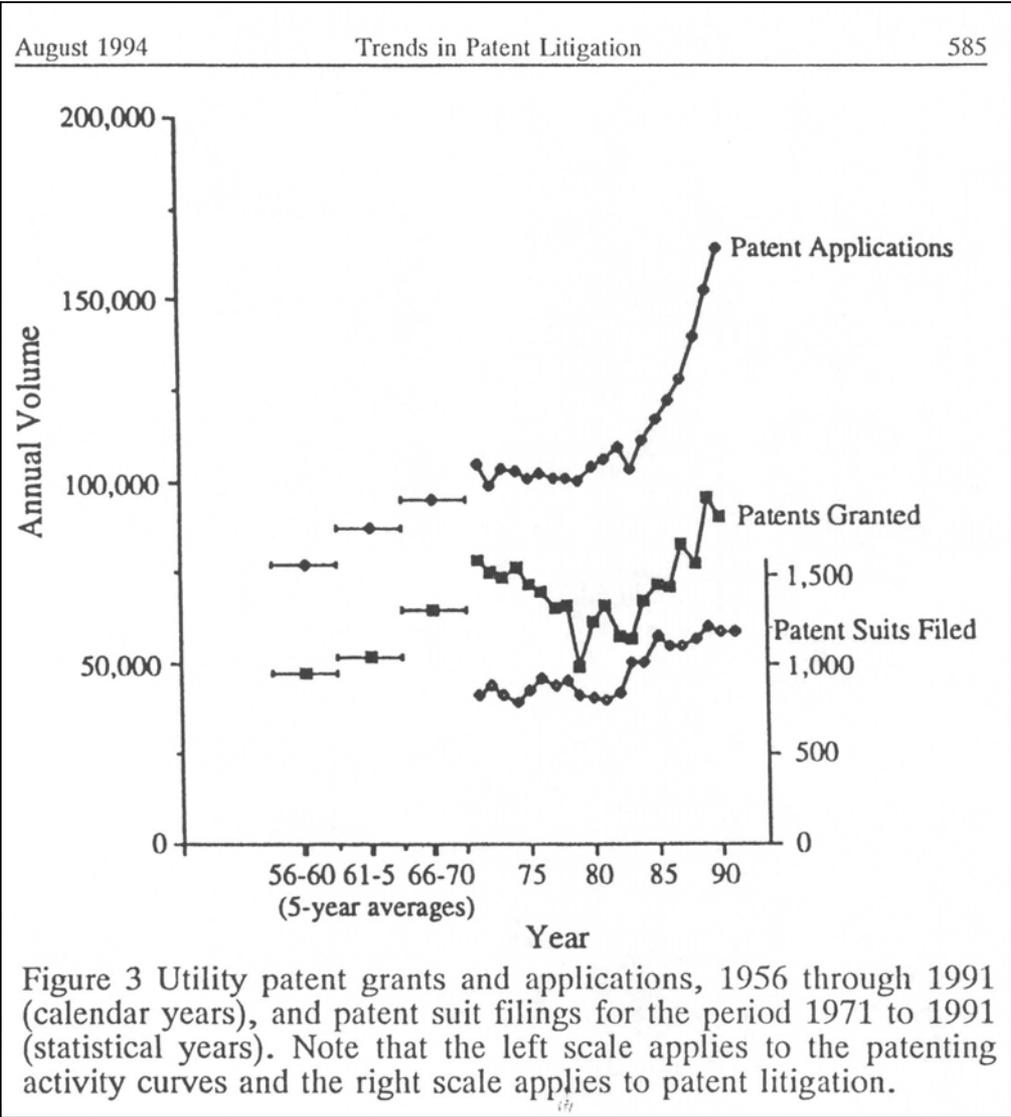
United States Patent & Trademark Office (1993-1998)	
Based on Net Abandoned = Total Abandoned Less Total Refiled	97%
Based on Net Abandoned = Total Abandoned Less Continuations and CIPS	87%
Based on Net Abandoned = Total Abandoned Less Continuations	80%
Uncorrected Grant Rate (1993-1998)	66%
European Patent Office (1995-1999)	67%
Japanese Patent Office (1995, 1997-1999)	64%

**TABLE 7**  
**SUMMARY**  
**ALLOWANCE PERCENTAGES**  
**(Applications Allowed as Percentage of Applications Filed/Examinations Requested)**

	<u>Overall</u>	<u>Two Year Lag</u>	
United States Patent & Trademark Office (1993-1998)	82%	95%	
Based on Original Applications		92%	Adjusted for continuations in which patent granted on both parent and continuation
Based on Original + Divisional Applications	75%	86%	
Based on Original + Divisional + CIP Applications	69%	78%	Adjusted for all continuing applications in which patent granted on both parent and continuation
European Patent Office (1978-1999)	60%	68%	
Japanese Patent Office (1988-1999)	57%	65%	
German Patent Office (1977 Cohort)		41.7%	

**GRANT RATES**  
**(Applications Allowed As Percentage Of Net Disposals)**

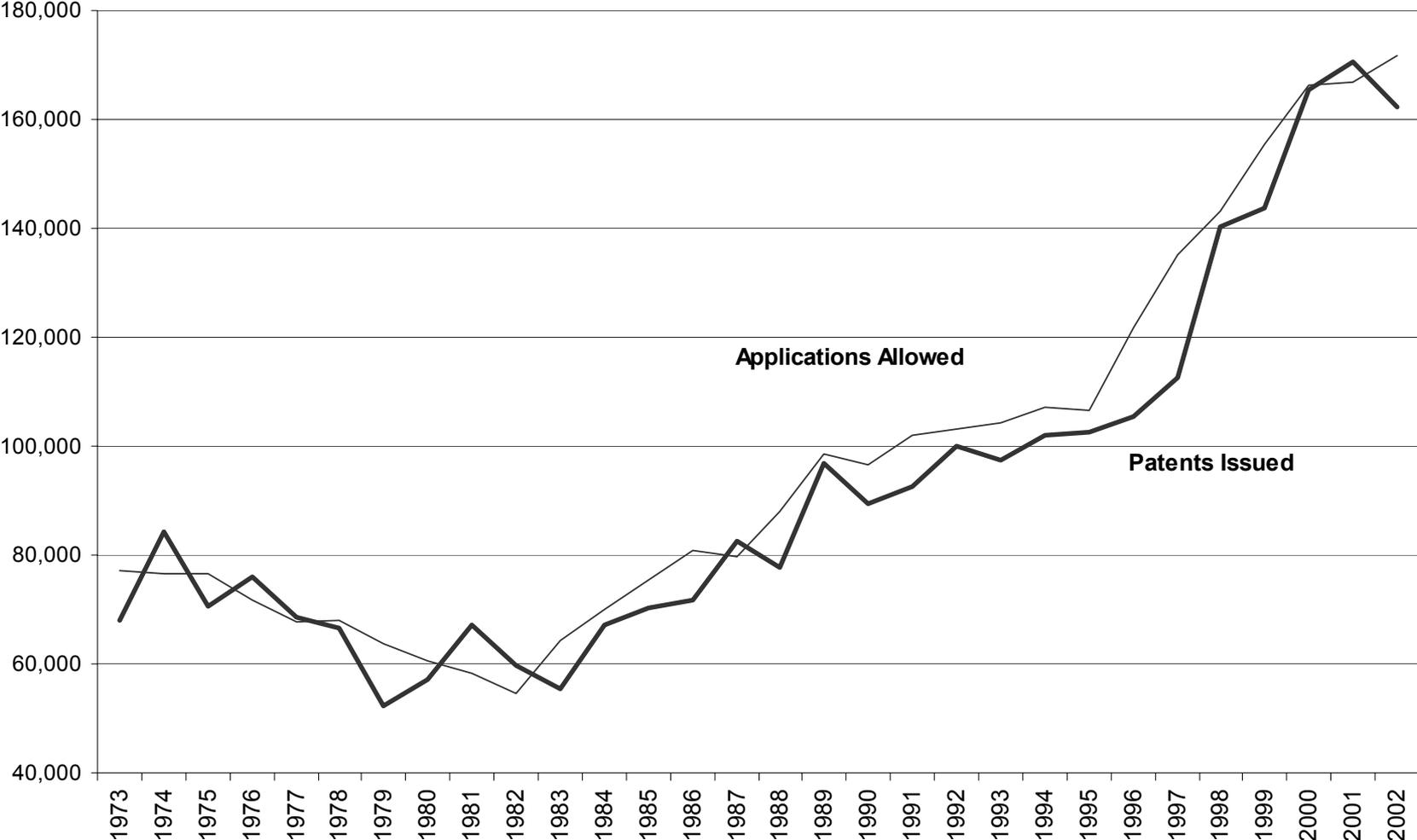
United States Patent & Trademark Office (1993-1998)			
Based on Net Abandoned = Total Abandoned Less Total Refiled		97%	
Based on Net Abandoned = Total Abandoned Less Continuations and CIPS		95%	Adjusted for continuations in which patent granted on both parent and continuation
Based on Net Abandoned = Total Abandoned Less Continuations		87%	
Uncorrected Grant Rate (1993-1998)		85%	Adjusted for all continuing applications in which patent granted on both parent and continuation
Uncorrected Grant Rate (1993-1998)		80%	
Uncorrected Grant Rate (1993-1998)		66%	
European Patent Office (1995-1999)		67%	
Japanese Patent Office (1995, 1997-1999)		64%	

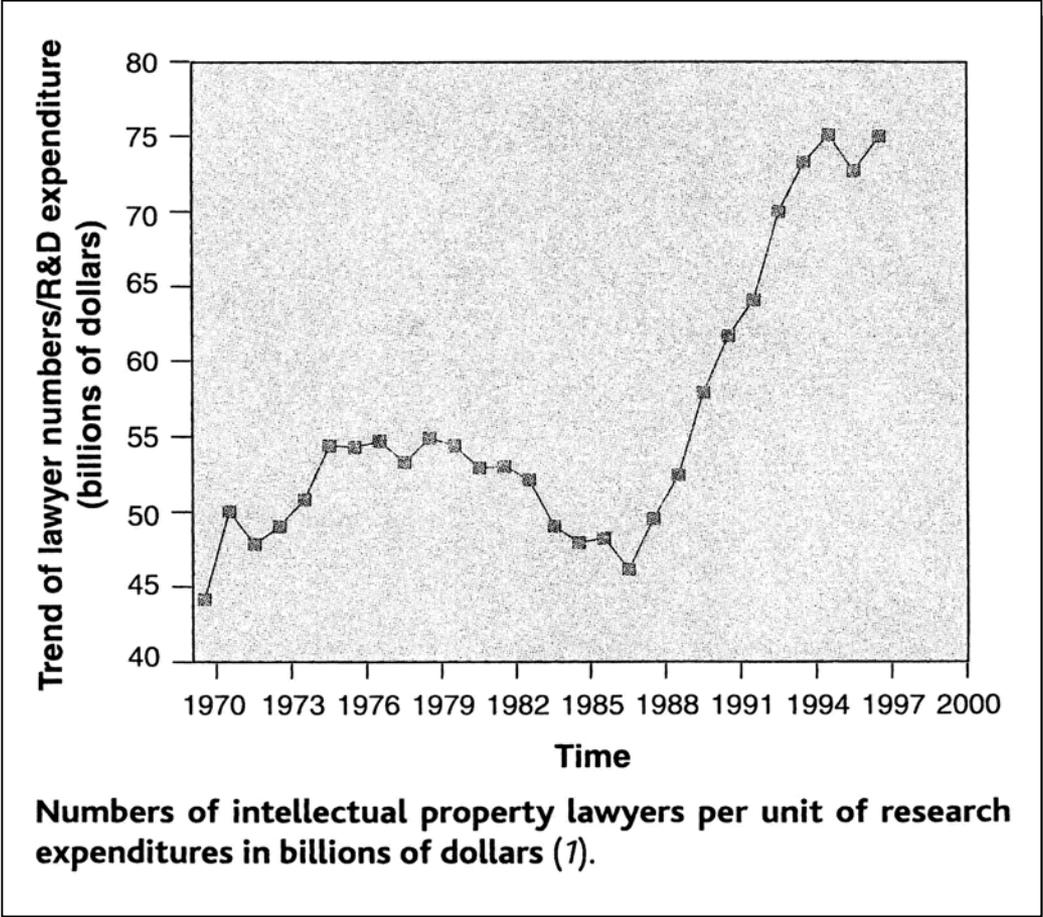


Total U.S. Patent Applications Filed (1973 – 2002)



U.S. Application Allowances and Patent Grants (1973 – 2002)



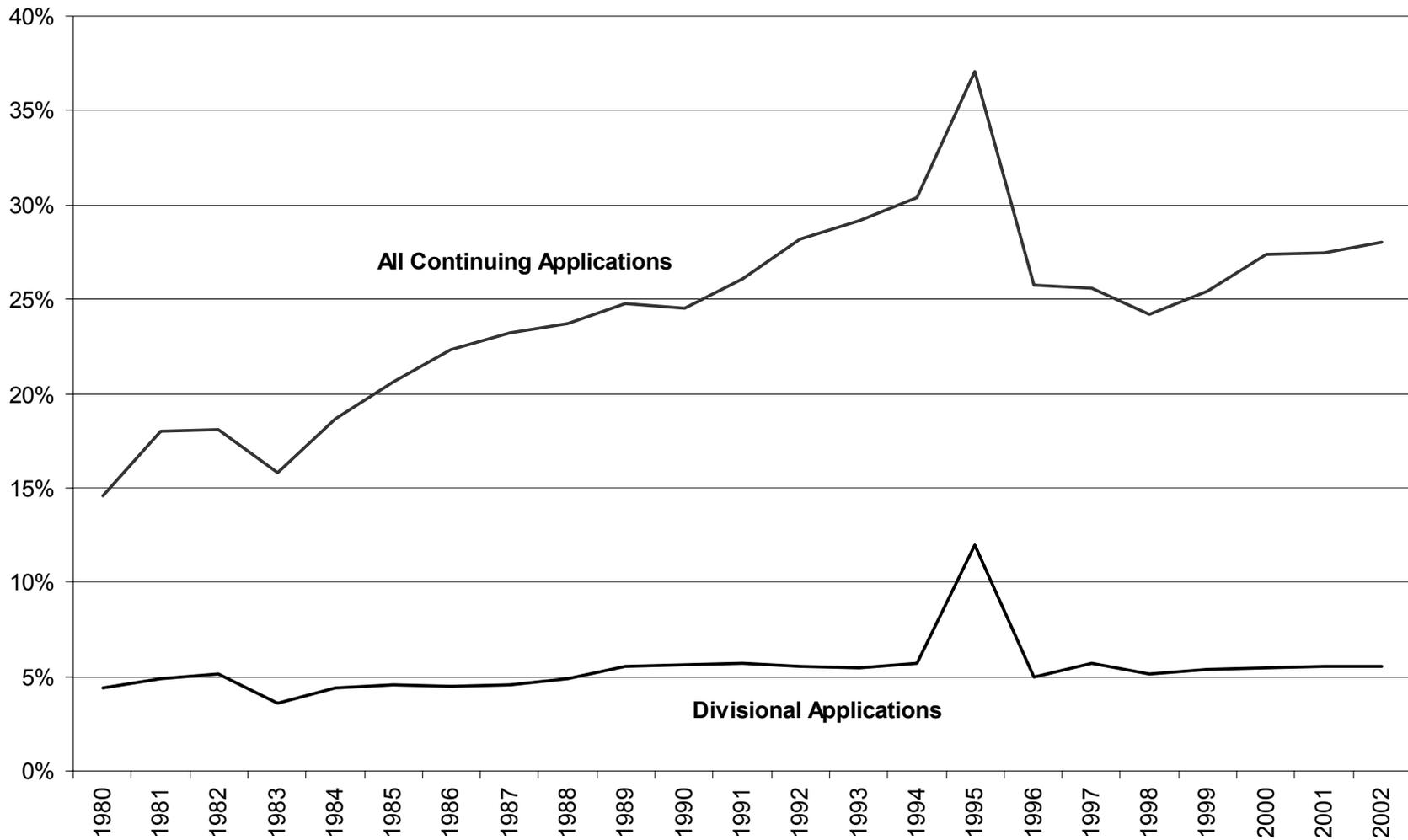


**UPR FILINGS AND REFILINGS – 1980 +**

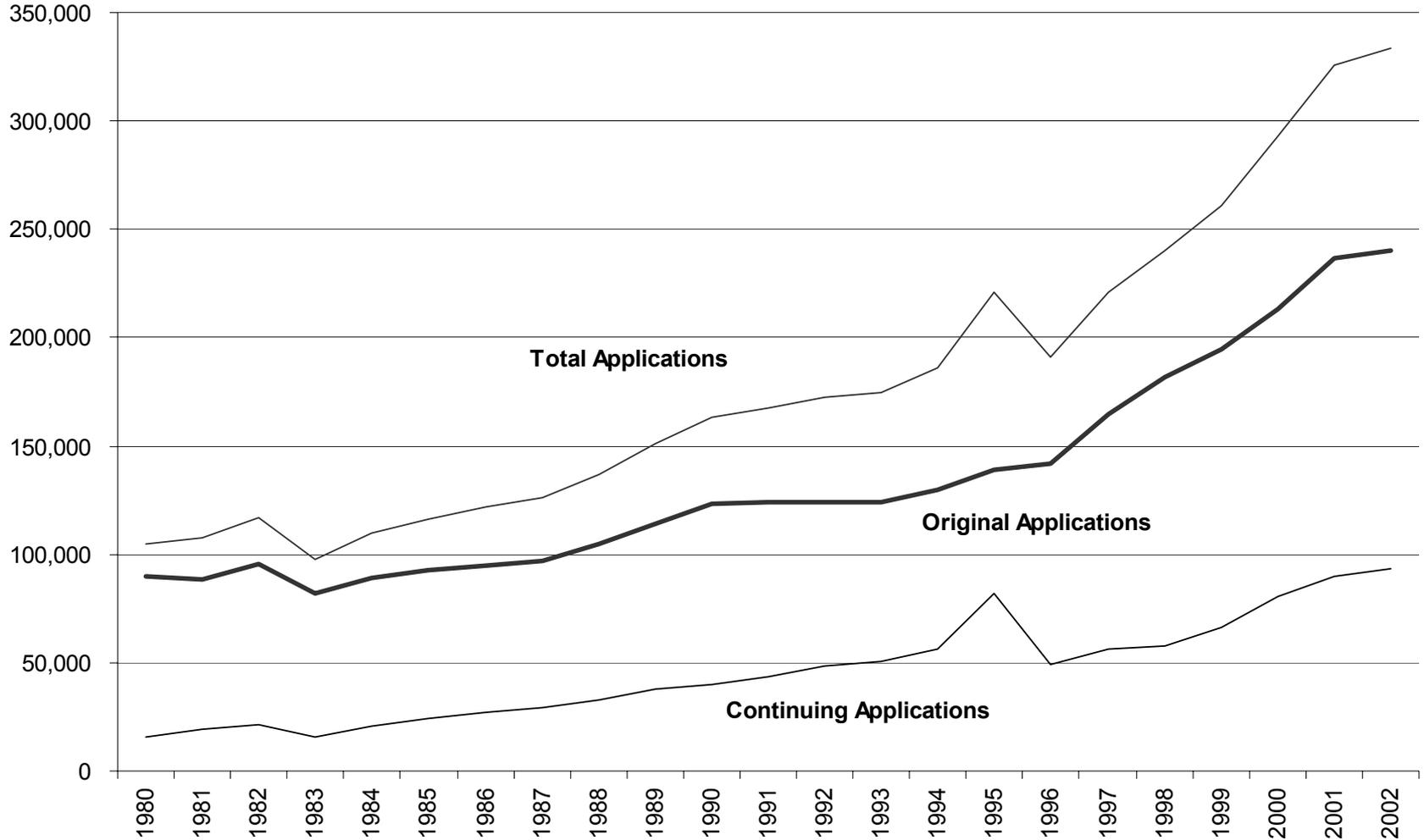
<b>Fiscal Year</b>	<b>UPR Filings</b>	<b>Continuations</b>	<b>CPAs</b>	<b>RCEs</b>	<b>R129s</b>	<b>Divisionals</b>	<b>DCPAS</b>	<b>CIPs</b>
FY80	93800	6117	0	0	0	4746	0	4735
FY81	107513	8263	0	0	0	5277	0	5824
FY82	116731	9144	0	0	0	5958	0	5993
FY83	97448	6812	0	0	0	3508	0	5105
FY84	109539	9608	0	0	0	4822	0	6066
FY85	116427	11992	0	0	0	5265	0	6778
FY86	121611	14202	0	0	0	5415	0	7560
FY87	126407	15651	0	0	0	5762	0	7952
FY88	137069	17158	0	0	0	6704	0	8680
FY89	151331	19490	0	0	0	8391	0	9615
FY90	163571	20379	0	0	0	9131	0	10625
FY91	167715	22852	0	0	0	9589	0	11417
FY92	172539	26643	0	0	0	9557	0	12566
FY93	174553	28390	0	0	0	9602	0	12904
FY94	186123	32053	0	0	0	10605	0	13928
FY95	221304	37883	0	0	1608	26439	0	15988
FY96	191116	24005	0	0	5019	9853	0	10582
FY97	220773	29123	0	0	3753	12587	0	11070
FY98	240090	14429	17609	0	2355	11961	399	11393
FY99	261041	13600	25463	0	945	13688	316	12300
FY2000	293244	18362	31148	1009	440	16175	262	13561
FY2001	189630	13460	17329	6780	115	11405	102	8379

Numbers provided above may not match numbers in the annual report, nor do the numbers necessarily match those numbers provided in an earlier FOIA request. PALM data undergoes routine alterations and updates based upon e.g., user realization of errors or updates that are based on papers entered after they were filed. The continuing data presented was retrieved via system queries on June 22nd and June 25th, 2001.

Continuing Applications as Percent of Total Applications



U.S. Patent Applications (1980 – 2002)



**SUMMARY**

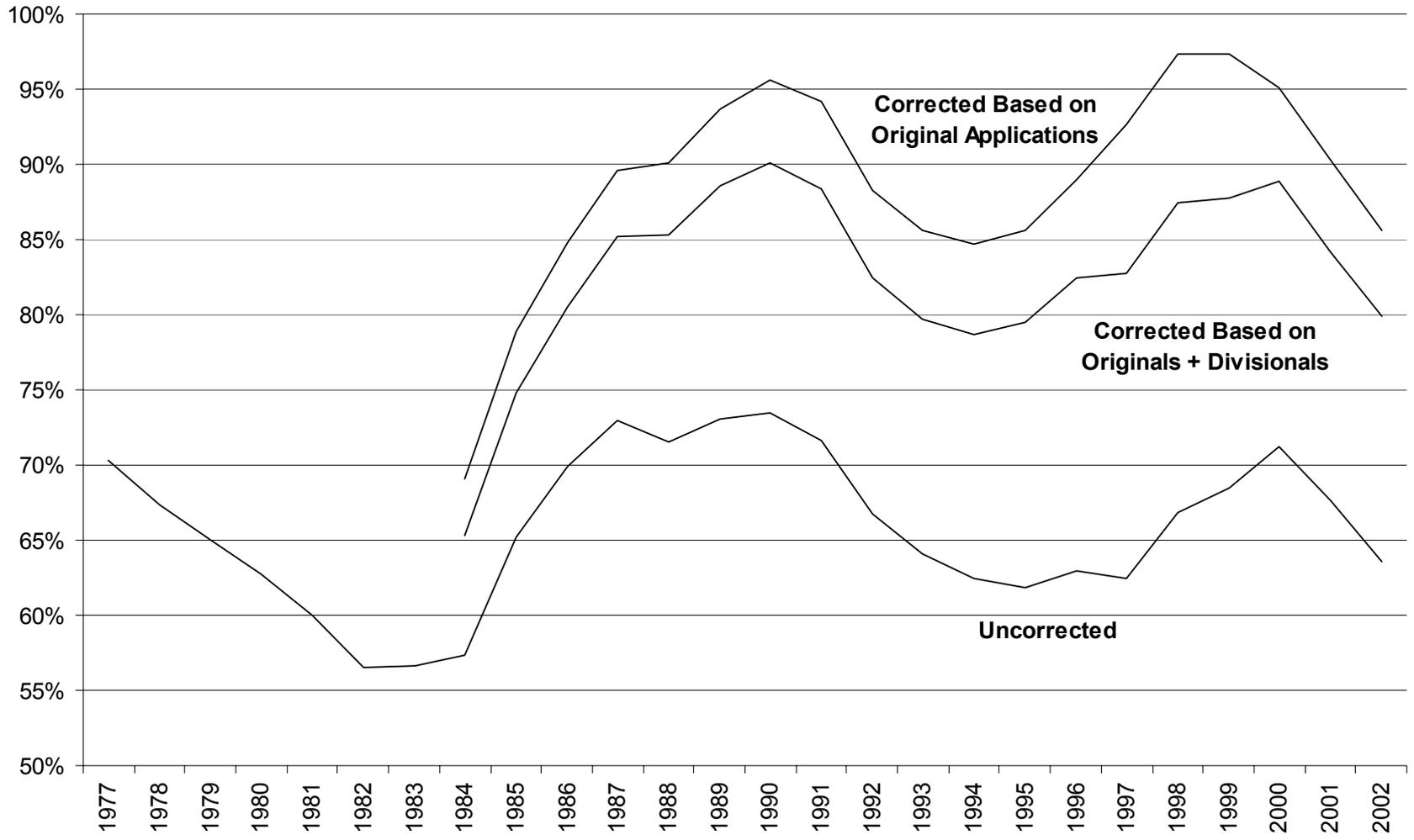
**ALLOWANCE PERCENTAGES (1980-2002)**  
**(Applications Allowed as Percentage of Applications Filed/Examinations Requested)**

	<u>Overall</u>	<u>Prosecution Lag</u>
United States Patent & Trademark Office Based on Original Applications	78%	88%
Based on Original + Divisional Applications	73%	82%
European Patent Office	62%	74%
Japanese Patent Office	50%	55%
German Patent Office (1977 Cohort)		41.7%

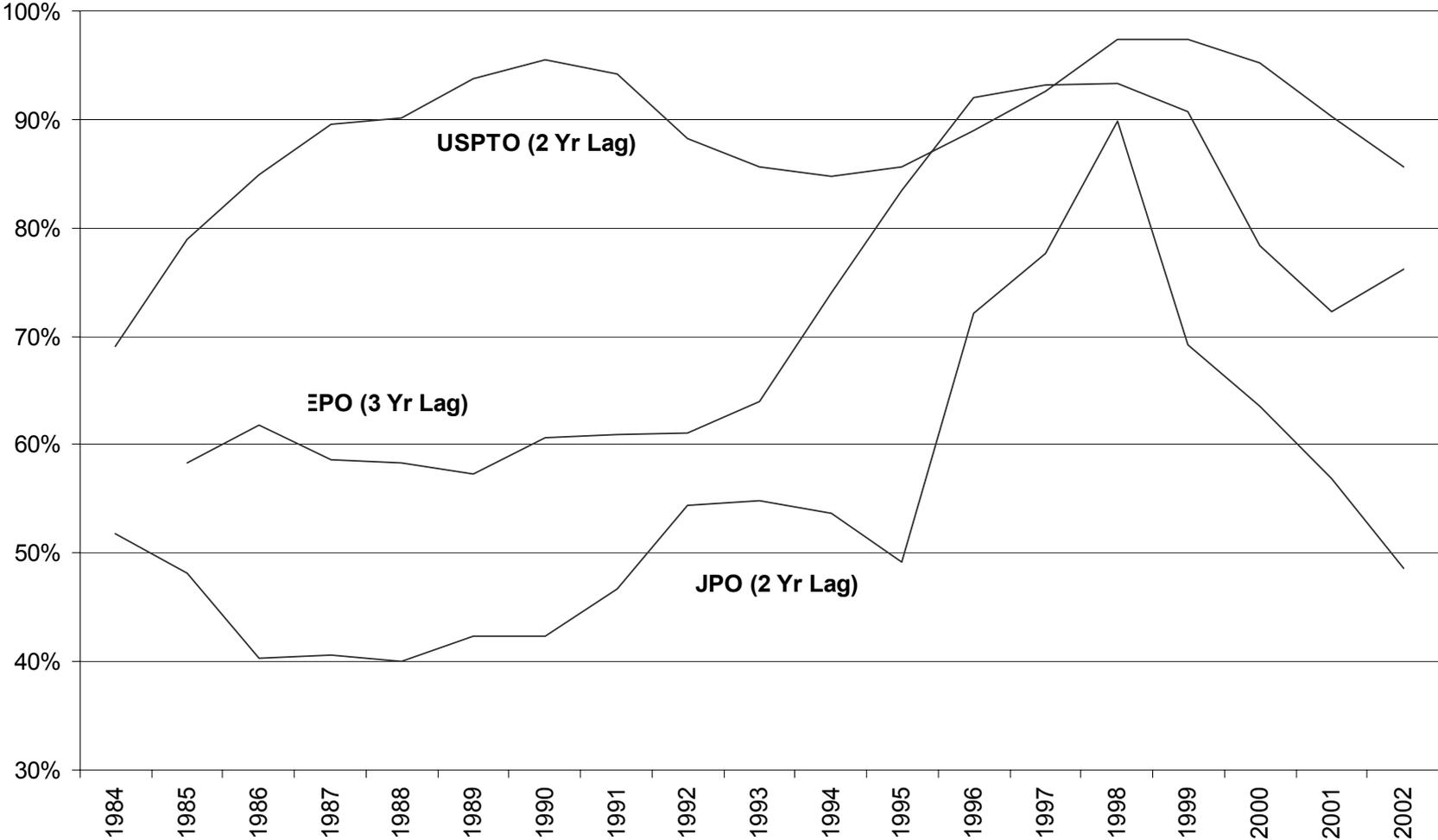
**GRANT RATES**  
**(Applications Allowed as Percentage of Net Disposals)**

	<u>1980-2002</u>	<u>1995-2002</u>
United States Patent & Trademark Office Net Abandoned = Total Abandoned Less Continuations and CIPs	86%	93%
Uncorrected Grant Rate	66%	68%
European Patent Office	-	63%
Japanese Patent Office	-	61%

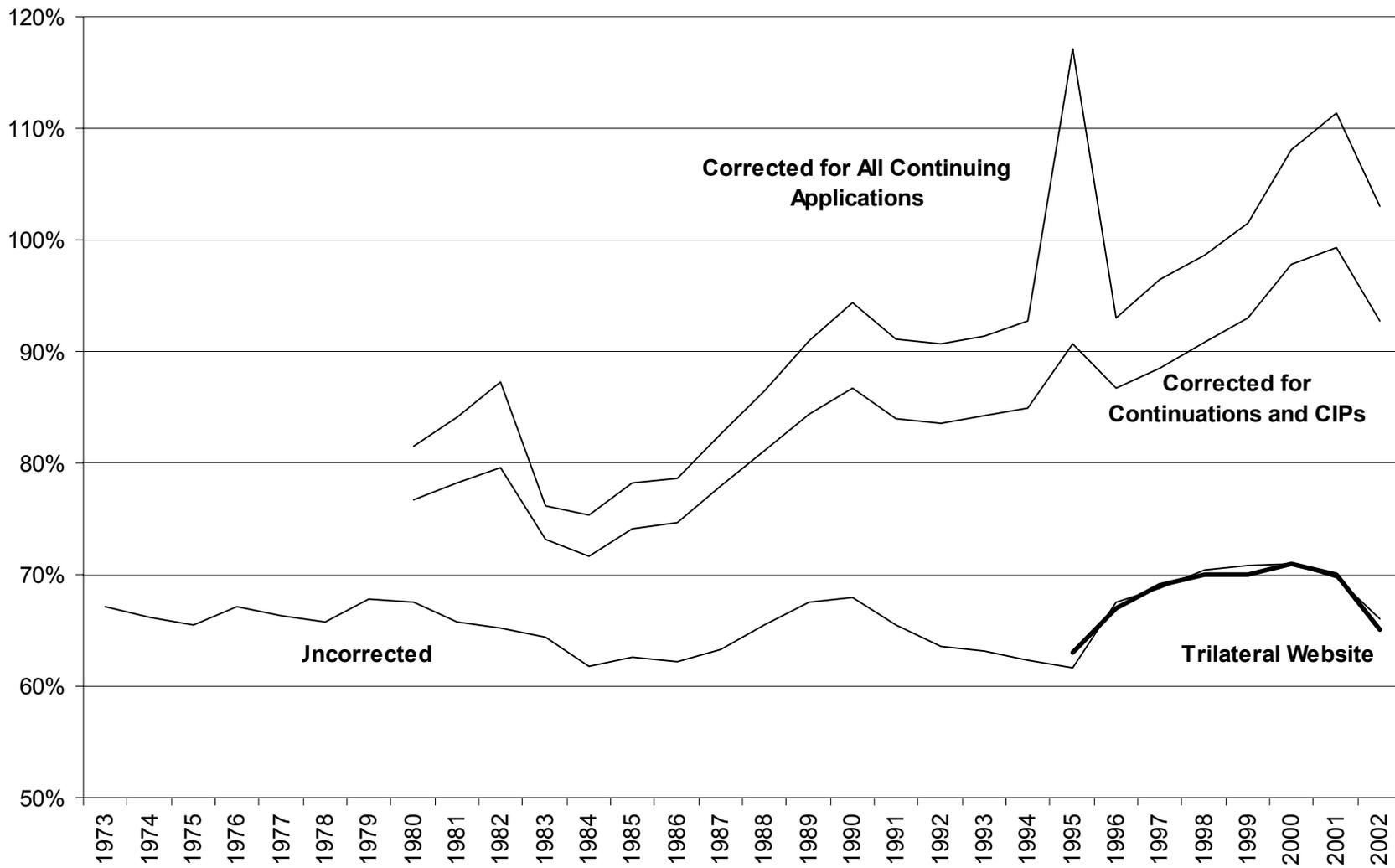
U.S. Allowance Percentage – 2 Yr Lag – 3 Yr Composite



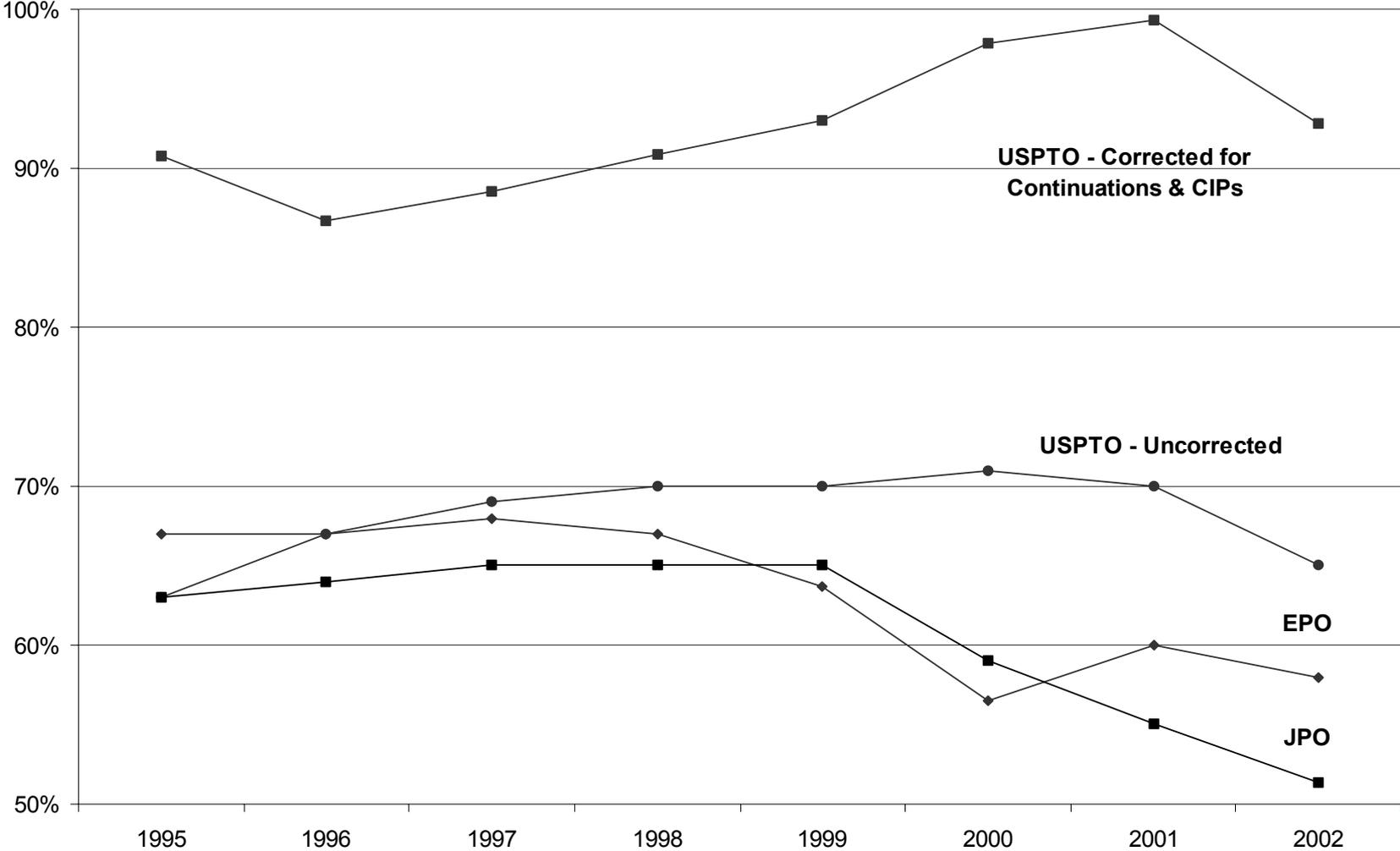
Comparative Allowance Percentages (3 Yr Composite)



**U.S. Grant Rates**

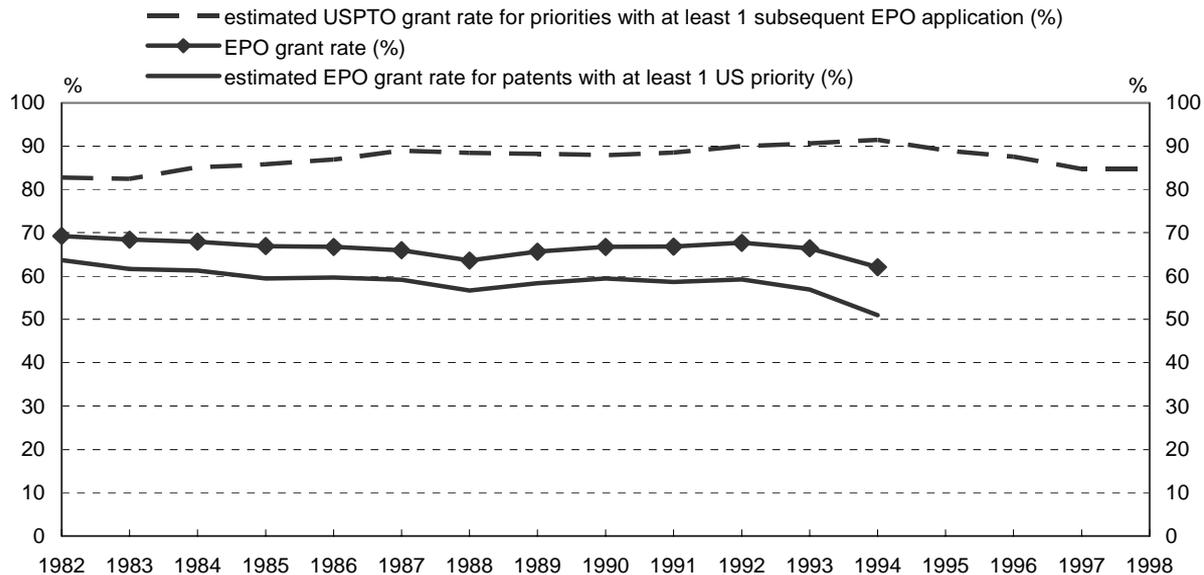


Comparative Grant Rates



**Figure 7. USPTO and EPO estimated grant rates**

Priority years: 1982-98



*Note:* EPO grant rates are defined as number of applications with grant date divided by total number of applications, sorted by year of priority (data on EPO grants is still partial for recent years). The methodology to estimate the grant rate at USPTO for US priorities also applied at EPO consists of the following steps: 1. Select all EPO applications with at least one US priority in the EPO database; 2. Track the corresponding patent number in the USPTO database on grants; 3. Divide the number of US priorities in EPO applications with a grant date at USPTO by the total number of US priorities in EPO applications, sorted by year of priority. Priority year corresponds to the initial date of filing of a patent application worldwide, regardless of subsequent filings in other countries; it normally corresponds to the date of filing in the applicant's domestic patent office.

*Source:* OECD Patent Database, November 2003.