

**SMALL ENTITIES AND THE  
“FIRST TO INVENT” PATENT SYSTEM:  
AN EMPIRICAL ANALYSIS**

by

The Honorable Gerald J. Mossinghoff  
*Oblon, Spivak, McClelland, Maier & Neustadt*

***Foreword***

by

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WLF

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***The views expressed here are those of the author and do not necessarily reflect those of the Washington Legal Foundation. They should not be construed as an attempt to aid or hinder the passage of legislation.***

## **FOREWORD**

by  
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Gerry Mossinghoff served as President Reagan's Commissioner of Patents at the beginning of what many regard as the "modern era" of the patent system. President Reagan was committed – both domestically and as a cornerstone of U.S. foreign policy – to enhancing respect for patents as an inventor's *property right*. The U.S. patent system was transformed into an engine driving the growth of private investment in innovation. During Mr. Mossinghoff's tenure as the Reagan administration's chief IP policy advisor, Congress created a single appellate court to hear patent appeals – and charged that new court with bringing greater consistency to the law as it applied to patents. Congress then worked to address other shortcomings in the patent law and its administration. The successes of that era included strengthening of the financing of the United States Patent and Trademark Office and landmark reforms to the patent laws that simplified the ability of inventors to secure valid patents.

A quarter century has now passed since the beginning of the Reagan IP rights revolution. Congress is again taking a serious look at the need for reforms to the patent laws. It appears that both congressional subcommittees charged with oversight of the nation's patent system will be actively looking at a basket of reforms to the patent system – with United States Patent and Trademark Office financing again one issue likely to top the list of matters needing attention. Out-of-control patent litigation costs may be tackled through efforts to eliminate so-called "subjective elements" from most patent litigation (including the state-of-mind issues such as willful infringement allegations, inventor "inequitable conduct" charges, and best mode concealment contentions). Correction of mistakes made by the United States Patent and Trademark Office in the patent examination process may be addressed, possibly through adoption of some form of post-grant opposition proceeding. Finally, the core of the patent law appears destined for a close look. It appears likely that Congress will respond to longstanding calls for simplifying the set of requirements used to decide whether a patent application should be permitted to mature into a patent.

On the latter point, one of the most fundamental principles underpinning the patent system is garnering careful study: When rival inventors have independently made the same invention and sought separate patents for the same invention, which inventor – as between such rivals – should be permitted to patent that invention? U.S. patent law has traditionally favored the inventor that is able to prove a date of invention that was first in time relative his rival. This legal structure, however, forces a complex inquiry into the respective dates of invention of the rival inventors. The United States Patent and Trademark Office – and in some cases the courts – are required to sift through evidence of activities that took place years earlier. Despite safeguards, the process is not completely free from the potential for mischief and manipulation – or even fabrication. For many years, Congress barred the use of evidence of invention-making activities from outside the United States in order to avoid the possibility for deception that might go undetected.

The trade agreements that came into effect in the 1990s – NAFTA and the WTO – forced Congress to remove the bar on using foreign activities to establish an inventor’s status as the first-in-time. Today, invention-making activities taking place in Shanghai have an equal footing under U.S. law as work done in Chicago. The same equality now exists between an inventor working in Delhi and one in Denver. Because of this requirement for global equality among inventors, U.S. patent law no longer operates to favor U.S.-based inventors at the expense of inventors working outside the United States. Indeed, because of the complexity and expense of the process, it now largely works in the opposite fashion. U.S.-based inventors, many of whom are so-called “small entities” (independent inventors, universities, other not-for-profit institutions, and small businesses) often have limited financial resources. When they become entangled in expensive and protracted “who did it first” contests, they frequently confront much better financed opponents, many of which are foreign corporations.

Following the treaty-mandated changes to U.S. patent law of the 1990s, a number of U.S.-based organizations have taken a fresh look at how the U.S. patent law operates to decide these contests among rival inventors seeking to patent the same discovery. The United States Patent and Trademark Office itself, as part of its efforts to better cooperate with foreign patent offices, has asked the U.S. private sector for help in understanding what might operate today as “best practices” for running the U.S. patent system – both for deciding how to resolve disputes among rival inventors and for setting the standards more generally for deciding whether a patent

should be issued for an invention.

The “best practices” discussions, which were initiated by the United States Patent and Trademark Office in 2001, have led to a remarkable consensus on the content of a 21<sup>st</sup> century U.S. patent system. That “best practices” consensus reaffirms much – perhaps most – of what is today part of U.S. patent law. The U.S. patent law should remain an inventor-focused patent law; the patent right should remain as a property right of the inventor, unless and until the inventor assigns that right to someone else. Unique and important features of U.S. patent law, such as our “grace period” that prevents an inventor’s own disclosures (made during the one-year “grace period” before a patent is sought) from being used to deny the inventor a patent, have been reconfirmed as “best practices.”

Another element of that “best practices” consensus supports eliminating our system of requiring proofs of dates of invention to decide which inventor among rival inventors should be permitted to patent the invention. In place of this principle, the first inventor to file for a patent would be permitted to patent the invention. The organizations supporting these dual conclusions that the United States should retain important inventor-focused features of U.S. patent law, yet make this fundamental change when dealing with rival inventors, includes bar associations, leading science institutions and major industry groups. Earlier this year, the American Bar Association resoundingly reversed a contrary position on first-inventor-to-file taken in the 1960’s. Last year, the National Research Council of the National Academies – after a five-year study of the patent system – made the first-inventor-to-file reform to U.S. patent law one of its seven principal policy recommendations. Finally, industry groups, including the Biotechnology Industry Organization, the Business Software Alliance, and the National Association of Manufacturers, have expressed a desire for harmonizing changes to U.S. patent law, the key to which is movement to the first-inventor-to-file principle.

One important question that must be addressed, however, is whether this fundamental change to U.S. patent law ought to be supported by the “small entity” constituency, especially the independent inventor community. Major reforms to the U.S. patent law, as they are subjected to the careful vetting that Congress will undertake, must take account of these constituencies. Will moving the entire patent system in the United States to “best practices,” including replacing the “date of invention” principle with a first-inventor-to-file principle truly benefit these inventors?

The intuitive answer to this crucial question should be an affirmative “yes.” The reasons are fairly straightforward. All the deficiencies of a system tied to proofs of dates of invention should be least impactful on the most resourceful, *i.e.*, “large entity” inventor community that includes multinational corporations. These deficiencies should, in theory at least, disproportionately impact on the “small entity” community – especially now that foreign-based inventors can compete for patents using evidence of work done outside the United States.

The features of the current law that should in practice impose particular hardships on the least resourceful, least well-financed inventors include the time it takes to make a final determination of which among rival inventors was first to invent. This exercise is typically prolonged – sometimes longer than the technological lifespan of the innovation. It is also enormously expensive. Sorting through an inventor’s records for potentially relevant evidence requires experienced patent counsel. It is also incredibly complicated. The United States Patent and Trademark Office proceedings used to determine who invented what first are noted for their arcane, even Byzantine character. At the end of the day the resolution of the “who invented first” question can cost an inventor hundreds of thousands of dollars (alas, spending *millions* of dollars on this determination is not unknown).

Mr. Mossinghoff’s WORKING PAPER makes a seminally important contribution to the debate over whether our existing patent law grounded on marshaling evidence of invention dates disserves “small entities” relative to a system grounded on the first-inventor-to-file principle. The debates during the 1990s were often inconclusive on the key issue of whether “small entities” were victimized by – rather than beneficiaries of – the *status quo*.

Gerry Mossinghoff’s work now responds to these issues with facts – an exhaustive look over decades at what actually happened in the United States Patent and Trademark Office when rival inventors set out to prove who invented first. Those facts make clear that using the first-inventor-to-file principle as a core principle of reformed U.S. patent law would best protect the interests of the independent inventor. Indeed, over the past several decades, Mr. Mossinghoff’s analysis reveals that our current patent law has cost the independent inventor community more patents than it has secured for them. Moreover, in the years since foreign-based evidence has been able to be used to decide these issues, the rate of loss of patents by independent inventors appears to be accelerating.

Finally, with this cornerstone change to U.S. patent law in place, it becomes vastly easier for Congress to build other improvements in the patent law around it. Other “best practices” changes would simplify the patent examination process itself. Post-grant oppositions could be more effective and efficiently operated in order to correct mistakes made in granting patents. Patent litigation costs could moderate with a patent law focused on fewer, simpler and more objective issues relating to whether an invention had been validly patented.

The process of building a consensus on the various elements of a broadly based patent reform will likely continue through the 109<sup>th</sup> Congress. The strong foundation for that building process can be traced back to the pro-property rights policies that Gerry Mossinghoff helped cement into place in the early 1980’s. Upon that foundation, this paper provides walls of hard data that should make sturdy building materials.

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## **INTRODUCTION**

As between two true inventors claiming the same invention — as contrasted with copiers — *every* nation in the world, except the United States, grants the patent to the inventor who first undertakes to use the patent system to disclose his/her invention to the public and gain protection.<sup>1</sup> In shorthand, this is called a first-to-file system of priority, but it is more appropriately called a first-inventor-to-file system. For reasons that perhaps made sense historically, the United States has a so-called first-to-invent system of priority that is intended to grant a patent to the first “inventor,” i.e., the first person to “conceive” and/or “reduce the invention to practice” under an arcane and burdensome complex of substantive and procedural rules and regulations governing what are called “interferences”

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<sup>1</sup>At the end of 1997, there were two nations that used the so-called first-to-invent system: the United States and the Philippines. Effective January 1, 1998, under its Republic Act No. 8293, the Philippines adopted a first-to-file system, leaving the United States alone in the world in adhering to the first-to-invent system.

in the U.S. Patent and Trademark Office (“USPTO”).<sup>2</sup>

As early as 1965, a major Presidential Commission studying the United States patent system strongly recommended that the United States adopt the otherwise universal first-to-file system.<sup>3</sup> Given the increasing use of low-cost and easily filed *provisional applications*, such a system would be of significant benefit to small entities — the class that comprises independent inventors, small businesses and nonprofit institutions.

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<sup>2</sup>In an article published at 82 JPTOS 891 (December 2000), Charles L. Gholz, an internationally recognized expert on interference practice, described graphically what can happen in an interference:

A couple of years ago I was handling a big ticket interference in which my side's inventors were named the Inventors of the Year by the Intellectual Property Owners Association. At about the same time, my client assigned the lead inventor to us full time. That is, it told him that it was more important for him to work with us to win the interference than it was for him to work at his laboratory bench making more inventions!

My client's decision was good for us, but it was grotesquely bad for the nation. While the inventor spent his time racking his brain trying to remember what he had done and when he had done it years before (and more importantly, trying to find documents to substantiate his hazy memory), he could have been back at his bench making more important inventions.

As things stand, important people (i.e., inventors—not patent attorneys!) spend enormous amounts of time on historical matters which, at least in most cases, are of absolutely no use to anyone apart from the interference and of no interest to anyone at all for any reason. 82 JPTOS at 894.

<sup>3</sup>“To Promote the Progress of ... Useful Arts” in an Age of Exploding Technology, Report of the President's Commission on the Patent System, Washington, D.C. (1966). This is not a partisan matter. The 1966 Commission Report was to President Johnson. In August 1992, the Advisory Commission on Patent Law Reform reached virtually identical conclusions in its report to the Secretary of Commerce in the Bush Administration. The Advisory Commission on Patent Law Reform, Report to the Secretary of Commerce (Aug. 1992). For a discussion of the advantages of a first-inventor-to-file system, see William S. Thompson, *Reforming the Patent System for the 21<sup>st</sup> Century*, 21 AM. INTELL. PROP. L. ASS'N. Q.J. 171 (1993).

However, assertions are heard that adopting a first-inventor-to-file system in the U.S. would somehow favor large companies to the disadvantage of small entities.

## **I. ESTABLISHMENT OF THE SMALL ENTITY STATUS**

To provide adequate funding for the USPTO, I recommended in 1981 to the Secretary of Commerce and he in turn recommended to the President through the Office of Management and Budget (1) that the user fees for patents and trademarks be substantially increased and (2) that the USPTO be able to use the increased fees to fund its operations instead of those fees being deposited in the miscellaneous receipts of the U.S. Treasury. That recommendation was sent to the Congress in connection with the Administration's FY 1983 Budget, and Congress enacted it in P.L. 97-247.

A key part of the statutory patent fee structure enacted at that time was that it established a two-tier fee system that we had recommended. That two-tier fee system allows qualifying independent inventors, small businesses and nonprofit institutions — referred to collectively as "small entities" — to pay half of the standard patent filing fees, patent issue fees and patent maintenance fees.<sup>4</sup>

Thus, since fiscal year 1983, the USPTO has been able to keep track statistically of all patent applications that it receives and of all patents that it

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<sup>4</sup>35 U.S.C. § 41, 37 C.F.R. §§ 1.16 et seq.

grants by four categories: (1) independent inventors, (2) small businesses, (3) nonprofit institutions and (4) large entities. Using the data thus collected by the USPTO — from the initiation of the small entity status in 1983 through fiscal year 2004 — this WORKING PAPER will document what happened historically to small entities when they became involved in interferences, i.e., the USPTO procedure used when two parties claim the same invention at nearly the same time.

## II. DEFINITION OF TERMS

This paper will say that:

- ◆ a small entity was *advantaged* by the first-to-invent system if the small entity was the *junior party* in an interference — i.e., the second person to file a patent application on the invention — and received a *favorable* decision.
- ◆ a small entity was *disadvantaged* by the first-to-invent system if the small entity was the *senior party* in an interference — i.e., the first person to file a patent application on the invention — and received an *adverse* decision.

## III. STATISTICAL HISTORY, 1983 –2004

From 1983 through 2004, the USPTO received 4,500,649 utility, plant and reissue applications and granted 2,456,479 such patents. During that same period there were a total of 3,253 two-party decisions in interference cases, a tiny fraction of the applications filed and patents granted. Using the number of applications filed as the denominator, the

number of two-party decisions amounted to less than one in 1000 (0.1%) of the applications filed. Using the number of patents granted during the 22-year period as the denominator, the percentage of two-party decisions increases but is still less than two in 1000 (0.2%) of the patents granted.

Based upon an analysis of the small entity data that now exists, the USPTO reports that the number of small entities that were *advantaged* by the first-to-invent system during the 22 years — 1983–2004 — was 286, whereas the number of small entities *disadvantaged* was slightly higher, namely, 289. (Figure 2).

- ◆ 50 non-profit institutions were advantaged and 30 disadvantaged. (Figure 3)
- ◆ 97 Small Businesses were advantaged and 92 disadvantaged. (Figure 4)
- ◆ 139 independent inventors were advantaged and 167 were disadvantaged. (Figure 5)

Figure 6 shows these data on the same scale.

Those of us who believe that adopting the first-inventor-to-file system of priority in the United States would actually favor small entities point out that the current system of forcing a small entity into an interference proceeding with a large and determined company that filed a patent application *after* the small entity could cost the small entity hundreds of thousands of dollars, even if it ultimately received a favorable decision. More importantly, small entities by their very nature can move more quickly

than larger bureaucracies. And here is where the United States *provisional application* comes into play. By filing a complete technical disclosure of the invention, a small entity can readily secure priority rights in a first-inventor-to-file system without a major expenditure of resources. This then gives the small entity a year in which to file a professionally prepared patent application.

The data provided by the USPTO confirm empirically that the current first-to-invent system of priority provides no advantage to small entities. Figure 6 speaks for itself. Historically, virtually the same number of small entities were advantaged by the first-to-invent system (286) as were disadvantaged (289). And with respect to independent inventors — among the most vocal of first-to-invent adherents — more were disadvantaged (167) than were advantaged (139) by the first-to-invent system.

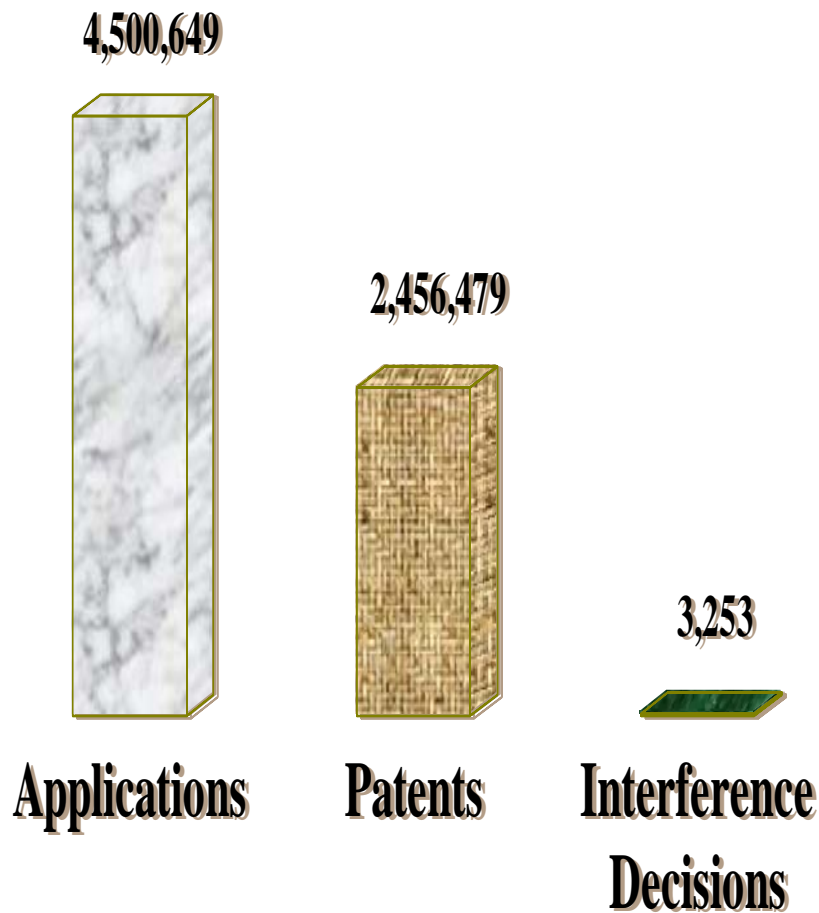
## **CONCLUSION**

There are many good reasons why the United States should join the rest of the world in adopting a first-inventor-to-file system — reasons well beyond the scope of this brief paper. Hopefully, the data presented in this paper — based on 22 years of actual experience — will add constructively to the debate on this very important public policy issue.

# Figure 1

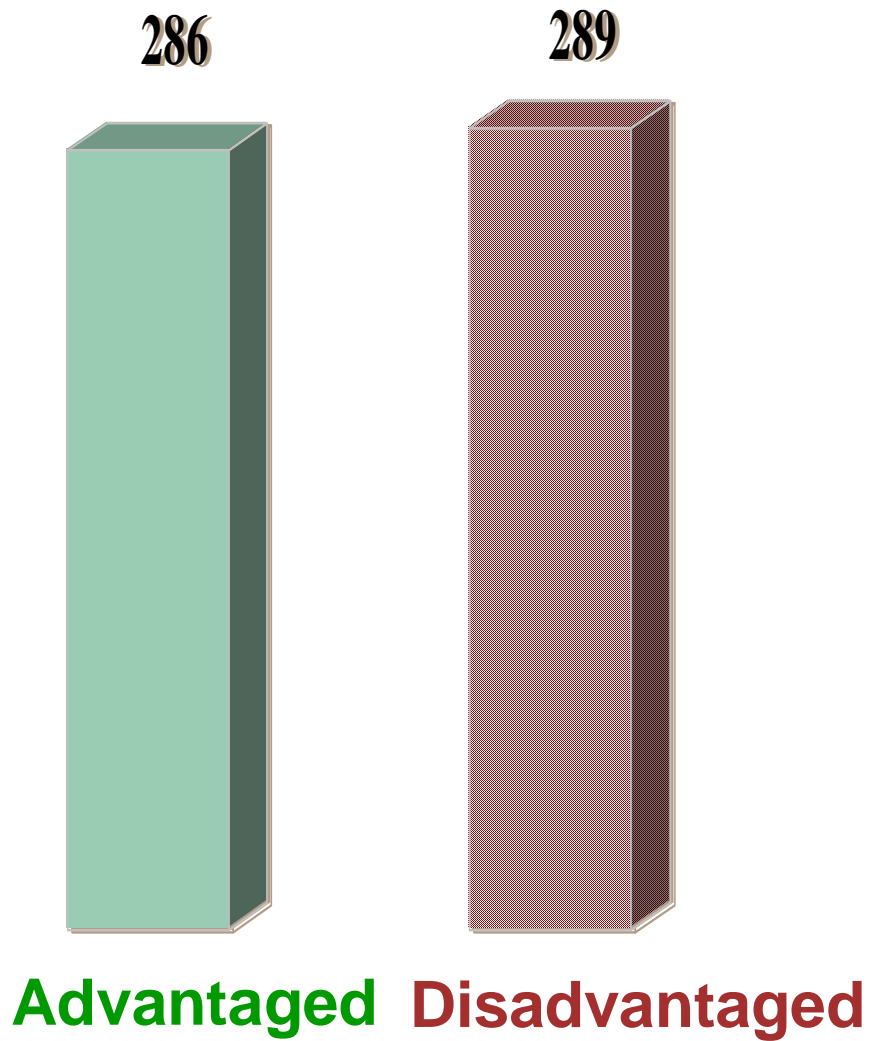
## U. S. PATENTS, APPLICATIONS & INTERFERENCE DECISIONS

1983 - 2004



# Figure 2

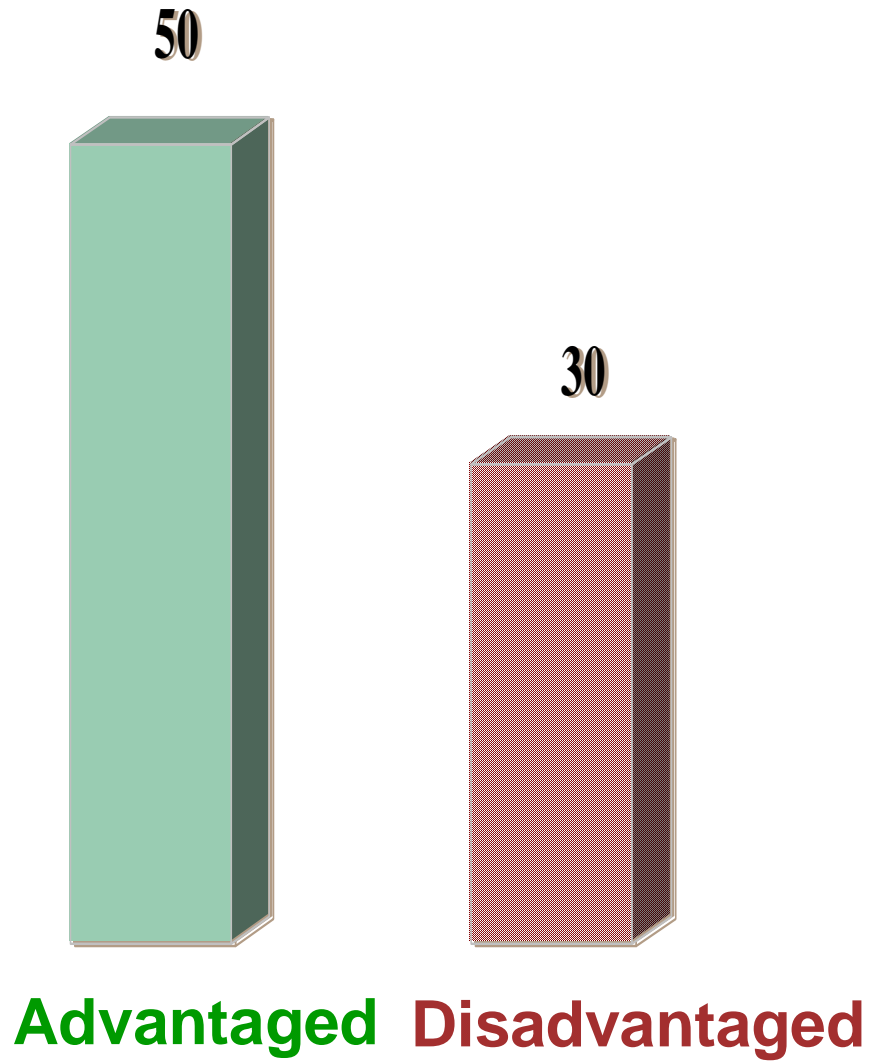
## SMALL ENTITIES



1983 - 2004

# Figure 3

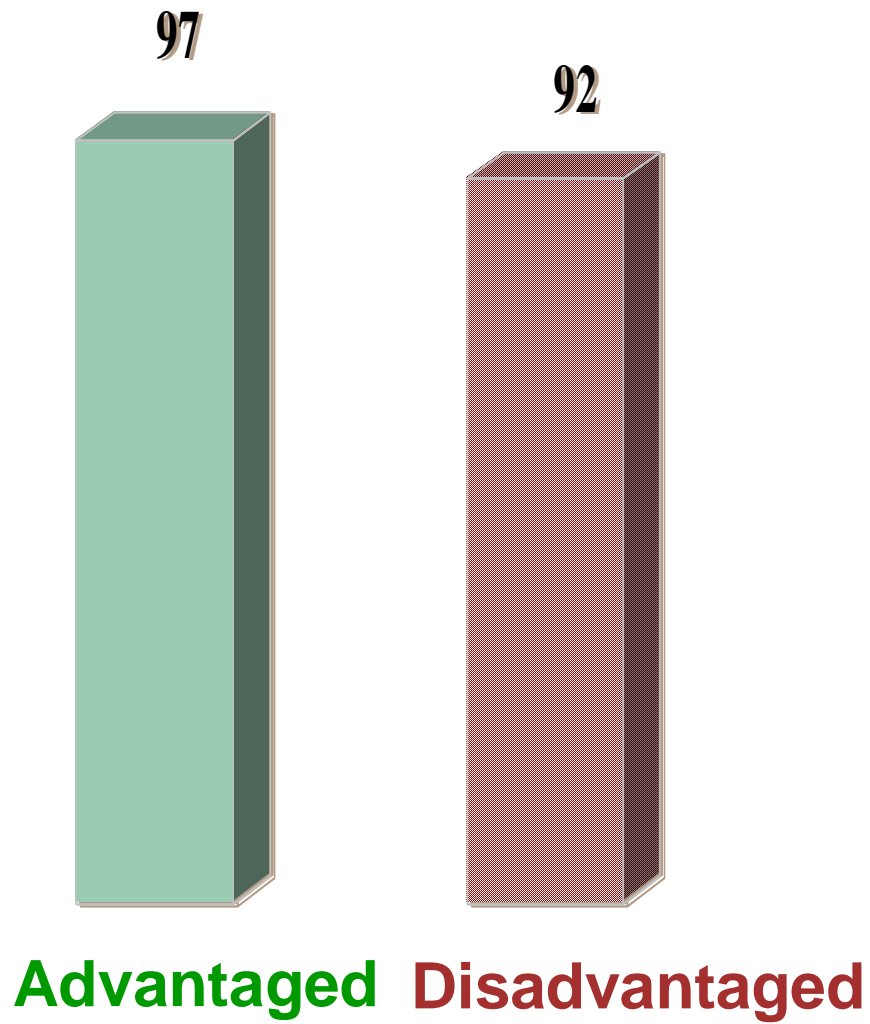
## NON-PROFIT INSTITUTIONS



1983 - 2004

# Figure 4

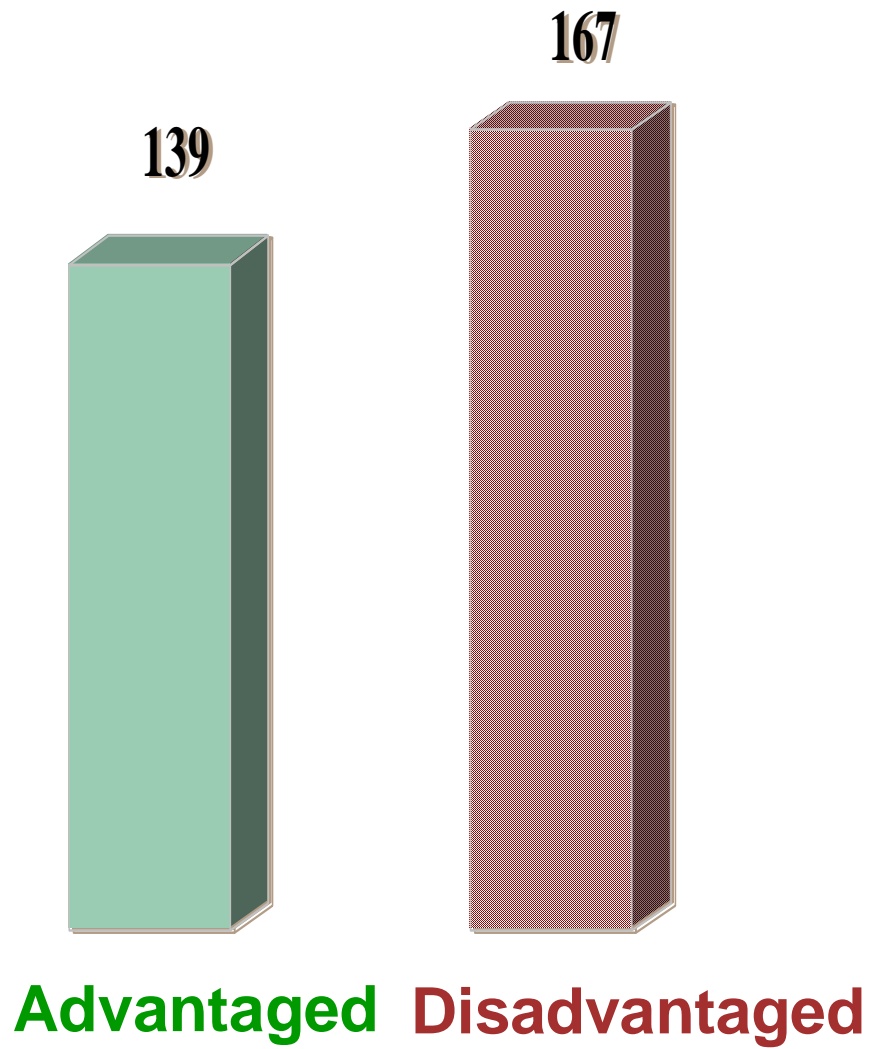
## SMALL BUSINESSES



1983 - 2004

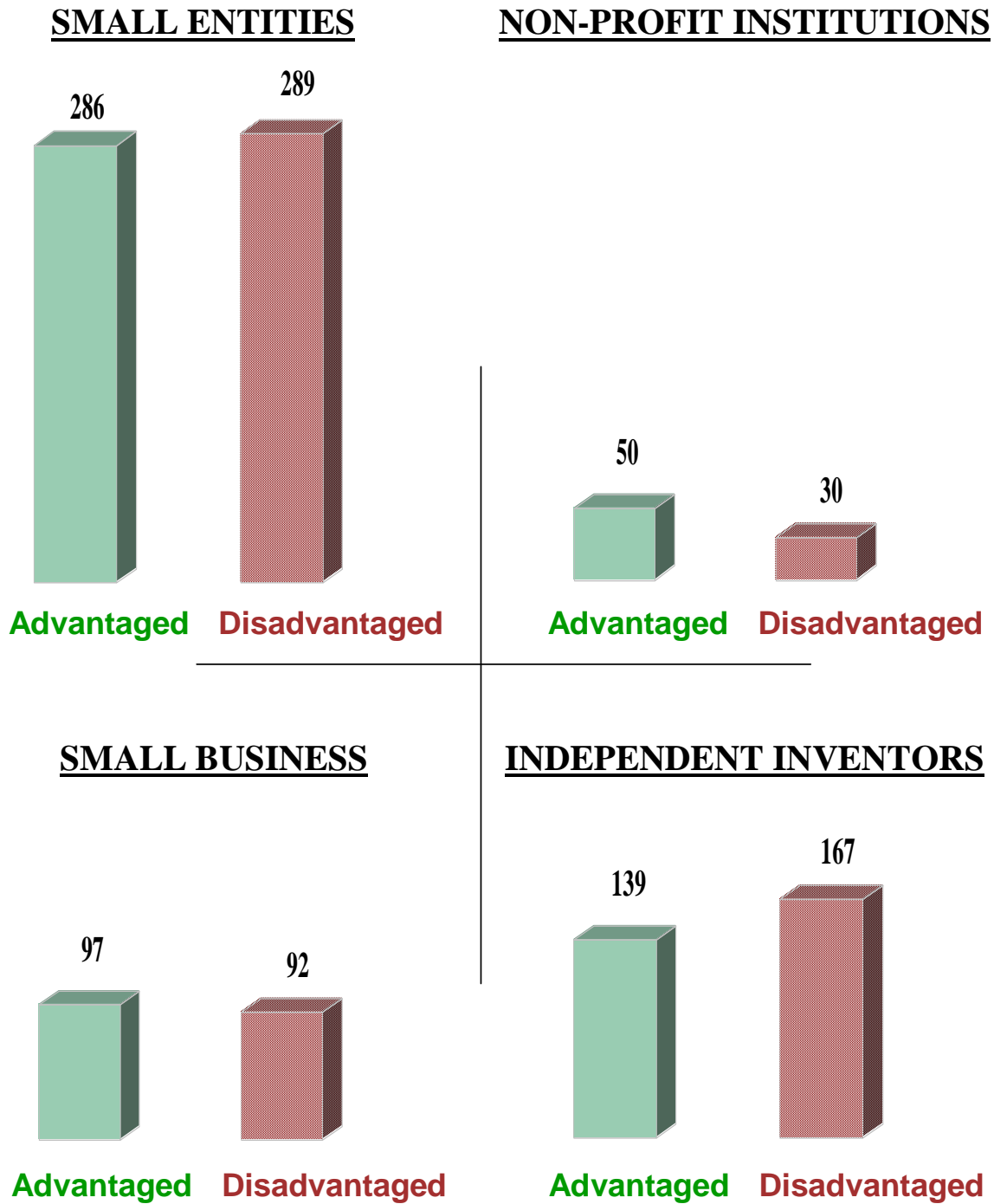
# Figure 5

## INDEPENDENT INVENTORS



1983 - 2004

# Figure 6



**1983 - 2004**