

Intellectual Property and Women Entrepreneurs

Quantitative Analysis
Conducted by the National Women's Business Council
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**NATIONAL WOMEN'S
BUSINESS COUNCIL**



**ADVISORS TO
THE PRESIDENT,
CONGRESS,
AND THE SBA**

INTELLECTUAL PROPERTY AND WOMEN ENTREPRENEURS

QUANTITATIVE ANALYSIS

FEBRUARY 2012

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for

National Women's Business Council

The National Women's Business Council is a non-partisan federal government council created to serve as an independent source of advice and counsel to the President, Congress, and the U.S. Small Business Administration on economic issues of importance to women business owners. Members of the Council are prominent women business owners and representatives of women's business organizations. The Council's mission includes conducting and supporting research on issues of importance to women business owners and their organizations in order to promote bold initiatives, policies and programs designed to support women's business enterprises at all stages of development in the public and private sector marketplaces.

1.0 EXECUTIVE SUMMARY

This research focuses on the participation of U.S. based women entrepreneurs in Patents and Trademarks activity. Using data obtained from the United States Patents and Trademarks Office, the study probes, in-depth, the number of patents and trademarks obtained by women entrepreneurs as well as the concomitant gender gap for the period 1975-2010. Commercially available data on the most common names for men and women was used to net 94.11% of the patents granted in a given year. Particular attention was paid to include uncommon names of Chinese, Korean, Indian, Japanese and European origin to ensure that the contributions of immigrant U.S. based women were not overlooked. Both primary and non-primary patentees were examined. The contributions of women entrepreneurs in specific industries were segmented and analyzed. Differences in the rates at which patents and trademarks are assigned by men and women to companies were studied.

Several significant conclusions may be drawn from this research:

1. U.S. based women demonstrate increasing leadership in patent and trademark activities. It should be noted that this report summarizes results only for patentees and trademark holders and these terms do not always connote entrepreneurship.
2. The number of patents granted to women is significantly higher than those reported in earlier studies. Importantly, the number of patents granted to women is increasing at an accelerating pace.

“U.S. based women demonstrate increasing leadership in patent and trademark activities.”

The number of patents granted to women increased by approximately 34.72% from 2009 to 2010. In the same period (2009 to 2010), the number of primary patents granted to women increased by 28.57% and the number of non-primary patents granted to women increased by 38.23%. In this report, the first name on a patent disclosure is assumed to be the

“primary” patent holder. Subsequent names are assumed to be “non-primary” patent holders. The USPTO does not classify “primary” and “non-primary” patentees this way. Sometimes, the names are just listed alphabetically.

3. The highest sustained rate of increase in the grant of U.S. patents to women was in the 1986-1993 period.
4. The slowest rate of increase in patents granted to women was in the 1999-2006 period.
5. The total number of patents obtained by women shows an accelerating rate of increase with time. Similarly, there is an accelerating rate at which women become primary inventors as judged by the first name on a patent disclosure. This suggests an increasing leadership by women entrepreneurs in R&D activities.

6. Of particular interest is the surge of innovation by women in some of the emerging high-tech industries. The field of optics and optical systems was selected to illustrate this observation. For instance, 11.55% of patents in Optical Waveguides had at least 1 woman inventor.

“The participation of women in Trademark activity as measured by the percentage of Trademarks granted has more than doubled in the period between 1980 to 2010, from approximately 16.5% in 1980 to more than 33% in 2010.”

7. The participation of women in Trademark activity as measured by the percentage of Trademarks granted has more than doubled in the period between 1980 to 2010, from approximately 16.5% in 1980 to more than 33% in 2010.

8. Women have a significantly higher participation in Trademark activity as compared to Patent activity. For instance, whereas women received approximately 18% of all patents granted in the year 2010, the contribution of women to Trademark activity was more than 33%.

9. The ratio of successful women patent applicants to successful men patent applicants varies from a low of 73.36% in 1986 to a high of 93.57% in 2002.
10. There is no statistically measurable difference in the proportion of successful women Trademark applicants and successful men Trademark applicants. The analysis shows no bias in the processing of trademark applications. The reasons for the apparent differences in IP protection activity between men and women must be sought in employment patterns, R &D opportunities, and perceptions of risk and reward.

2.0 TECHNICAL APPROACH

2.1 INTRODUCTION

This study was conducted at the initiative of the National Women’s Business Council.

The National Women’s Business Council (NWBC), with its offices located in Washington, D.C., is a bi-partisan federal advisory council created to serve as an independent source of advice and counsel to the President, Congress and the U.S. Small Business Administration on economic issues of importance to women business owners. Members of the Council are prominent women business owners and leaders of women’s business organizations.

The Council’s mission is to promote bold initiatives, policies, and programs designed to support women’s business enterprises at all stages of development in the public and private sector marketplace – from startups to significance.

One of NWBC's current priorities is to examine in-depth the relationship between intellectual property and women-owned businesses. There is some information on women and patents; but the NWBC would like to dive deeper and cast a wider net in this research project.

2.2 OBJECTIVES

The objectives of this study are:

1. Quantitatively define the number of women entrepreneurs applying for and receiving patents and trademarks.
2. Analyze the differences in the number of women applying for and receiving patents and trademarks as compared to men. Analyze sub-groups of women.

The quantitative study will be followed by a qualitative study whose objectives are:

1. Conduct focus groups with women who have received patents and trademarks; women who have applied for but have not received patents and trademarks; and women who do not even know they should or could apply for these.
2. Through the focus group probe questions such as
 - What are the long-term effects on businesses that receive patents or trademarks?
 - What are the perceived barriers facing women entrepreneurs surrounding protecting their IP?
 - What are the actual barriers?
 - How do we address these barriers (both perceived and actual)?

2.3 SCOPE

Only U.S. based women entrepreneurs were considered in this study. The data on patents and trademarks was purchased from the USPTO. Commercial sources based on data from the United States Bureau of Census and the United States Social Security Administration were used for men and women. A large number of lists were used to include not so common names of Korean, Indian, Chinese, Japanese, Hebrew, German and other European origin.

The scope of the study included the number of patents and trademarks granted to men and women for the period 1975-2010 as well as an analysis of the gender gap. Sub-groups of women in specific industries wherein the contribution of women entrepreneurs is the highest were identified. The gap between patents and trademarks filed versus granted was studied. Trends in the grant of patents and trademarks were examined and a regression analysis of patents granted was performed.

Future areas for research were identified. Results from the quantitative analysis will be used to conduct in-depth focus group studies of the issues facing women entrepreneurs in pursuing IP protection.

2.4 THE LITERATURE

The USPTO does not track patents and trademarks data by gender. Information about women entrepreneurs has to be deduced by interrogating the USPTO data using names that are commonly used for men and women. There is growing interest in the contribution of women to intellectual property; however, only a few studies have addressed this issue.

Lisa et al.¹ studied the commercialization gap between women patentees and the U.S. patentee population with a particular focus on the African American population. They found that there is a correlation between advanced degrees and the assignment of patents to businesses. The study also included a comprehensive bibliography of literature in this domain.

The United States Patents and Trademarks Office in its report, *Buttons to Biotech, 1996 Update Report, with supplement data through 1998, U.S. Patents by Women, 1977 to 1996*, examine the total grant of patents and the share of patents granted to women. The report also segments the data within major patent categories, namely, utility, design, plant and other categories.

The current study extends the USPTO research to 2010 and probes deeper into patents and trademarks granted to women.

2.5 ANALYSIS OF PATENTS

2.5.1 THE DATA

An optical disk containing data on patents granted between the years 1975 and 2010 was obtained from the United States Patents and Trademarks Office. Weekly USPTO database reports on patents were also downloaded.

2.5.2 DATA FOR NAMES OF MEN AND WOMEN

This was a key step in the research, and a critical one. Multiple sources were used to gather names of men and women from all over the world. These lists were then used to allocate the inventors in the patent database to men and women:

The first iteration used the 10,000 most popular names for men and 10,000 most popular names for women available from a commercial source, Smashwords:

<http://www.smashwords.com/books/view/61805>

<http://www.smashwords.com/books/view/61801>

The Smashwords data is derived from data published by the U.S. Social Security Administration for the year 2010 and authored by Nancy Man. Other sources used for the analysis included:

- U.S. Census Bureau: <http://www.census.gov/genealogy/names/dist.female.first>
- U.S. Census Bureau: <http://www.census.gov/genealogy/names/dist.male.first>
- U.S. Social Security Administration:
<http://www.ssa.gov/OACT/babynames/limits.html>

Data sources used to categorize and allocate uncommon names included:

- Japanese Names, Source: 20,000names.com
- Korean Names, Source: 20,000names.com
- Chinese Names, Source: 20,000names.com
- Hindi Names, Source: 20,000names.com
- French Names, Source; 20,000names.com
- German Names, Source: 20,000names.com
- Spanish Names, Source: 20,000names.com
- Polish Names, Source; 20,000names.com
- Persian Names, Source: 20,000names.com
- Russian Names, Source: 20,000names.com
- Yiddish Names, Source: 20,000names.com
- Greek Names, Source: 20,000names.com
- Canadian Names, Source: familyberry.com
- Brazilian Names, Source: familyberry.com
- African Names, Source: 20,000names.com
- Italian Names, Source: 20,000names.com
- United Kingdom Names, Source: 50 British women's names, BabyNames.co.uk
- Turkish Names, Source: 20,000names.com
- Arabic Names, Source: 20,000names.com
- Irish Names, Source: 20,000names.com
- Unisex Names: familyberry.com

2.5.3 LIMITATIONS OF THE DATABASE OF NAMES

1. The Social Security Data of births in the US suffers from the limitation of not including the changing demographics due to immigration.
2. There are limitations imposed by the USPTO data itself. Some of the patent disclosures do not show a first name. There are others with initials but no first name. As the sort is done by the first name, these patent disclosures cannot be sorted and allocated to men and women. In addition, the names as spelled in the patent award sometimes do not match the spelling that is used in the US Census data or the data from commercially available sources.

3. Some common names are used both for men and women. For instance, the name “John” appears both in the database of men and of women, although the frequency at which the name occurs in the database of men and women is different.
4. American names that have their apparent origin in China, Korea, Japan, India, France and Germany require highly specialized sorting to differentiate between the names of men and women. For instance, the name Suratha is usually used by men in India but can be easily misread as a woman’s name.
5. The most common names change with time; the most common names used in 1977 were not necessarily the same as the ones used in 2010.
6. The patent applications filed data from 2003 to 2010 was as yet incomplete.

Ideally, one would like to assign 100% of the patents deterministically to men and women. However, the limitations of the USPTO data as well as the changing demographics of the US

population preclude a 100% capture rate.

“94.11% of the names in patent disclosures were deterministically identified. The remainder, that is 5.89% of the names that could not be identified as male or female, were allocated based on the ratio of patents awarded to males and females for each year.”

A concerted effort was made to reduce the number of names that are not deterministically male or female. Several passes were made using multiple databases of names to capture an acceptable number of patents for allocation to men and women. 94.11% of the names in

patent disclosures were deterministically identified. The remainder, that is 5.89% of the names that could not be identified as male or female, were allocated based on the ratio of patents awarded to males and females for each year.

2.5.4 DATA PREPARATION

A Data Warehouse was prepared using the ETL (extraction, transformation and loading) process. The structure of the Warehouse was prepared in accordance with the available data to facilitate loading and then querying the data for the desired results while maintaining data integrity.

The data was successfully loaded into the database following data Extraction, Transformation and Cleaning.

2.5.5 DATA SORT

2.5.5.1 GENDER ASSIGNMENT

The first sort used only the names that were exclusively female or male. This assignment was based on two lists containing the 10,000 most common female names and 10,000 most common

male names derived from the U.S. Social Security Administration data. The lists account for 90% of the male and female names in the United States.

2.5.5.2 NAMES COMMON TO BOTH MEN AND WOMEN

The two lists used for the first sort showed a substantial number of names that were common to men and women. The following procedure was used for gender assignment of unisex names:

1. After assigning a gender to the exclusively female and male names based on the 10,000 most common female names and 10,000 most common male names lists, the count of female and male patentees for every year from 1975 to 2010 was obtained. This is referred to as FemaleCountInDB and MaleCountInDB in the formulae below.
2. The two lists used for the base sort provided information on the occurrence of common names in 1 million females and 1 million males respectively. These values (referred to as FemaleNameOccurance(Base1million) and MalesNameOccurance(Base1million) in the formulas below) were also taken into account.

For a name 'XYZ' that occurred 'n' number of times in the database in a year and was used as a common name for men and women, the following formulae were used to apportion male and female names to our database:

$$\text{AllocatedFemaleShare} = \frac{[\text{FemaleNameOccurance}(\text{Base1Million})]^*}{(\text{FemaleCountInDB} / (\text{FemaleCountInDB} + \text{MaleCountInDB}))}$$

$$\text{AllocatedMaleShare} = \frac{[\text{MaleNameOccurance}(\text{Base1Million})]^*}{(\text{MaleCountInDB} / (\text{FemaleCountInDB} + \text{MaleCountInDB}))}$$

$$\text{Number of names 'XYZ' that were designated as females (nf) in that year} = \frac{(\text{AllocatedFemaleShare} * n)}{(\text{AllocatedFemaleShare} + \text{AllocatedMaleShare})}$$

$$\text{Number of names 'XYZ' that were designated as males (nm) in that year} = \frac{(\text{AllocatedMaleShare} * n)}{(\text{AllocatedFemaleShare} + \text{AllocatedMaleShare})}$$

The first 'nf' names were marked as females and the subsequent 'nm' names were marked as males. This procedure was followed first for primary inventors and then for non-primary inventors. The procedure resulted in gender assignments to the bulk of the inventors in the US.

3. Multiple commercially available name lists were then used to assign gender to the remaining names. The bulk of these names were of Chinese, Japanese, Korean, Indian, Spanish, German and French origin. Names from all over the world were procured to assign gender to the names that appeared to be exclusively male or female. The names that appeared to be used by males and females were allocated based on the count of female and male names per year in the database at that point.
- “Names from all over the world were procured to assign gender to the names that appeared to be exclusively male or female.”*
4. The number of unassigned records was further reduced by additional sorts using uncommon names from China, India, Korea, Germany and other countries.
5. These procedures resulted in the allocation of 94.11% of the names of patent holders to the male and female categories. However, of a total of 4,887,424 patent records from the USPTO database, about 287,980 (5.89%) records remained. These unassigned records were apportioned to males and females based on the ratio of male to female patentees in the database. The allocation was done on a per year basis.
6. This procedure was followed first for primary inventors and then for non-primary inventors. This was done to ensure uniformity while assigning gender to the inventors.

2.5.5.3 PRIMARY AND NON-PRIMARY INVENTORS

Separate sorts were used for the primary inventor and the non-primary inventors.

2.5.5.4 THE IMPACT OF CHANGING DEMOGRAPHY

The commercially available lists of the names of men and women are drawn from the U.S. Census database which includes 90% of the U.S. population and stops when a name occurs less than 5 times. The changing demographics of the United States include immigrant groups from Japan, Korea, China, India and other countries that show a significant and growing participation in the patent process. Some of the names from these immigrant groups do not necessarily occur more than 5 times to be captured by the U.S. Census database which includes 90% of

“The changing demographics of the United States include immigrant groups from Japan, Korea, China, India and other countries that show a significant and growing participation in the patent process.”

the U.S. population. This limitation was overcome by using commercially available names of men and women from these immigrant groups. Successive filters were applied to identify the

names of men and women from the unassigned list of patent holders to ensure that the number of women patent holders was not undercounted.

2.5.5.5 PATENT DISCLOSURES FROM USPTO DATABASE WITH NO FIRST NAME OR INITIALS ONLY

The USPTO Database has a large number of disclosures with no first name or only an initial. These were assigned to the male and female categories in proportion to the number of patents granted to men and women for that year.

2.5.5.6 SEGMENTATION ANALYSIS BY PATENT CLASS

A comprehensive and exhaustive segmentation analysis of all 464 Patent Classes contained in

“The USPTO database for the top 25 Classes as determined by the number of patents granted to women was interrogated for each of the years 1975-2010.”

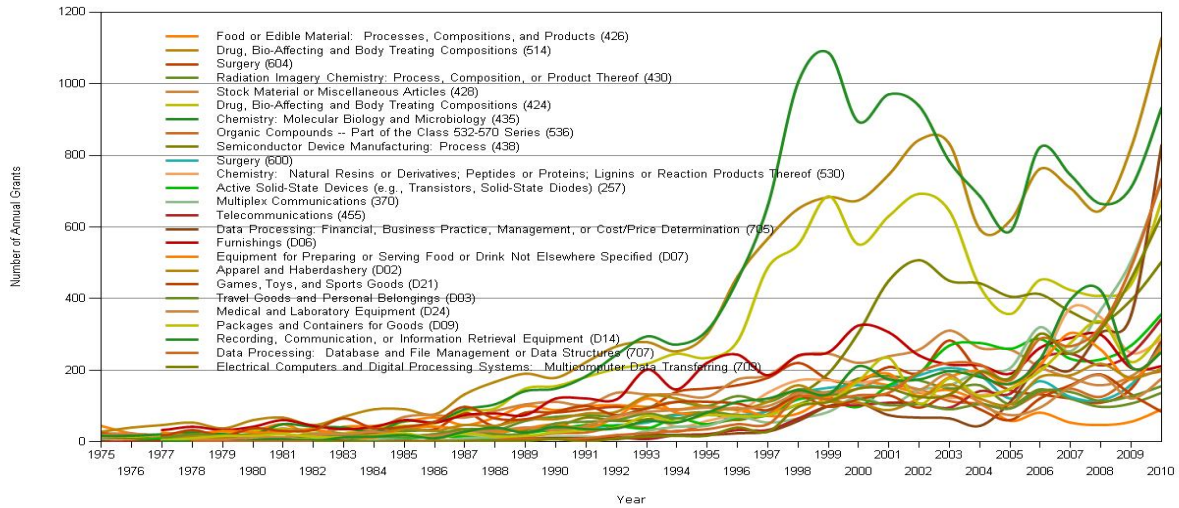
the USPTO database was conducted to determine the share of patents granted to women. The objective was to obtain quantitative information about the contribution of women to patent activity across all industries and then to interrogate the results further for insights into specific

industries wherein the contribution of women entrepreneurs was the highest. A table is presented in Appendix 2.

2.5.5.7 PATENTS GRANTED IN THE TOP 25 CLASSES – A LONGITUDINAL STUDY

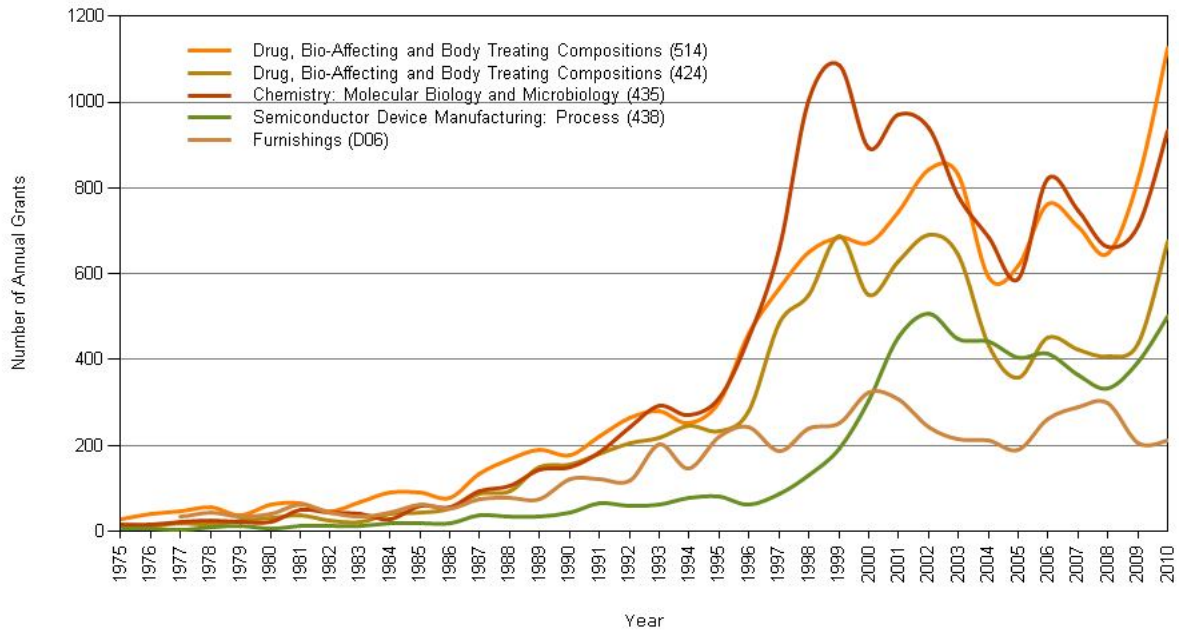
The USPTO database for the top 25 Classes as determined by the number of patents granted to women was interrogated for each of the years 1975-2010. The objective was to identify the trends in patent activity in specific industries.

The top 25 segments with the highest participation by women are shown in Table 1. The number as well as percentages of patents granted to women in the top 25 Classes are plotted for the years 1975-2010.

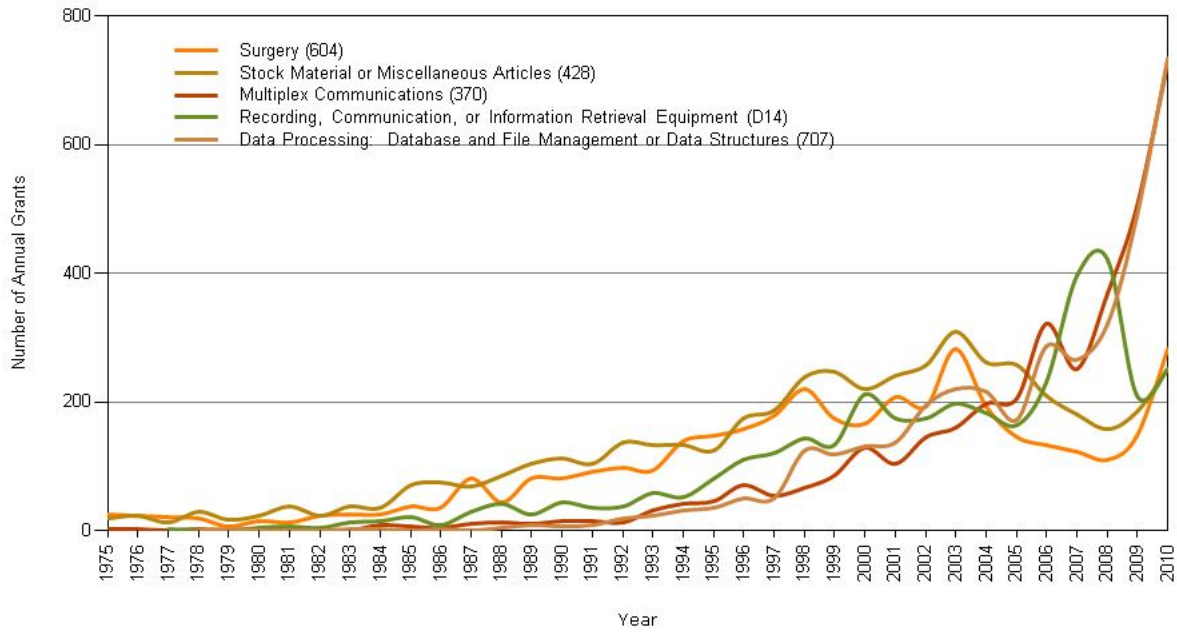


As a single chart for all 25 of the top Classes had too much information and was difficult to read, the same results were divided into five separate charts each containing 5 of the top Classes.

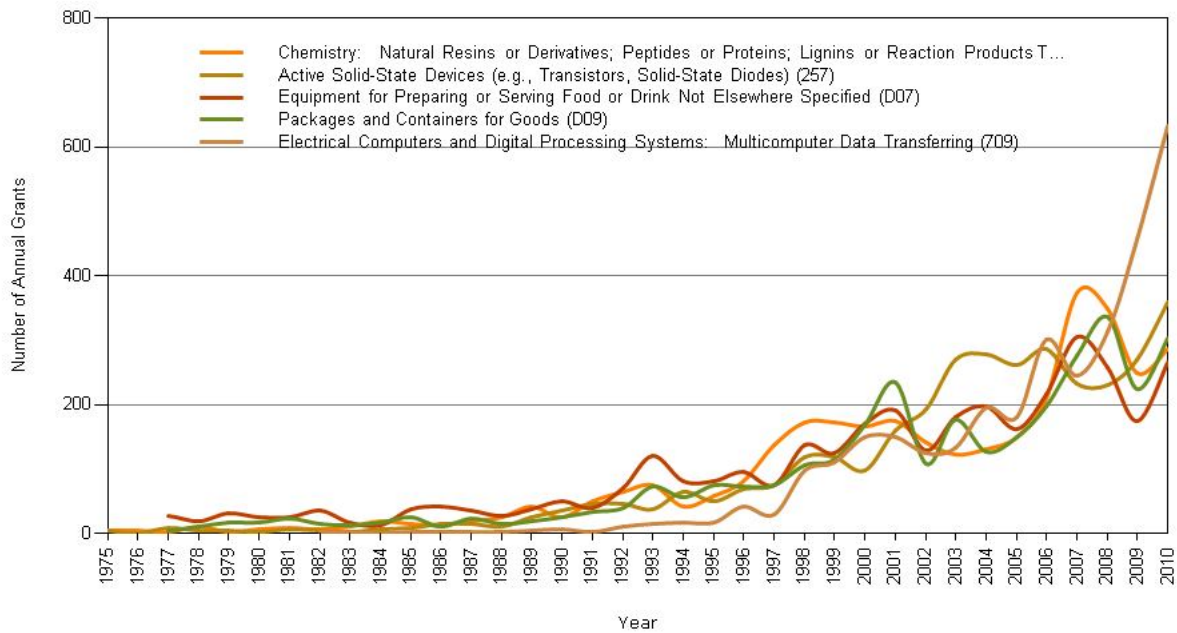
Top 25 patent classes with the highest number of women inventors (Rank 1 to 5)



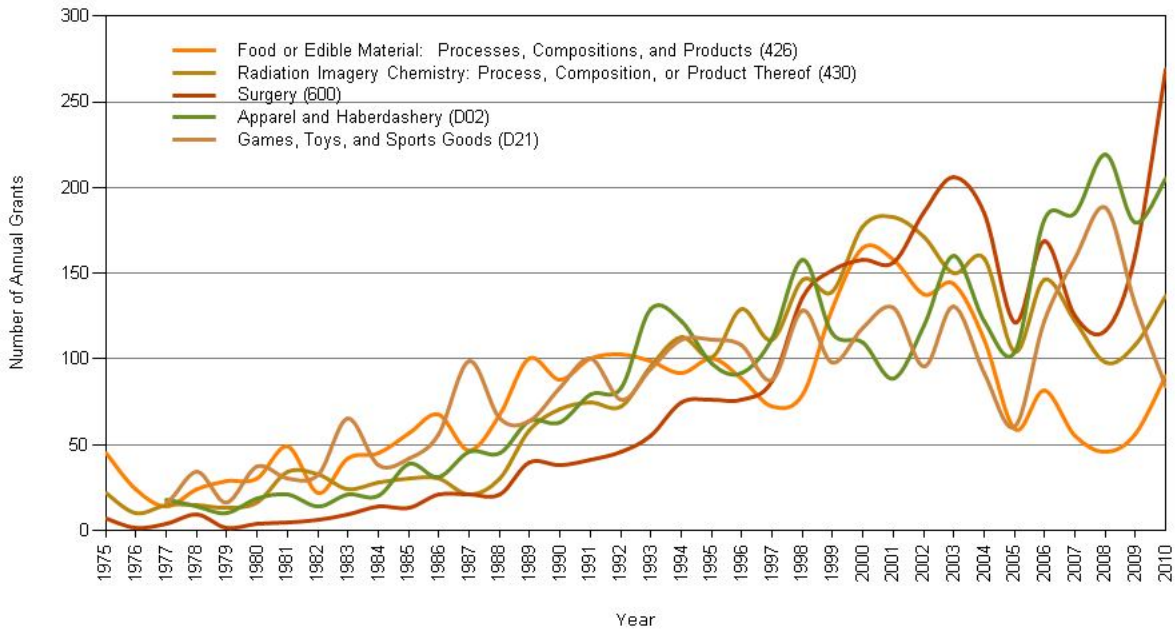
Top 25 patent classes with the highest number of women inventors (Rank 6 to 10)



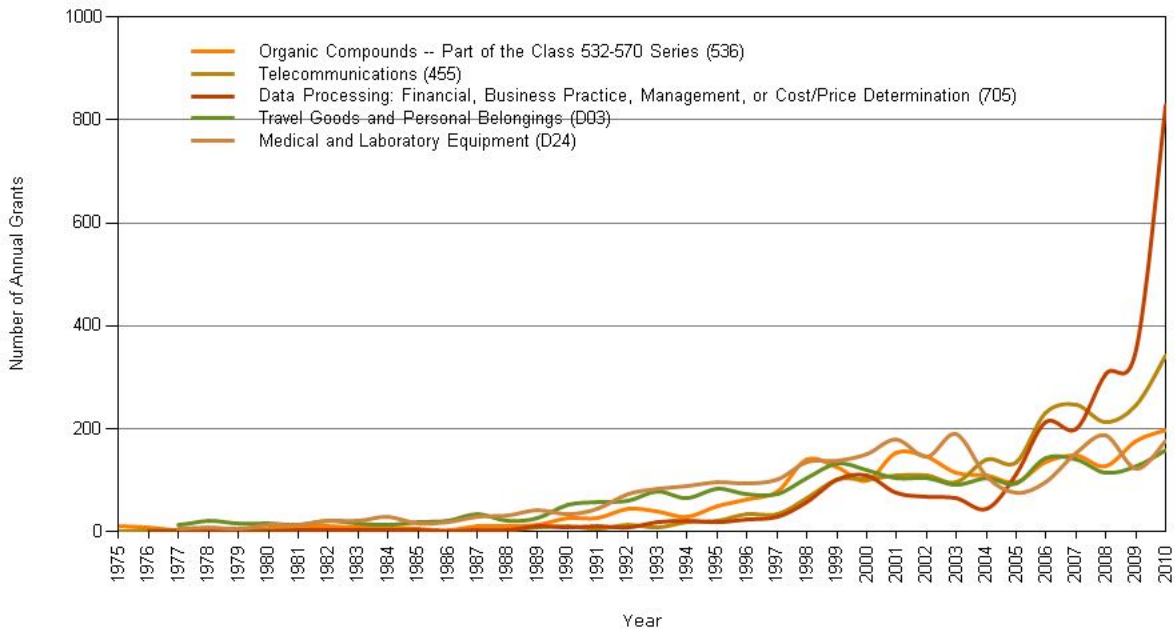
Top 25 patent classes with the highest number of women inventors (Rank 11 to 15)



Top 25 patent classes with the highest number of women inventors (Rank 16 to 20)



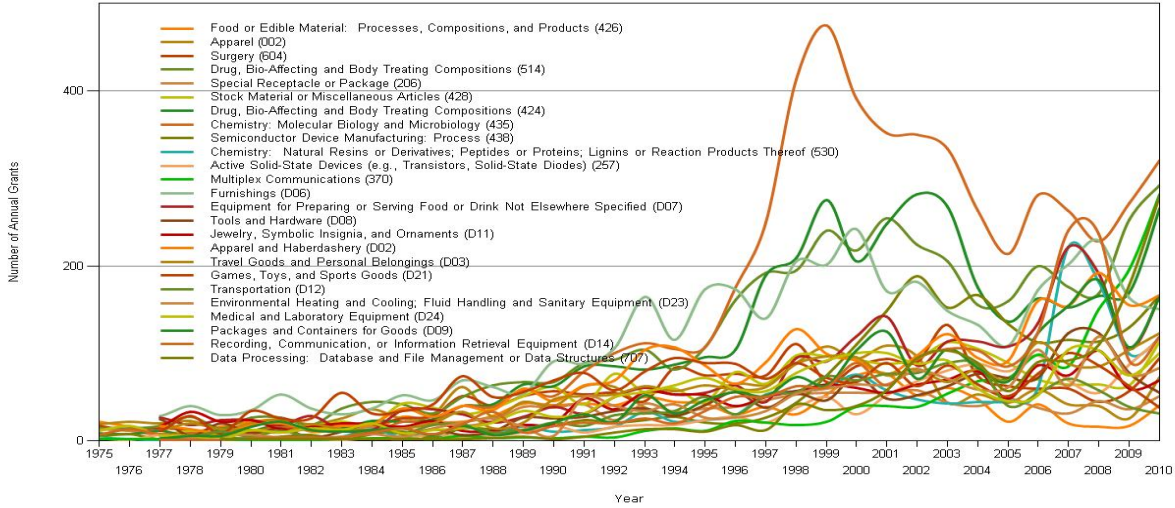
Top 25 patent classes with the highest number of women inventors (Rank 21 to 25)



The USPTO database was probed further to identify the number of patents wherein a woman was

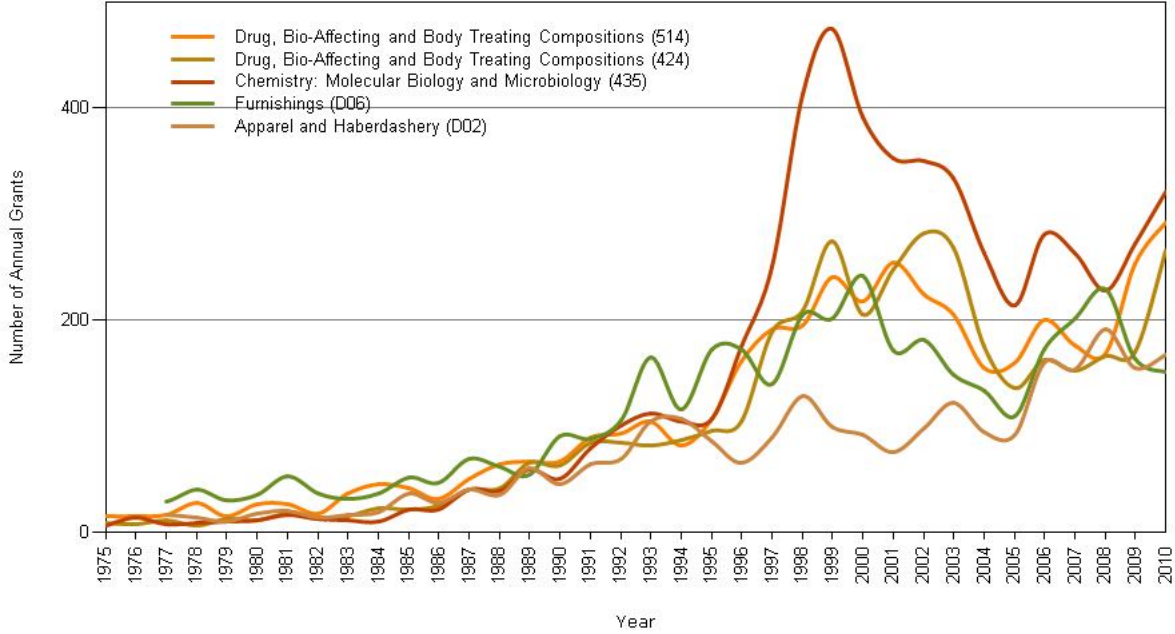
“The USPTO database was probed further to identify the number of patents wherein a woman was the primary inventor”

the primary inventor. The results for the top 25 of the Classes are presented in the following charts.

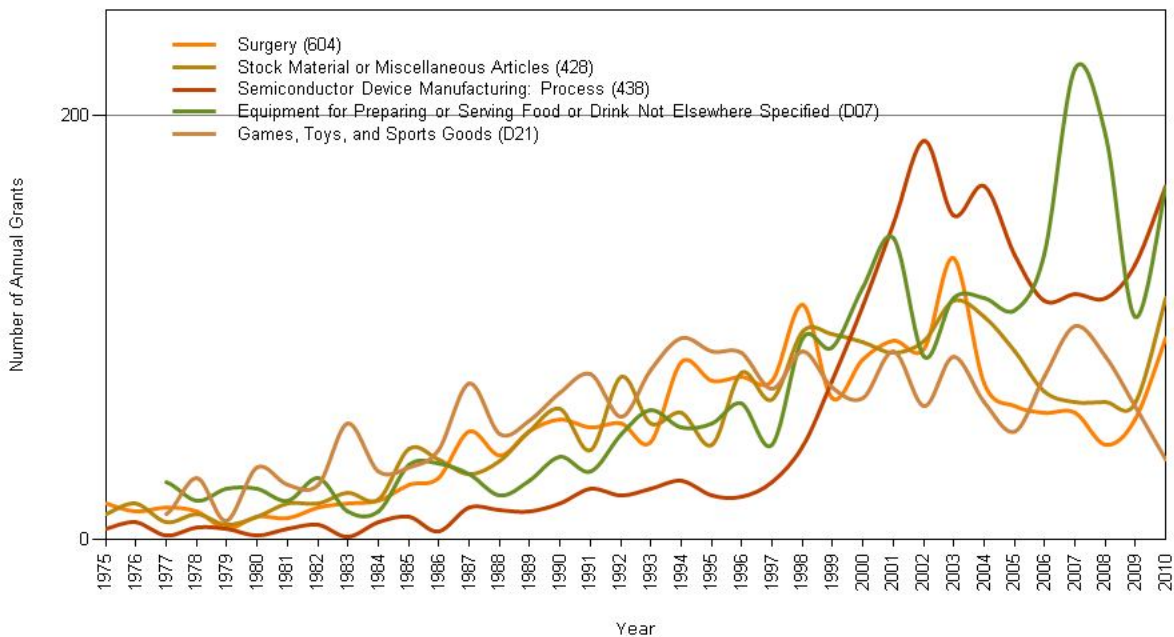


The results were divided into five separate charts each containing 5 of the top Classes.

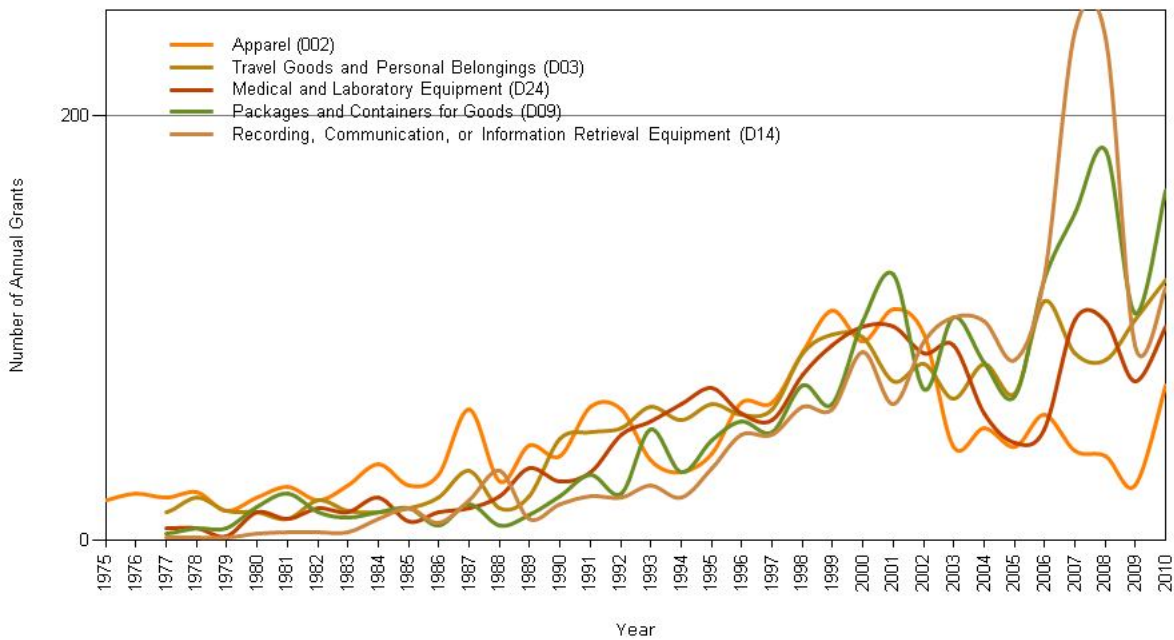
Top 25 patent classes with the highest number of women primary inventors (Rank 1 to 5)



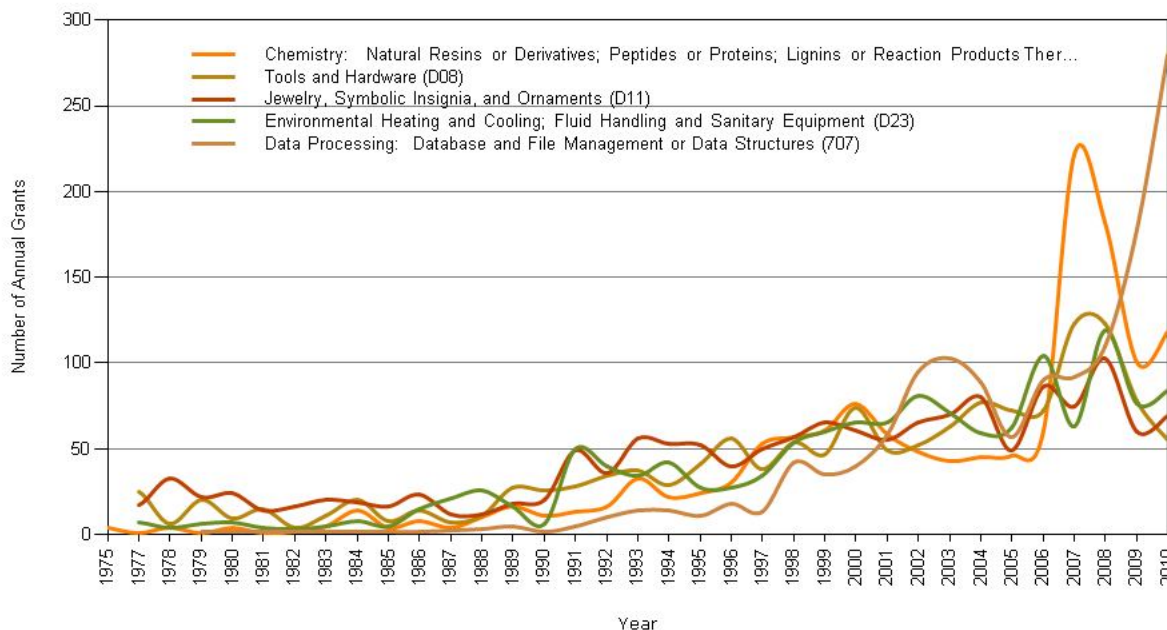
Top 25 patent classes with the highest number of women primary inventors (Rank 6 to 10)



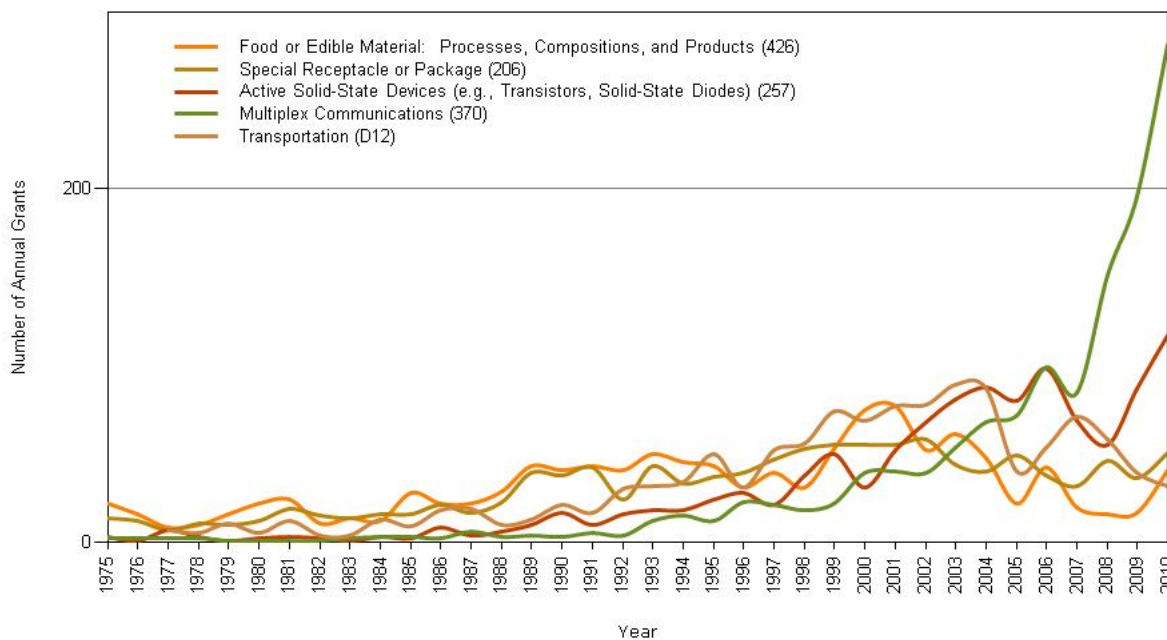
Top 25 patent classes with the highest number of women primary inventors (Rank 11 to 15)



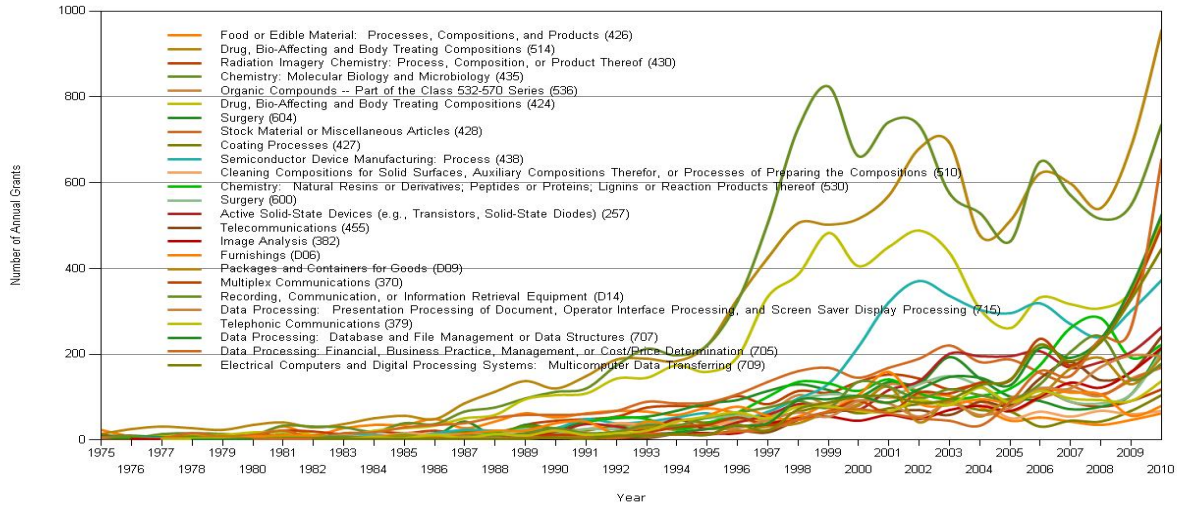
Top 25 patent classes with the highest number of women primary inventors (Rank 16 to 20)



Top 25 patent classes with the highest number of women primary inventors (Rank 21 to 25)



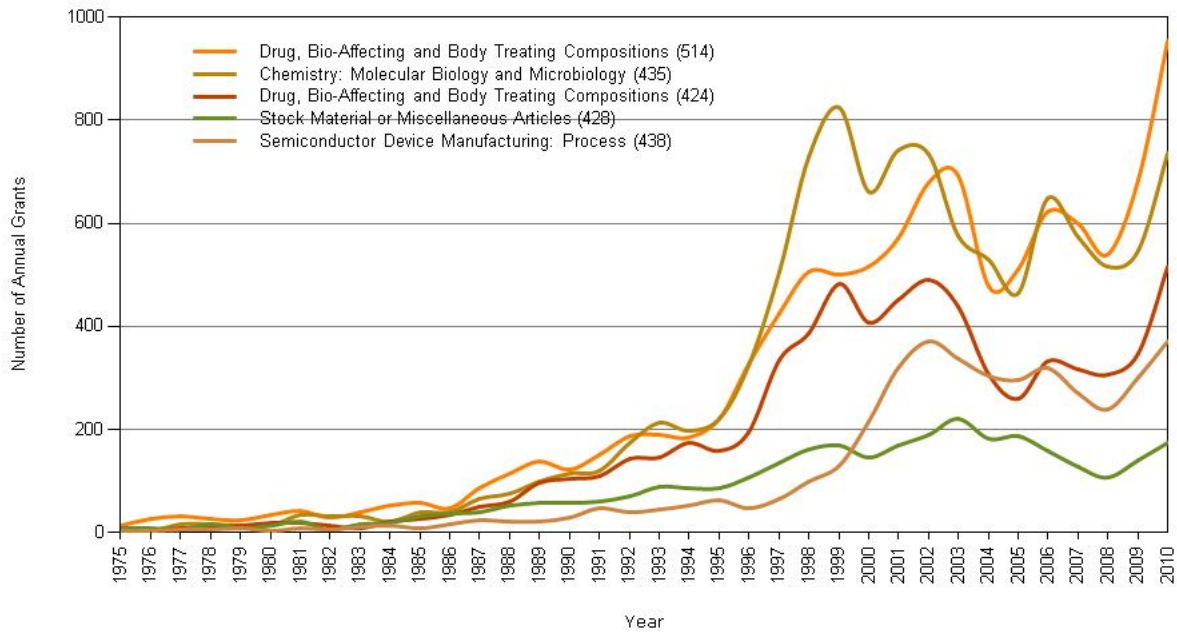
Similarly, the results for patents wherein a woman was a non-primary inventor are presented in the following chart.



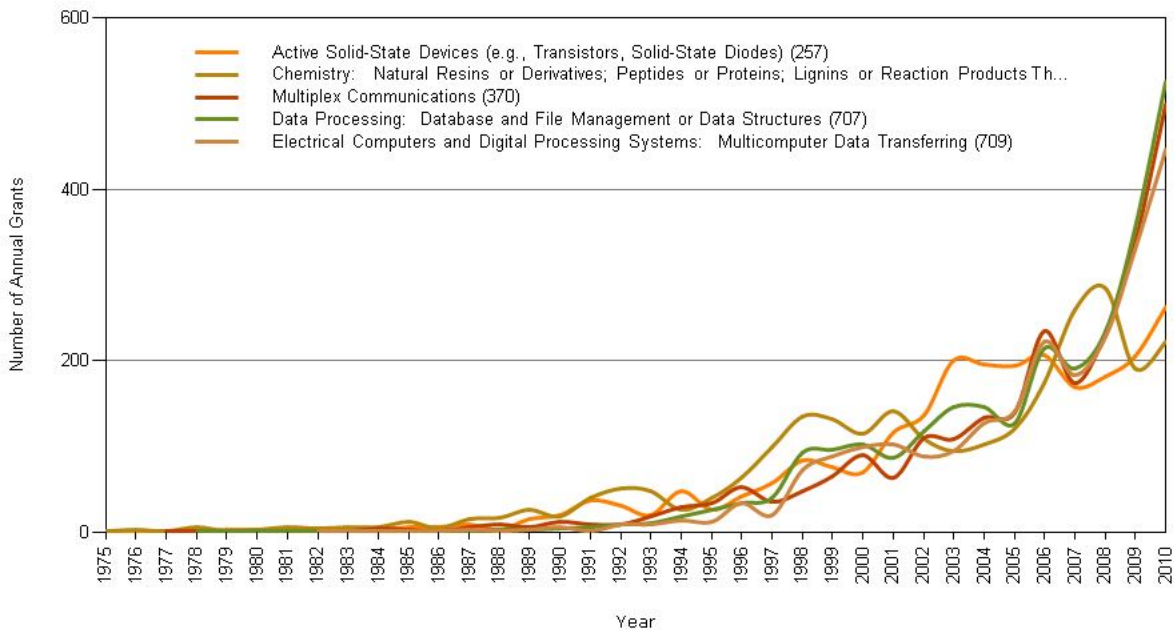
Patents Granted to Women (Non-Primary Inventor) - Breakdown by Patent Class

For clarity, the results were divided into five separate charts each containing 5 of the top Classes.

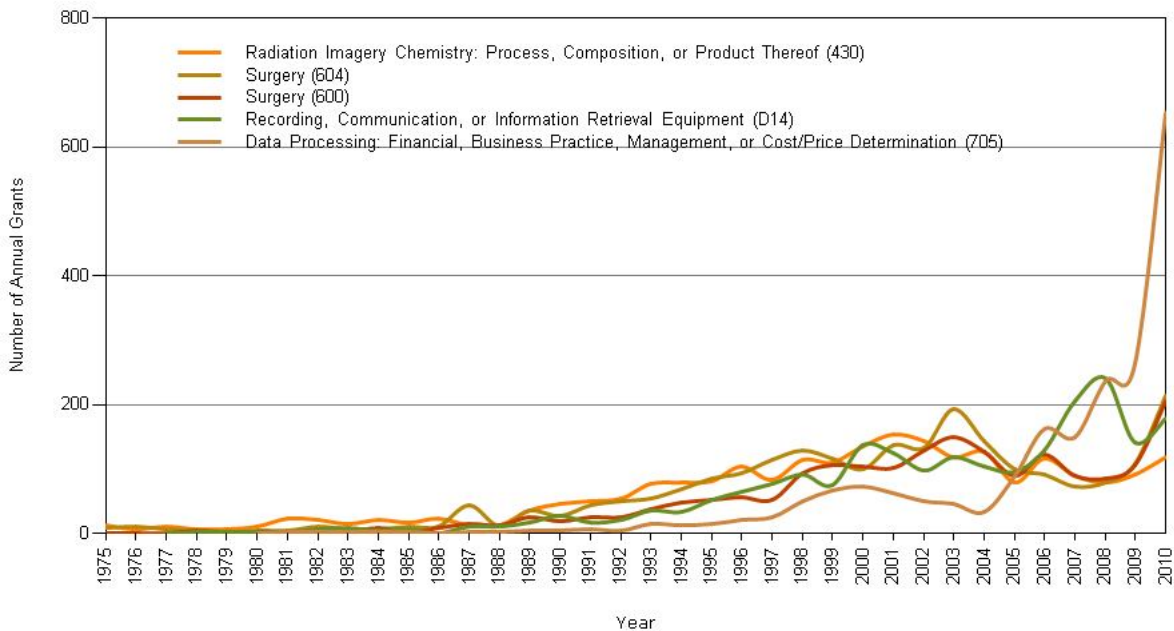
Top 25 patent classes with the highest number of women non-primary inventors (Rank 1 to 5)



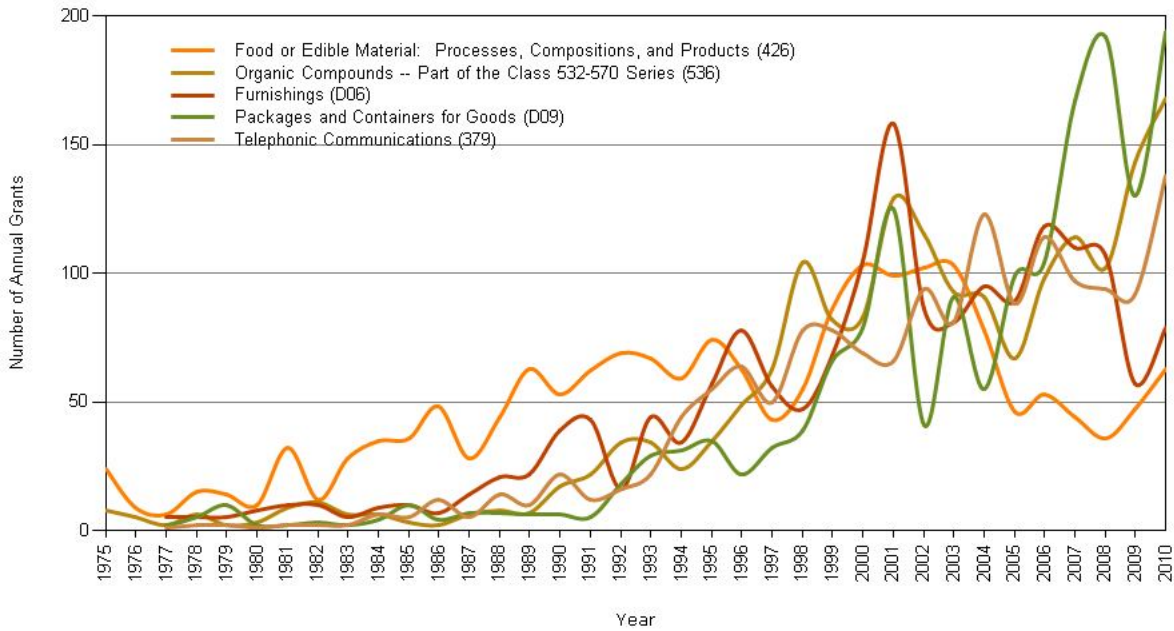
Top 25 patent classes with the highest number of women non-primary inventors (Rank 6 to 10)



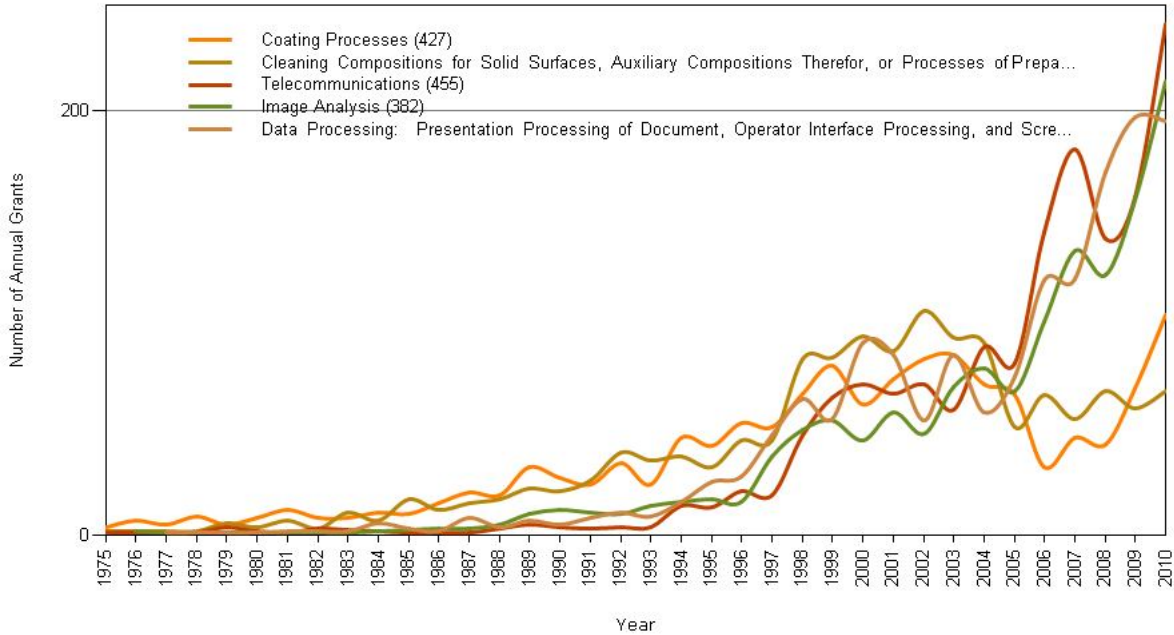
Top 25 patent classes with the highest number of women non-primary inventors (Rank 11 to 15)



Top 25 patent classes with the highest number of women non-primary inventors (Rank 16 to 20)



Top 25 patent classes with the highest number of women non-primary inventors (Rank 21 to 25)



Patent Class Code	Patent Class Title (according to the United States Patents and Trademarks Office (USPTO))	Total no. of Patents	No. of Patents with at least 1 Woman Inventor	% Women Patents
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435	Chemistry: Molecular Biology and Microbiology	40,314	14,129	35.05
514	Drug, Bio-Affecting and Body Treating Compositions	49,801	13,434	26.98
424	Drug, Bio-Affecting and Body Treating Compositions	32,515	9,625	29.60
438	Semiconductor Device Manufacturing: Process	34,848	5,677	16.29
D06	Furnishings	26,707	5,297	19.83
428	Stock Material or Miscellaneous Articles	32,518	4,780	14.70
604	Surgery	22,666	3,838	16.93
707	Data Processing: Database and File Management or Data Structures	17,901	3,664	20.47
370	Multiplex Communications	28,613	3,615	12.63
D14	Recording, Communication, or Information Retrieval Equipment	17,071	3,602	21.10
D07	Equipment for Preparing or Serving Food or Drink Not Elsewhere Specified	14,138	3,496	24.73
530	Chemistry: Natural Resins or Derivatives; Peptides or Proteins; Lignins or Reaction Products Thereof	9,356	3,413	36.48
257	Active Solid-State Devices (e.g., Transistors, Solid-State Diodes)	26,534	3,412	12.86
709	Electrical Computers and Digital Processing Systems: Multicomputer Data Transferring	19,922	3,239	16.26
D09	Packages and Containers for Goods	13,414	3,174	23.66
D02	Apparel and Haberdashery	10,807	3,087	28.56
430	Radiation Imagery Chemistry: Process, Composition, or Product Thereof	14,736	2,987	20.27
D21	Games, Toys, and Sports Goods	15,817	2,905	18.37
600	Surgery	23,491	2,812	11.97
426	Food or Edible Material: Processes, Compositions, and Products	12,503	2,719	21.75
D24	Medical and Laboratory Equipment	11,088	2,719	24.52
705	Data Processing: Financial, Business Practice, Management, or Cost/Price Determination	13,276	2,692	20.28
D03	Travel Goods and Personal Belongings	8,571	2,330	27.18
455	Telecommunications	20,520	2,322	11.32
536	Organic Compounds, Part of the Class 532-570 Series	6,964	2,239	32.15

Table 1: The top 25 of the segments with the highest participation by women

2.5.5.8 CATEGORIES WITH THE SHARPEST INCREASE IN THE NUMBER OF PATENTS

The top 5 categories that show the sharpest increase in the number of patents with at least 1 woman inventor are shown in Table 2a. Data processing as applied to Financial, Business

“Data processing as applied to Financial, Business Practice, Management, or Cost/Price Determination (705) shows a whopping 172.13% increase from 2008 to 2010. Surgery (604) is in the second place with an increase of 156.36%.”

Practice, Management, or Cost/Price Determination (705) shows a whopping 172.13% increase from 2008 to 2010. Surgery (604) is in the second place with an increase of 156.36%. Surgery (600) is in the third place with an increase of 129.91%. Data processing as applied to Database and File Management or

Data Structures (707) is in the fourth place with an increase of 127.95%. Electrical Computers and Digital Processing Systems as applied to Multicomputer Data Transferring (709) is in the fifth place with an increase of 101.92%.

Patent Class Code	Patent Class Title	2008	2009	2010	2 year % increase 2008-2010
705	Data Processing: Financial, Business Practice, Management, or Cost/Price Determination	305	354	830	172.13
604	Surgery	110	148	282	156.36
600	Surgery	117	160	269	129.91
707	Data Processing: Database and File Management or Data Structures	322	489	734	127.95
709	Electrical Computers and Digital Processing Systems: Multicomputer Data Transferring	313	456	632	101.92

Table 2a: Industries with the Highest Recent Surge in Patent Activity - The top 5 Patent Categories with the largest percentage increase in patents with at least 1 woman inventor in the two year period 2008-2010.

Patent Class Code	Patent Class Title	2008	2009	2010	2 year % increase 2008-2010
705	Data Processing: Financial, Business Practice, Management, or Cost/Price Determination	1,324	1,621	3,419	158.23
604	Surgery	496	642	1,249	151.81
600	Surgery	729	881	1,401	92.18

707	Data Processing: Database and File Management or Data Structures	1,458	2,153	3,301	126.4
709	Electrical Computers and Digital Processing Systems: Multicomputer Data Transferring	1,986	2,421	3,330	67.67

Table 2b: The above 5 patent categories showing all the patents awarded in the two year period 2008-2010.

2.5.5.9 CONTRIBUTIONS IN EMERGING HIGH-TECH SECTORS

Of particular interest is the surge of innovation by women in some of the emerging high-tech industries. The field of optics and optical systems was selected to illustrate this observation. Optics and optical communications have a broad range of applications in both civilian and defense sectors and constitute an important differentiator in the strength of an economy. Table 3 shows that 12.95% of the patents in Photography and Optical Equipment had at least 1 U.S.

“12.95% of the patents in Photography and Optical Equipment had at least 1 U.S. woman inventor. For Optical Waveguides, 11.55% of the patents had at least 1 woman inventor. Optics, Eye Examining, Vision Testing and Correcting came in third at 10.91%.”

woman inventor. For Optical Waveguides, 11.55% of the patents had at least 1 woman inventor. Optics, Eye Examining, Vision Testing and Correcting came in third at 10.91%. Specific data on the employment of women in these industries is required to

correlate this data with employment patterns. This is an issue to investigate in future studies as it would throw more light on the growing presence of and contribution of women in high-tech segments.

Patent Class Code	Patent Class	Total no. of Patents	Patents with at least 1 woman inventor	Percent
D16	Photography and Optical Equipment	2,995	388	12.95
385	Optical Waveguides	15,112	1,746	11.55
351	Optics: Eye Examining, Vision Testing and Correcting	3,859	421	10.91
398	Optical Communications	4,084	441	10.80
720	Dynamic Optical Information Storage or Retrieval	348	35	10.06
359	Optical: Systems and Elements	16,434	1,402	8.53
356	Optics: Measuring and Testing	14,657	1,200	8.19
353	Optics: Image Projectors	1,783	116	6.51

352	Optics: Motion Pictures	614	16	2.61
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Table 3: Highlighting Women’s Contributions to Optical Technologies, an Emerging High-tech Sector

Table 4 represents the results obtained by querying the database for primary patent holders only. This data is a measure of leadership provided by women since the primary patent holder tends to be the idea generator or the team lead in an R&D project.

Patent Class Code	Patent Class	Total no. of Patents	Patents with at least 1 woman primary inventor	Percent
D16	Photography and Optical Equipment	2,960	225	7.60
351	Optics: Eye Examining, Vision Testing and Correcting	3,793	241	6.35
398	Optical Communications	3,975	168	4.23
385	Optical Waveguides	14,823	619	4.18
720	Dynamic Optical Information Storage or Retrieval	344	14	4.07
359	Optical: Systems and Elements	16,073	587	3.65
356	Optics: Measuring and Testing	14,407	432	3.00
353	Optics: Image Projectors	1,749	45	2.57
352	Optics: Motion Pictures	610	9	1.48

Table 4: Highlighting Women’s Contributions as Primary Inventors to Optical Technologies, an Emerging High-tech Sector

While it is premature to draw long term conclusions from these statistics, if this trend continues,

“Of particular interest is the increase in patent activity by women in specialized fields such as surgery and high tech sectors like multiplex communications which have broad technological implications for macro-economics.”

it would be a significant finding of this study. Of particular interest is the increase in patent activity by women in specialized fields such as surgery and high tech sectors like multiplex communications which have broad technological implications for macro-economics. As to why these Categories lead the way in innovation by women would be a worthwhile project for future research. Questions of interest would include: What structural, environmental, motivational and business factors influence innovation by women? What factors discourage innovation? How can the U.S. unleash and harness the creative potential of women? Is there a

correlation between innovation and employment? Is there a correlation (after subtracting out a time lag) between innovation and SAT scores by graduating women in science and mathematics? Is there a marginal difference in the inventiveness of men and women given a certain investment in education, employment and supporting R&D infrastructure?

2.5.5.10 PATENTS BY OWNERSHIP CATEGORY

The USPTO database was interrogated to determine the number of assigned and unassigned patents. The results for different US and foreign categories are shown in Table 5 below.

Ownership Category	Total no. of Patents	% of Total no. of Patents (1975-2010)	Patents with at least 1 woman inventor	% of Total no. of Patents with at least 1 woman inventor
Assigned to a U.S. non-government organization	1,809,666	74.118	220,060	75.839
Unassigned	489,495	20.048	52,975	18.257
Assigned to a foreign non-government organization	77,889	3.190	10,290	3.546
Assigned to the U.S. (Federal) Government	38,643	1.583	4,124	1.421
Assigned to a U.S. individual	25,372	1.039	2,667	0.919
Assigned to a foreign individual	436	0.018	46	0.016
Assigned to a foreign government	100	0.004	7	0.002
Total no. of Patents (1975-2010)	2,441,601		290,169	

Table 5: Shows the number of patents assigned to private and government organizations

Table 6 represents the results obtained by querying the database for primary inventors only.

Ownership Category	Total no. of Patents	% of Total no. of Patents (1975-2010)	Patents with a woman primary inventor	% of Total no. of Patents with a woman primary inventor	Patents with a man primary inventor	% of Total no. of Patents with a man primary inventor
Assigned to a U.S. non-government organization	1,787,695	74.423	87,181	64.975	1,700,514	74.982
Unassigned	487,902	20.312	39,463	29.411	448,439	19.773
Assigned to a foreign non-government organization	62,426	2.599	4,045	3.015	58,381	2.574

Assigned to the U.S. (Federal) Government	38,413	1.599	1,630	1.215	36,783	1.622
Assigned to a U.S. individual	25,302	1.053	1,835	1.368	23,467	1.035
Assigned to a foreign individual	292	0.012	20	0.015	272	0.012
Assigned to a foreign government	54	0.002	2	0.001	52	0.002
Total no. of Patents (1975-2010)	2,402,084		134,176		2,267,908	

Table 6: Shows the number of patents by U.S. based men and women assigned to private and government organizations. This table includes the primary inventors only.

The analysis shows a slightly lower percentage of patents by women that were assigned to private companies. 64.97% of all patents with women primary inventors in the period 1976-2010 were assigned to a U.S. non-governmental organization. This is a lower percentage than that for men who assigned 74.98% of patents to private companies. 19.77% of all patents by men were unassigned as compared to 29.41% for women. Together, these results suggest a slight difference between men and women in independent entrepreneurship: women are more likely to be independent entrepreneurs and keep their patents unassigned while men are more likely to be leading the research in businesses and corporations.

“Women are more likely to be independent entrepreneurs and keep their patents unassigned while men are more likely to be leading the research in businesses and corporations.”

It must be cautioned that assignment must not be confused with commercial success as has been done in some earlier studies. Only a small number of patents, perhaps as few as 10%, are brought to the marketplace and become commercially viable. The commercialization of Patents and Trademarks and its impact on the economy is an issue that needs to be studied in future research. The assignment or non-assignment of a patent merely confirms a decision on the part of the inventor or his/her employer to seek IP protection for an innovation and keep the concomitant technology “in-house”. A patentable technology may not be marketable on a “stand-alone” basis, but it may have a print-through on the development of subsequent systems or technologies that do become economically viable.

2.5.6 REGRESSION ANALYSIS: PATENTS GRANTED TO WOMEN

A regression analysis was performed on the data to identify longitudinal trends as well as identify benchmarks. Since it currently takes an average of 3.6 years to obtain a patent,

consideration was given to using a 4 year moving average for the regression analysis. This option was discarded as the moving average would smooth out the data and might conceal significant “bends” in the longitudinal trends. It was therefore decided to use a piecewise linear analysis. The table below summarizes the results for Patents Granted to Women, Share of all Patents.

Women’s Share of Patents Granted 1975-2010

Data Source: USPTO

Piecewise Linear Analysis

Percentage of patents granted to women = $(a + b(t_1-t_2))*100$,

where, a and b are constants,

t_2-t_1 is the time lapse, measured in years, for each segment.

Date analysis performed: November 27, 2011

Period (Segment)	a	b	Yearly percentage rate of increase
1975-1986	0.028	0.0029	0.29%
1986-1993	0.06	0.007	0.70%
1993-1999	0.109	0.0051	0.51%
1999-2004	0.14	0.002	0.20%
2004-2010	0.152	0.0050	0.50%

The following inferences may be drawn from the regression analysis:

1. The number of patents granted to women increased by approximately 34.72% from 2009 to 2010.
2. In the same period, the number of primary patents granted to women (where a woman is the first inventor) increased by 28.57% and the number of non-primary patents (where a woman is the second, third or fourth inventor) granted increased by 38.23%.
3. If a single formula is desired, a non-linear regression such as

$$x = a + b(t_2-t_1) + c(t_2-t_1)^2 + d((t_2-t_1)^3), \text{ where } a, b, c \text{ and } d \text{ are constants,}$$

would be more appropriate to capture the accelerating pace at which patents are granted to women. This is a non-linear equation with one unknown “x”; multiple solutions are possible with different values for the coefficients a, b, c and d.

2.5.7 PATENTS FILED VERSUS PATENTS GRANTED

The patents filed data obtained from the USPTO was plotted for men and women. As seen from the charts in Figures 2 and 6, Appendix 1, the USPTO data for patents filed drops off after the year 2002. Apparently, the USPTO data, as reflected in the disc supplied to Delixus, is as yet incomplete.

Alternate sources for patents filed data were investigated:

http://www.uspto.gov/web/offices/ac/ido/oeip/taf/us_stat.htm

This source has more complete information about the number of patents filed and the number of patents granted up to the year 2010. However, it has no information about names; hence, it is of no help in determining the gender of the patent applicants.

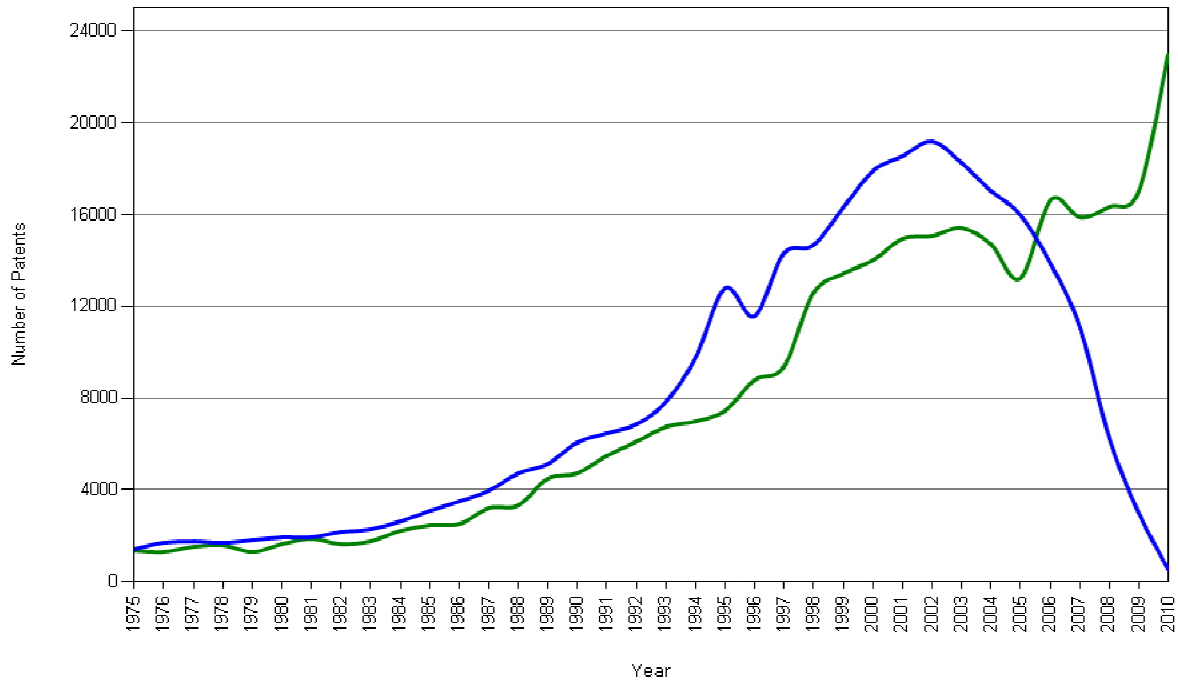
“The ratio of successful women patent applicants (patents granted/ patents filed by women) to successful men patent applicants (patents granted/ patents filed by men) varies from a low of 73.36% in 1986 to a high of 93.57% in 2002.”

It was therefore decided to analyze the USPTO data for patents filed and patents granted for men and women only up to the year 2002. The results are plotted in several charts presented in Figures 1-14, Appendix 1.

The ratio of successful women patent applicants (patents granted/ patents filed by women) to successful men patent applicants (patents granted/ patents filed by men) varies from a low of 73.36% in 1986 to a high of 93.57% in 2002. The factors that influence this slow but steady progress in closing the

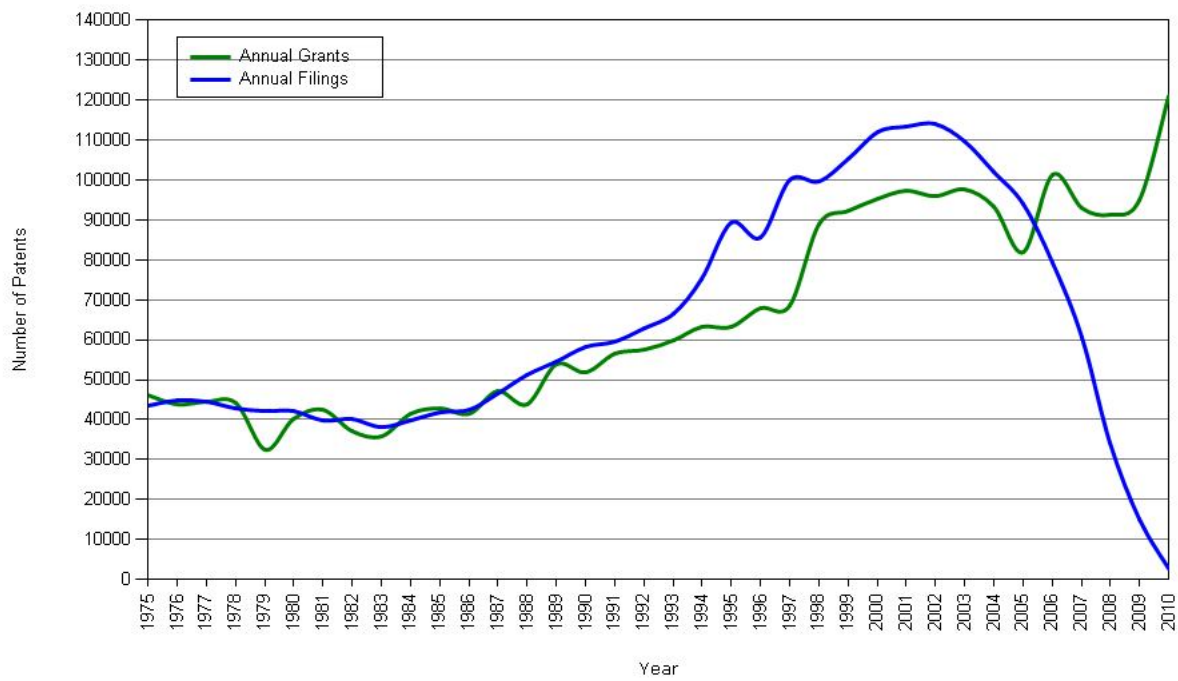
gender gap in the processing of patent applications will be probed further in focus groups.

1. Patents filed versus patents granted to women - 1975-2010



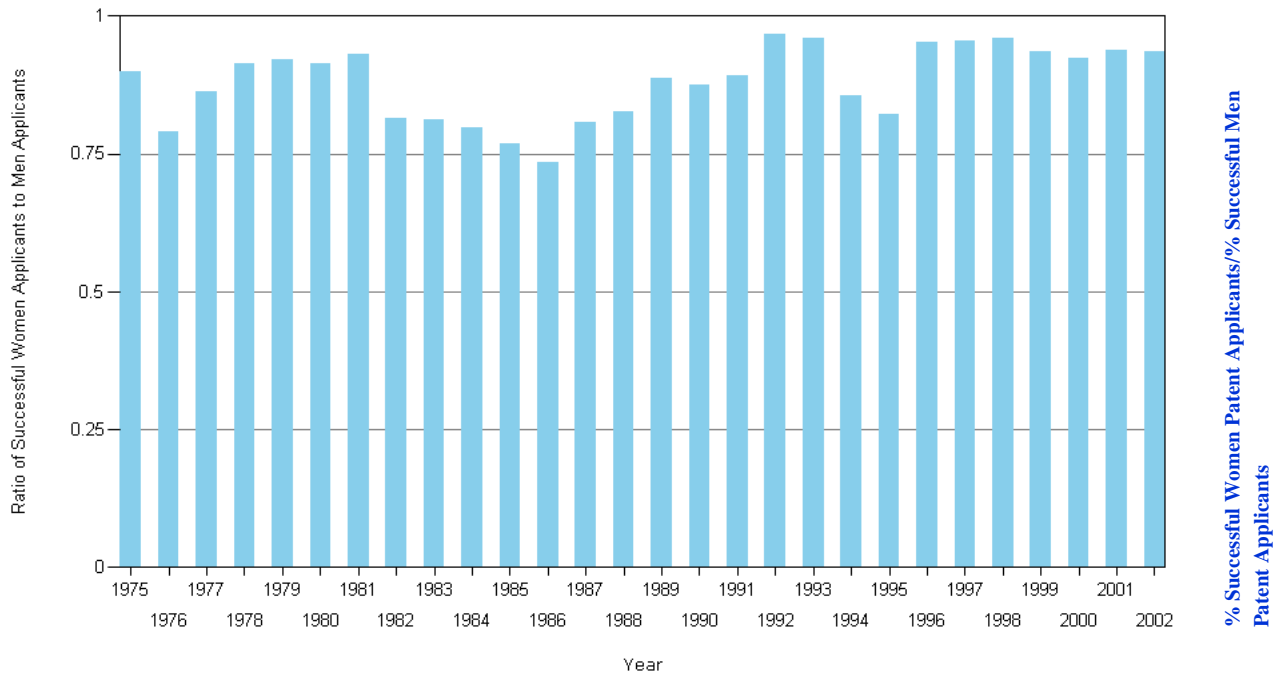
Patents filed vs patents granted to women

2. Patents filed versus patents granted to men – 1975-2010

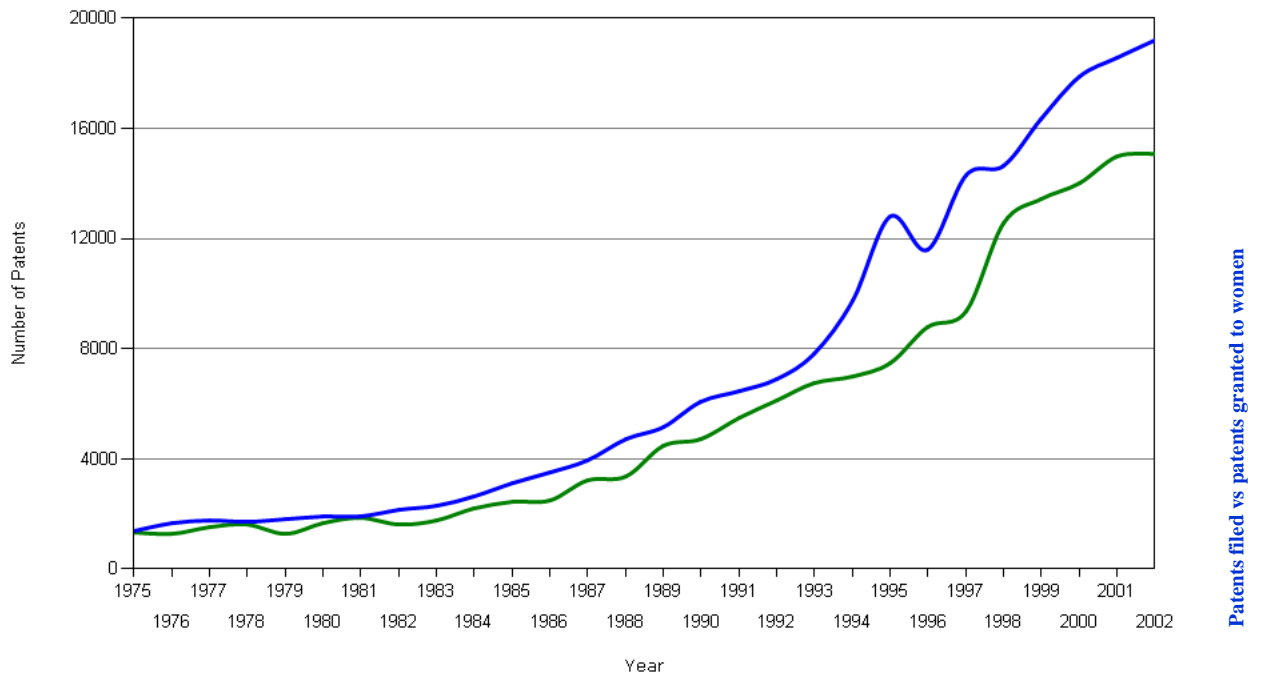


Patents filed vs patents granted to men

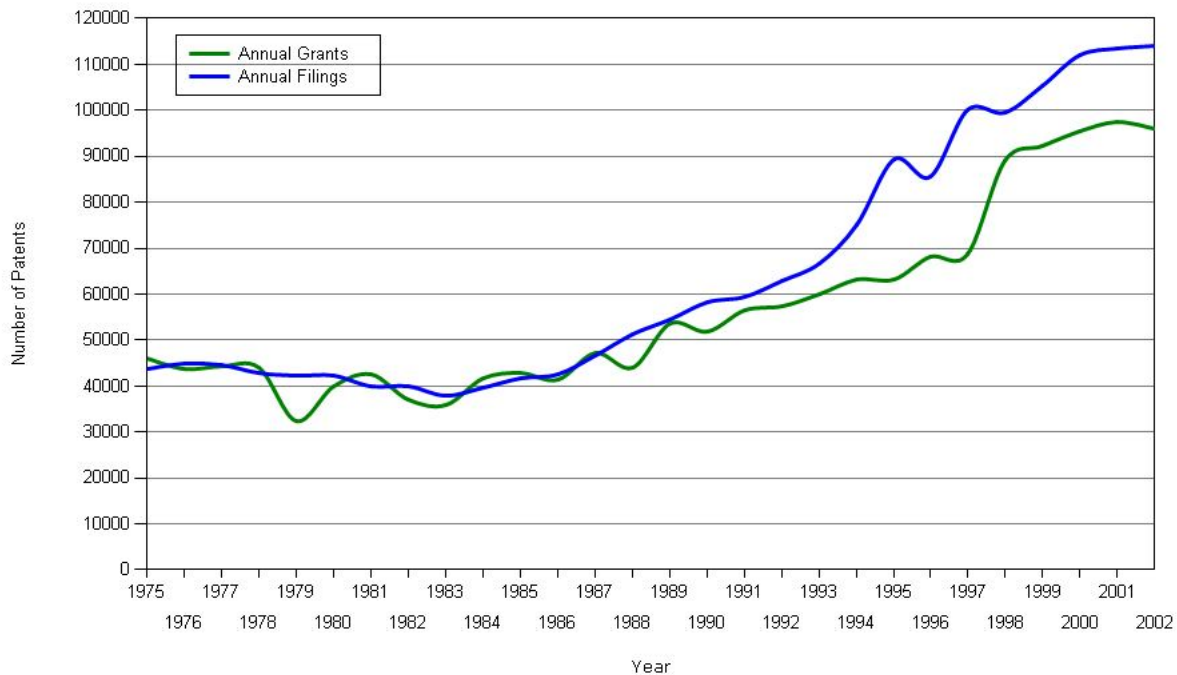
3. % Successful Women Patent Applicants/% Successful Men Patent Applicants, 1975-2002



4. Patents filed versus patents granted to women - 1975-2002



5. Patents filed versus patents granted to men - 1975-2002



Patents filed vs patents granted to men

2.6 CONCLUSIONS- PATENTS DATA ANALYSIS

Several significant conclusions may be drawn from the quantitative study on patents:

1. The number of patents granted to women are significantly higher than those reported in earlier studies ^{1,2}.

“The number of patents granted to women are significantly higher than those reported in earlier studies ^{1,2}.”

2. The number of patents granted to women is increasing at an accelerating pace.

3. There was a noticeable jump in the number of patents granted in the year 2010. The number of patents granted to women increased by approximately 34.72% from 2009 to 2010.

It is too early to draw a definite conclusion from the recent yearly jump in the grant of patents. Some of these patents might have been filed years earlier. The results may also reflect the USPTO’s focus on increasing efficiency and productivity in order to reduce the backlog of applications. Notwithstanding these reservations, there is a definite increase in the participation of women in U.S. patent activity in recent years. Several questions present themselves: Why is there a noticeable jump in patent activity in the midst of a continuing,

prolonged recession? Is it a reflection of more women becoming entrepreneurs? Does it reflect increasing investment by U.S. companies in R&D (which is not supported by macro-economic data)? Does it reflect an increasing awareness by women of the benefits of patent protection? Does it show increasing participation in patent activity by recent immigrants? Are the standards for granting of patents more lenient now as compared to those thirty years ago? These are issues worth investigating.

“The number of patents granted to women is increasing at an accelerating pace.”

4. In the same period (2009 to 2010), the number of primary patents granted to women increased by 28.57% and the number of non-primary patents granted to women increased by 38.23%.
5. The highest sustained rate of increase in the grant of U.S. patents to women was in the 1986-1993 period.
6. The slowest rate of increase in patents granted to women was in the 1999-2006 period. A relevant question here would be: Does a reduction in IP activity presage an economic downturn, and if so, what is the degree of correlation between the two? Similarly, does resurgence in IP activity presage economic expansion, and if so, what is the correlation between the two? The technology sector is only one element in the macro-economic picture. So, there would be secondary and tertiary effects involved.
7. The total number of patents obtained by women shows an accelerating rate of increase with time. Similarly, there is an accelerating rate at which women become primary inventors as judged by the first name on a patent disclosure. This shows increasing leadership of women in R&D activity.
8. 19.77% of all patents by men were unassigned as compared to 29.41% for women. Together, these results suggest a slight difference between men and women in independent entrepreneurship: women are more likely to be independent entrepreneurs and keep their patents unassigned while men are more likely to be leading the research in businesses and corporations.

“The highest sustained rate of increase in the grant of U.S. patents to women was in the 1986-1993 period”

3.0 ANALYSIS OF TRADEMARKS

3.1 THE DATA

Trademark data files were obtained from <http://www.google.com/googlebooks/uspto-trademarks.html>

3.2 DATA PREPARATION

The USPTO data was approximately 151.3 GB in size, and it required a substantial amount of programming. The processing was optimized 3 times, each time using a different XML parsing technology:

- The first processing used a DOM parser as we needed to read forward and backward in the XML file.
- In the second processing, we used a SAX parser.
- In the third processing, we used a modified SAX parser.

The modified SAX parser had a substantial performance benefit whereby we were able to process each 1GB of raw data in approx. 30 seconds. Additionally, huge performance gains were obtained by switching to a single pass, read forward only approach. As we also required the ability to read backwards, we updated our parsing application to maintain state in the application layer. This provided the best of both worlds in terms of performance and state.

1. 30 seconds of CPU time per 1 GB of XML data
2. Approx. 151.3 GB of raw XML from the USPTO was reduced to 7 GB of data which was imported into the database.

Importantly, we changed some data types as this optimized the file size. As a simple example, Boolean values were changed from True/False to 1/0, which reduced the data size.

“The USPTO data was approximately 151.3 GB in size, and it required a substantial amount of programming. The processing was optimized 3 times, each time using a different XML parsing technology.”

Once the data was processed, it had to be loaded into the database. Here too we optimized significantly. Initially, we connected directly to the database within the parsing application. This provided the benefit of eliminating an intermediate step and eliminating the need for an intermediate file format. However, we eventually settled on using an export of the data to an import ready file format (which added the intermediate step back into our process), but provided the following benefits: (1) reducing data loads to a matter of seconds for each gigabyte of data, and (2) providing atomic commits at a batch level. The batch level atomic commits are critical as they enabled us to

ensure data quality at a higher level, and we were able to use this assurance to add new data quality checks.

Data quality was an important driver in this work.

1. We created a “self-destruct” mechanism in the parser whereby an error in the input file (raw XML) would cause the parser to exit without saving its work. This is important as it ensures that each data load file is accurate.

2. Next, we added a file origin marker within the data load file, and within the database. This “origin” marker allows us to track each data point back to its original file.
3. Next, we added data quality checks using the origin markers. Essentially, the parser is able to provide frequencies within the XML file which can be compared against frequencies in the database.
 - a. These frequency checks allow us to verify that the data in the raw USPTO XML files was loaded perfectly into the relational database. (i.e. we can verify data input quality).
 - b. Importantly, the vast improvements in performance as listed above made this possible within reasonable time frames.

3.3 DATA PROCESSING

The XML files were processed to extract the Trademarks data and loaded into a data warehouse. There were many duplicates in the USPTO database as the entries for the same trademarks had been made multiple times.

- First, the data was filtered to consider only trademark applicants in the US.
- Next, filters were applied to exclude all data other than data pertaining to trademarks filed by individuals and sole proprietorship businesses (LegalEntityTypeCodes 1 and 19).
- Multiple passes were made through the records in order to extract the first name from the trademark applicant’s name. This required complex and repetitive querying as the names in the USPTO database have not been saved in any well defined format.

3.4 GENDER ASSIGNMENT

The applicants were marked as men or women following the same procedure as in the case of patents, outlined in Section 2.5.5. First the lists for the 10,000 most common names for boys and the 10,000 most common names for girls were used to assign gender to exclusive male and female names. A formula (the same as in the case of patents) was used to allocate gender for the common names. Various name lists were used to assign gender to the remaining names followed by allocating the yet unassigned names based on the male female ratio in the database.

3.5 ANALYSIS

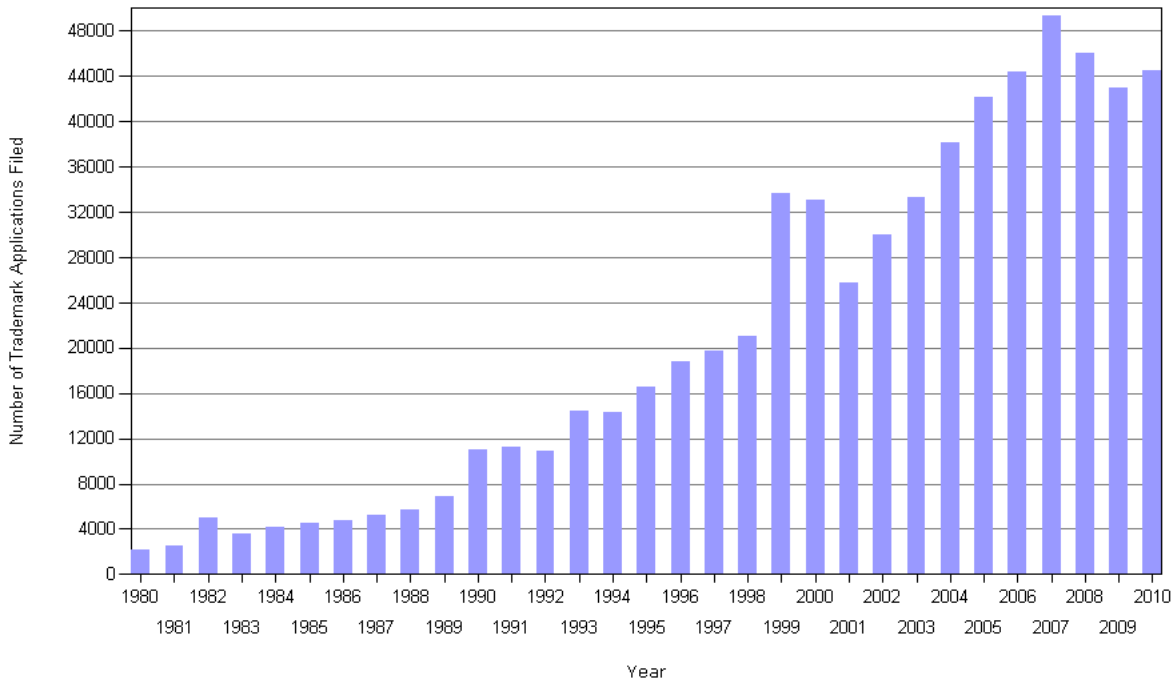
The data was then used to generate the attached reports. The period 1980-2010 was used as the base period as the data for the years 1976-1979 was meager and the data for the year 2011 was as yet incomplete.

1. Trademark applications filed by year

Trademark applications show a spike just prior to Y2K; however, trademark applications have

“Trademark applications show a spike just prior to Y2K; however, trademark applications have fallen from a high of 49,256 in 2007 to 42,950 in 2009, a drop of 12.8% reflecting the onset of a recession.”

fallen from a high of 49,256 in 2007 to 42,950 in 2009, a drop of 12.8% reflecting the onset of a recession.



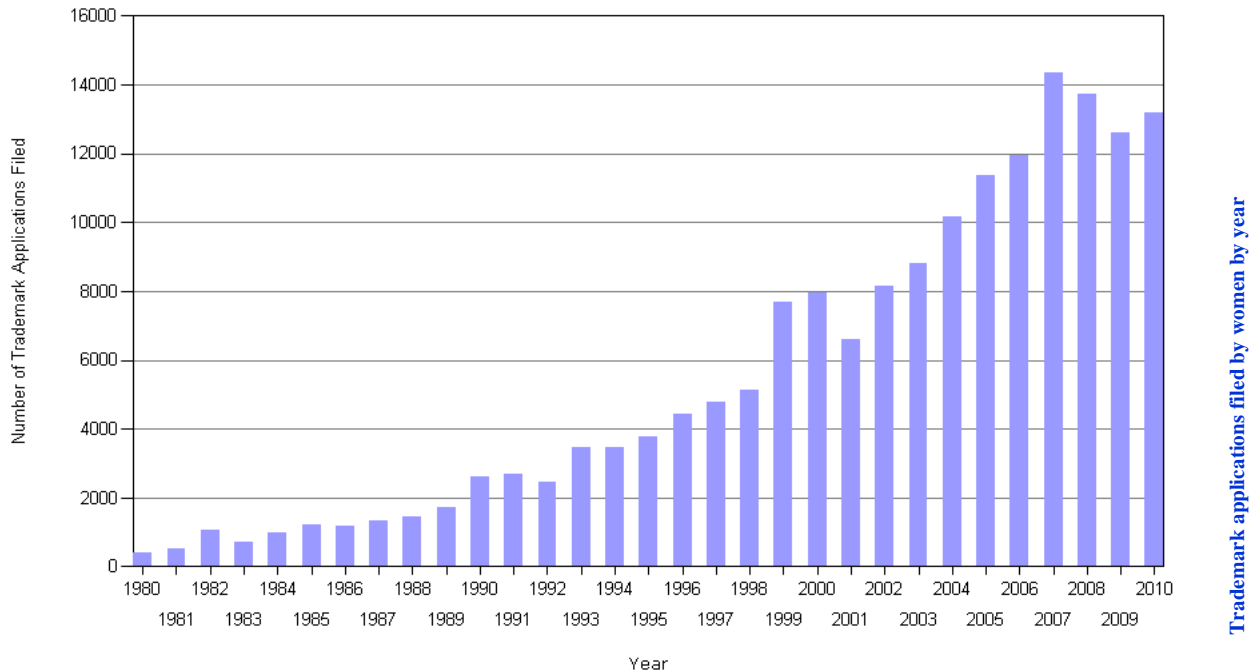
Trademark applications filed by year

2. Trademark applications filed by women by year

Trademark applications filed by women show a cadence similar to the total number of

“Trademark applications filed by women show a cadence similar to the total number of trademarks filed.”

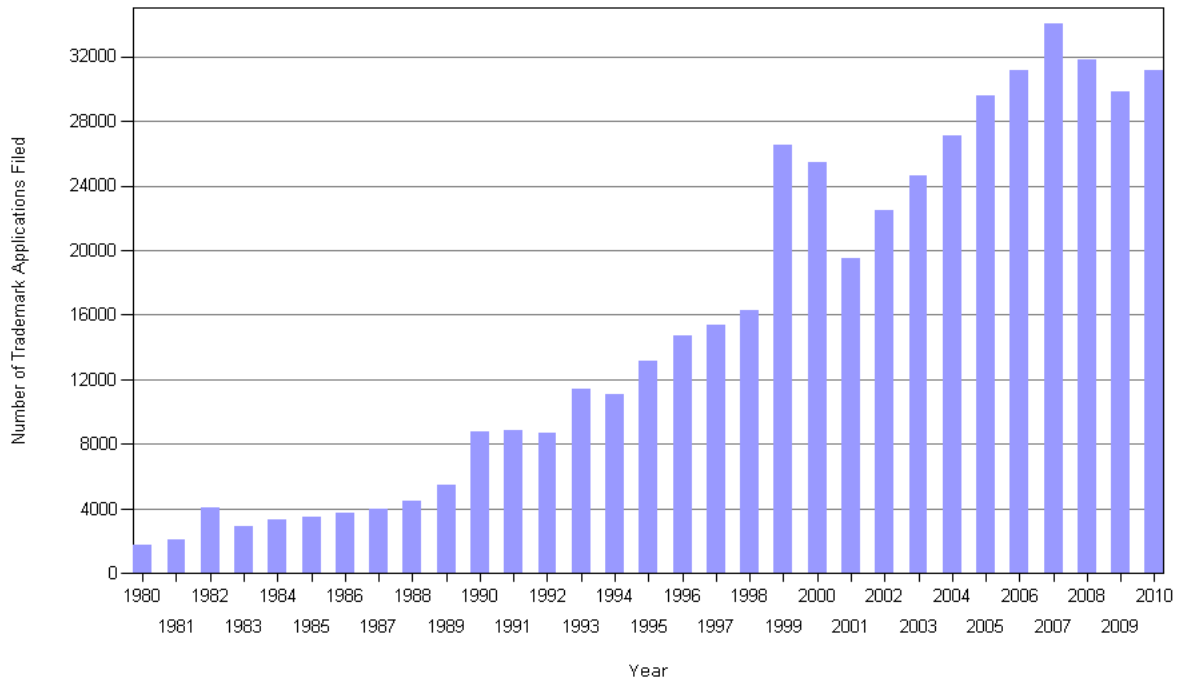
trademarks filed. There is a spike just prior to Y2K. At the onset of the recession, they drop off, from a high of 14,353 in 2007 to a low of 12,604 in 2009, a drop of 12.19%.



3. Trademark applications filed by men by year

Trademark applications by men show a cadence similar to those for the total trademarks and those for women. The number of trademark applications by men shows a drop from a high of 34,063 in 2007 to a low of 29,807 in 2009, a drop of 12.5%.

The sum of the numbers for the trademarks filed for men and for women shows a slight variance from the total number of trademarks filed due to processing errors; the interrogation for each of these categories was carried out independent of the other.

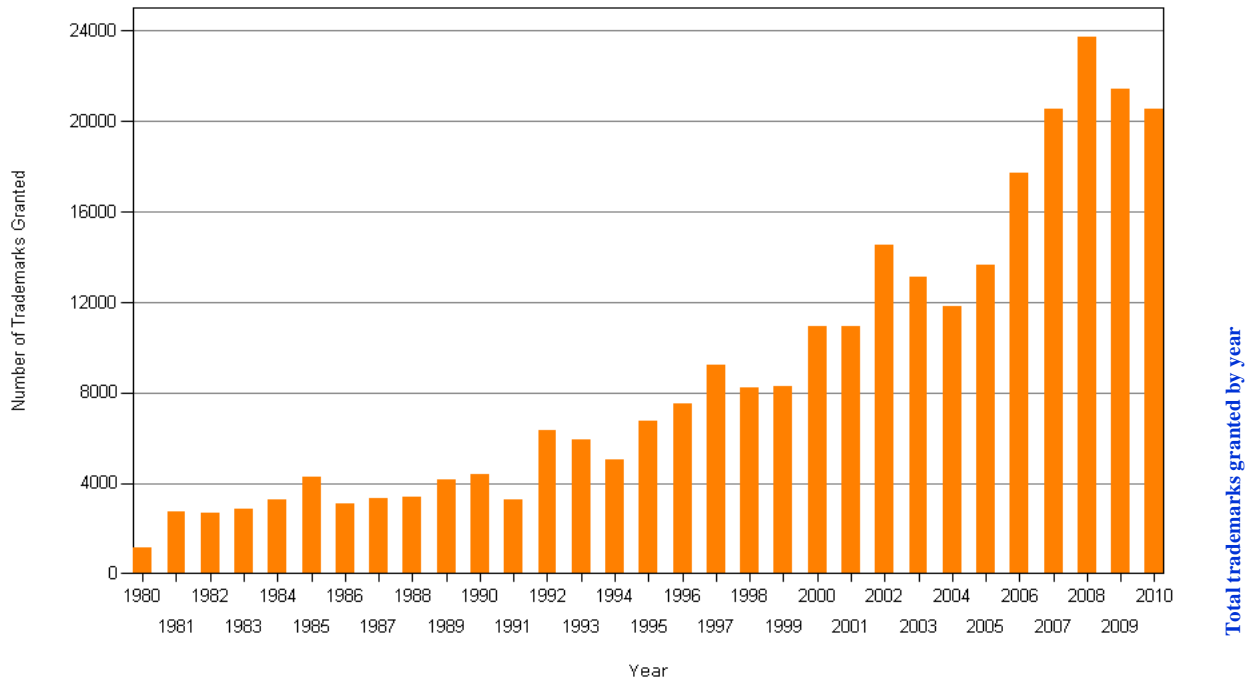


4. Total trademarks granted by year

The total number of trademarks granted shows a steady, albeit uneven climb over the last three decades. Taking the year 1985 as a baseline, the number of trademarks granted has increased

“The total number of trademarks granted shows a steady, albeit uneven climb over the last three decades.”

from 4,268 in 1985 to 23,709 in 2007. There is a recent drop to a low of 20,547 in 2010 due perhaps to the recession. No attempt has been made to correlate the number of trademarks granted to the periods of economic expansion and contraction. This would be a worthwhile subject for future research.

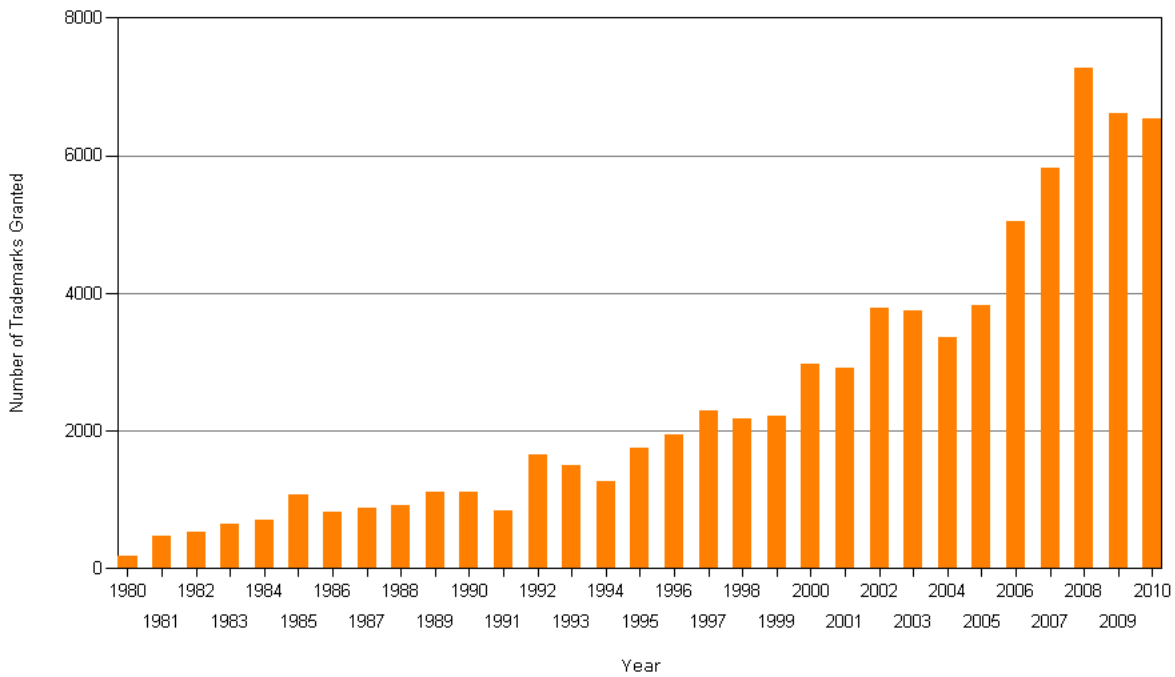


5. Trademarks granted to women by year

Trademarks granted to women entrepreneurs follow a pattern similar to those of total trademarks.

“Trademarks granted to women entrepreneurs follow a pattern similar to those of total trademarks.”

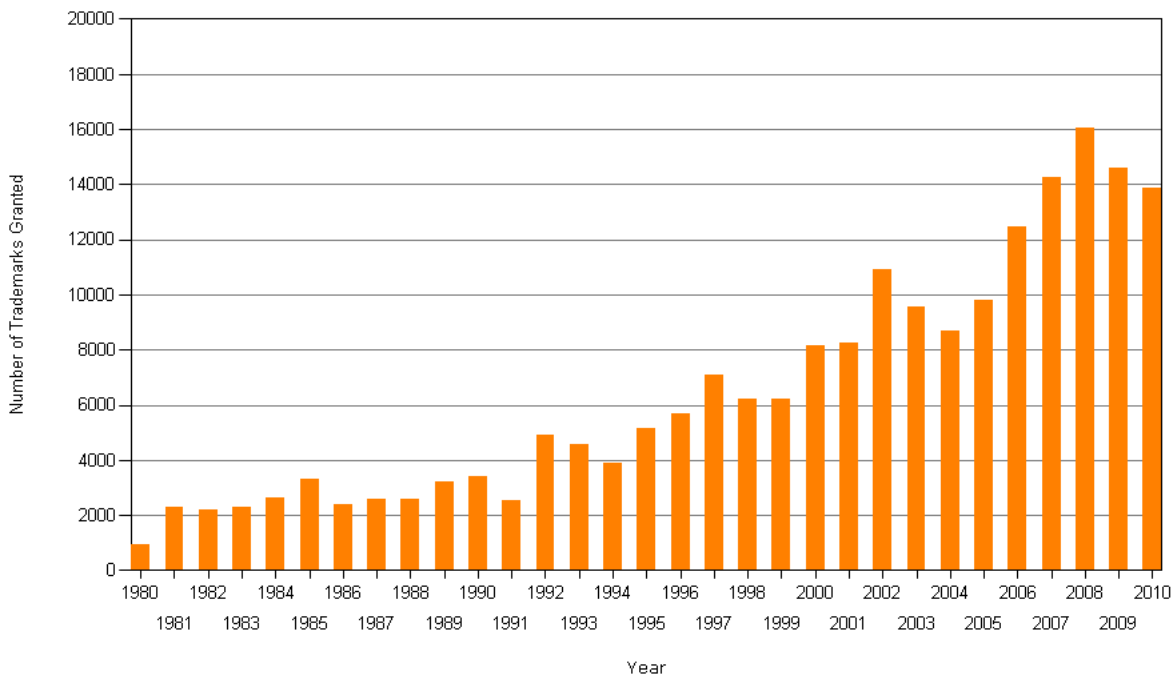
They increase from 1,077 in 1985 to a high of 7,274 in 2008. There is a drop off to 6,533 in 2010.



Trademarks granted to women by year

6. Trademarks granted to men by year

Trademarks granted to men follow a similar pattern. They increase from 3,328 to a high of 16,074 in 2008. There is a drop off to 13,881 in 2010.



Trademarks granted to men by year

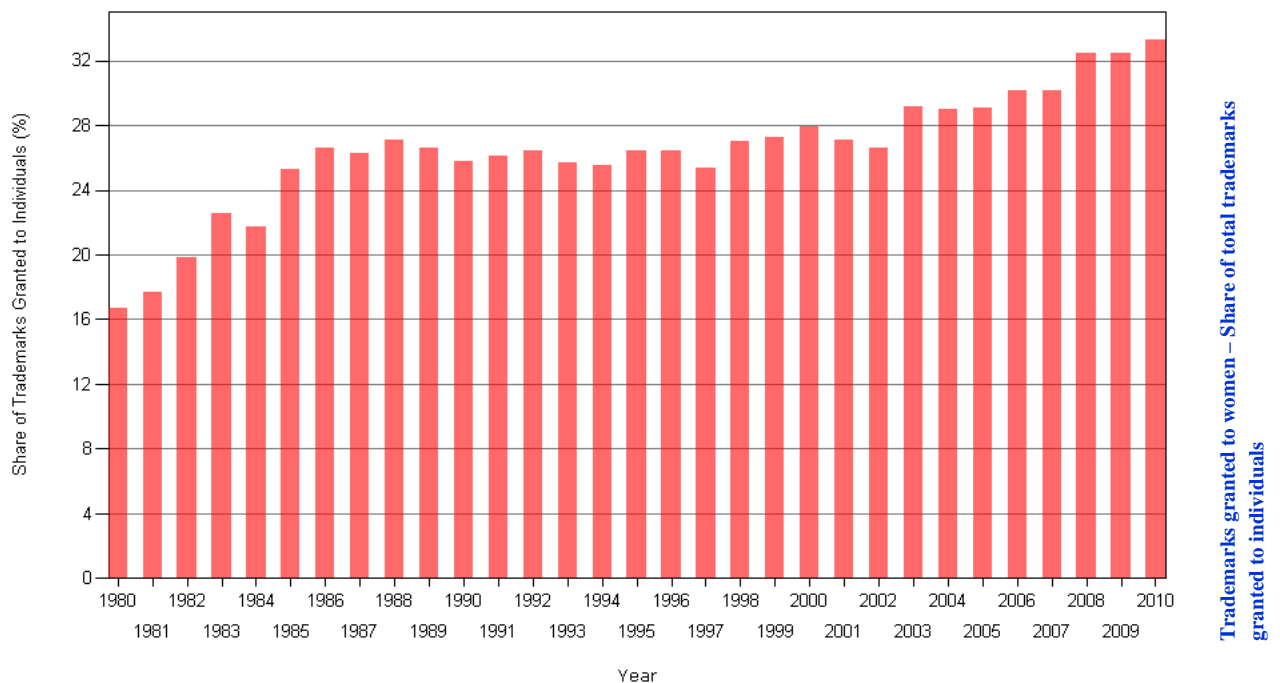
7. Trademarks granted to women – Share of total trademarks granted to individuals

One of the most significant results of this study is that the share of trademarks granted to women has climbed steadily over the last three decades. In 1985, 25.25% of all trademarks granted to

“The share of trademarks granted to women has climbed steadily over the last three decades.”

individuals were granted to women. In 2010, fully a third of all trademarks to individuals were granted to women entrepreneurs. Clearly, women entrepreneurs are an increasingly important constituent of intellectual property development in the United States. The educational, demographic and

institutional factors that influence this development need to be investigated in future research.

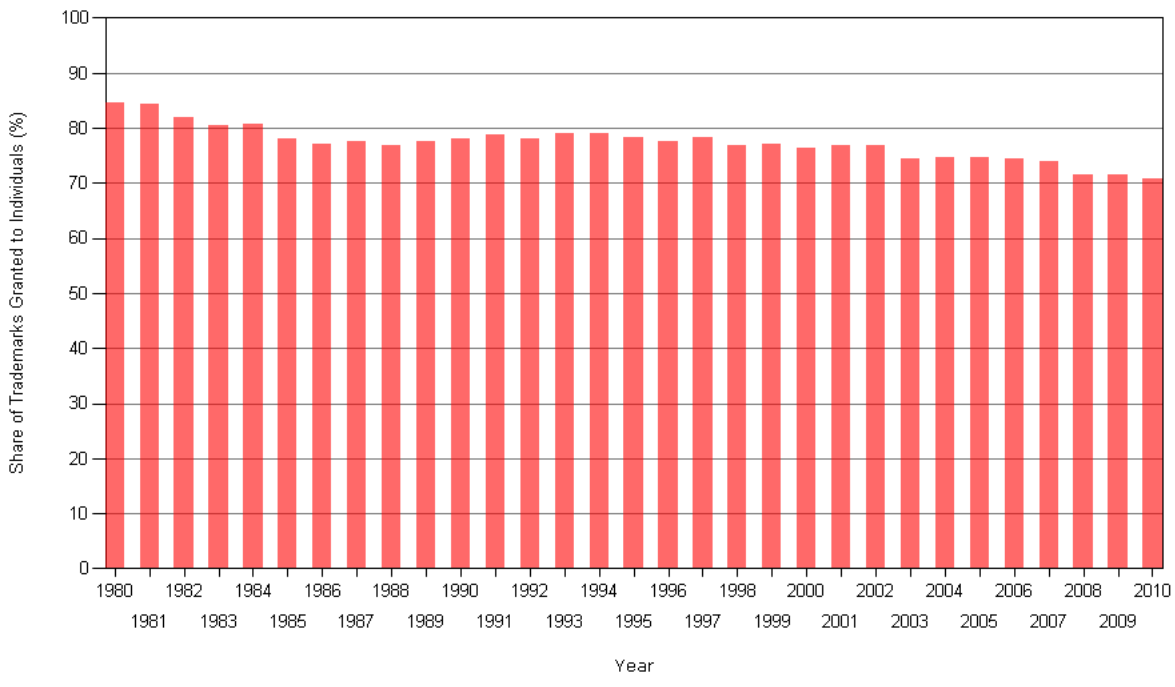


8. Trademarks granted to men – Share of total trademarks granted to individuals

Corresponding with an increase in the share of trademarks granted to women, there has been a decrease in the share of trademarks granted to men. In 1985, men entrepreneurs accounted for

“Corresponding with an increase in the share of trademarks granted to women, there has been a decrease in the share of trademarks granted to men.”

78.03% of all trademarks granted to individuals. In 2010, this dropped to 70.78%.



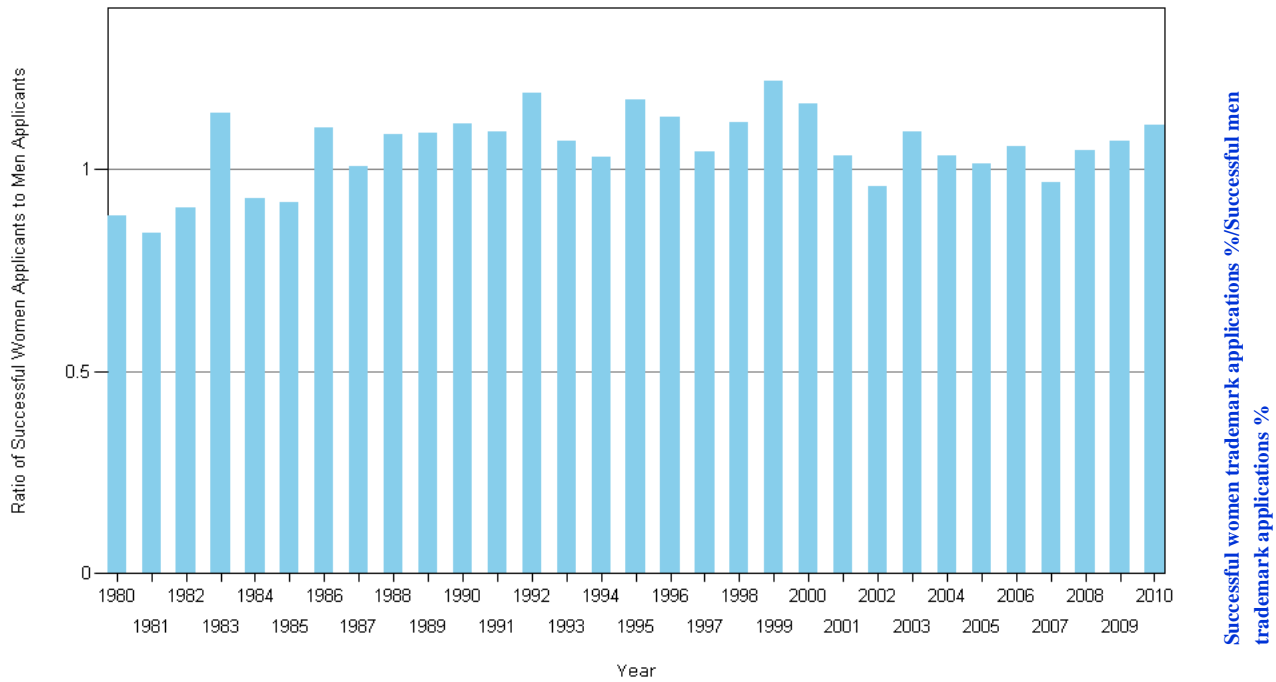
Trademarks granted to men – Share of total trademarks granted to individuals

9. Successful women trademark applications %/Successful men trademark applications %

An analysis of the ratio of successful trademark applications by women to successful trademark applications by men shows no consistent bias in the processing of trademark applications. This ratio consistently hovers around 1.0, although for a period of about 12 years, from 1988 to 2000,

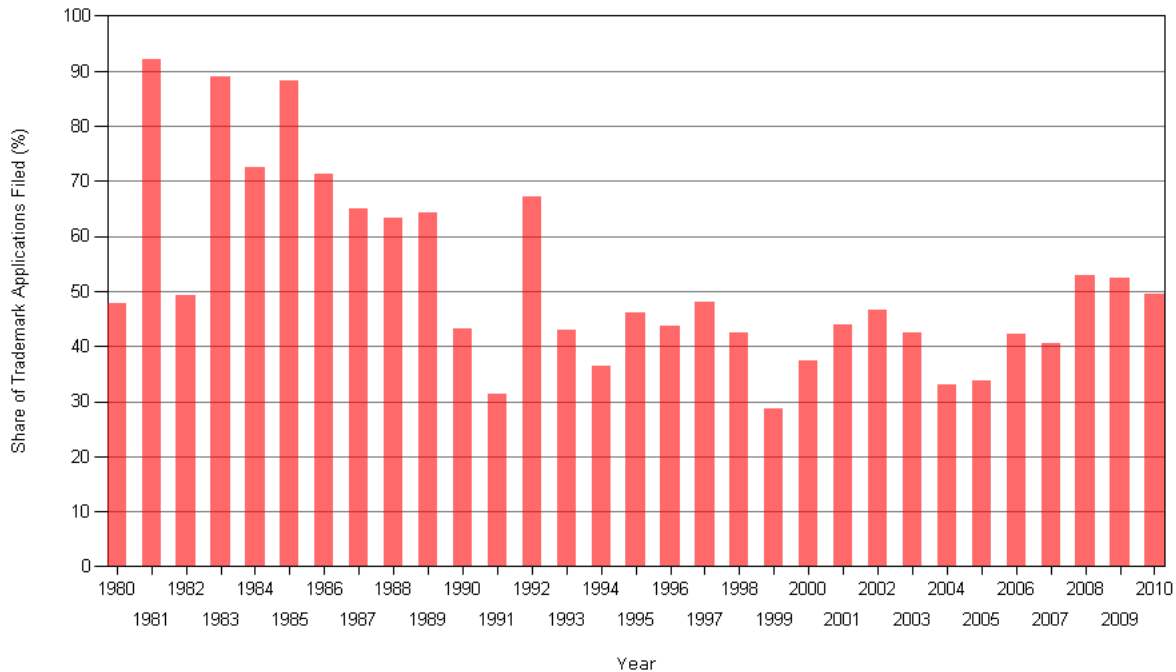
“No consistent bias in the processing of trademark applications”

women entrepreneurs showed greater resilience in pursuing trademark protection than men and the ratio was greater than 1.0.



10. Trademarks granted to women – Share of applications filed by women

An analysis of the ratio of trademarks granted to trademark applications filed shows that it is increasingly more difficult to obtain a trademark from the USPTO. In 1985, 88.28% of all women applicants were successful in obtaining trademark protection. In 2010 it dropped to 49.6%.

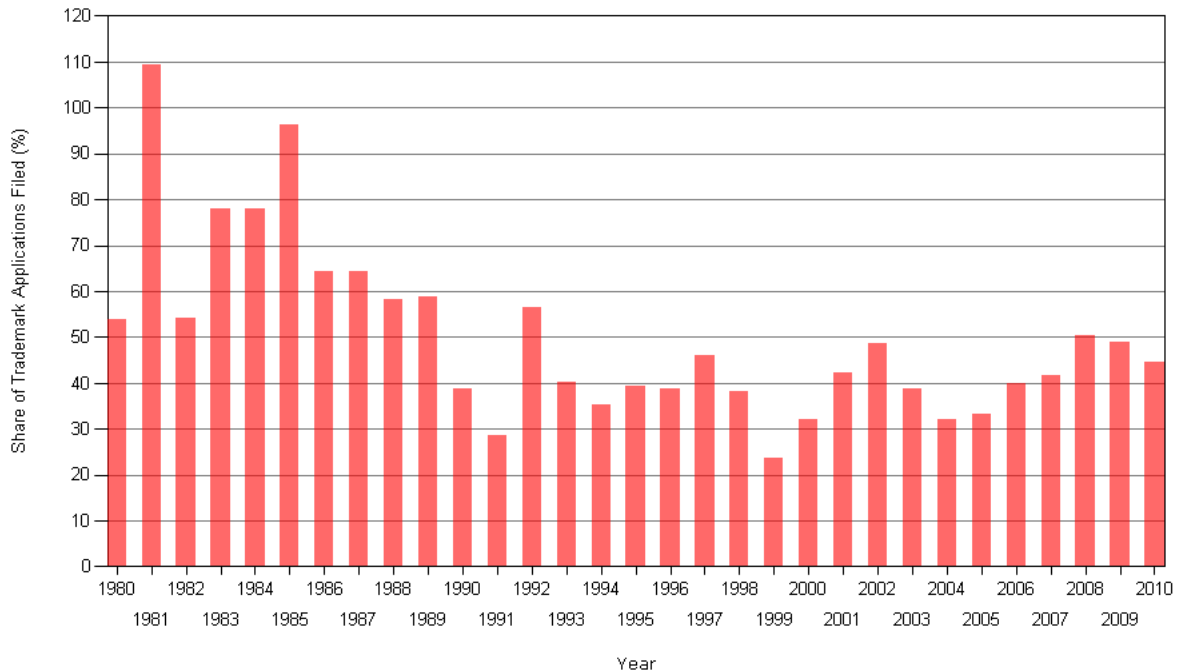


Trademarks granted to women – Share of applications filed by women

11. Trademarks granted to men – Share of applications filed by men

The pattern of success in obtaining a trademark for men is similar to those for women. In 1985, 96.18% of men applicants were successful in obtaining a trademark. The success rate dropped to 44.63 percent in 2010.

The drop in the success rate of both men and women in obtaining trademark protection may indicate the effect of a change in rules governing the award of a trademark, or it may be a sign of increased willingness on the part of entrepreneurs to file for trademark protection despite the risk of rejection.

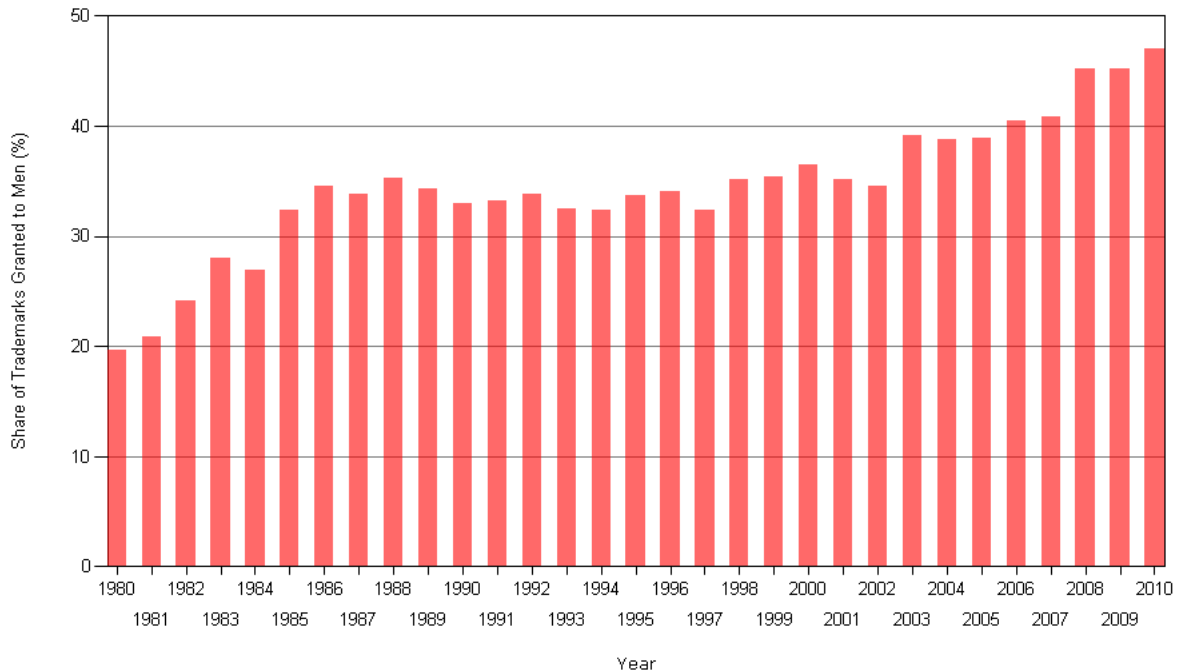


12. Trademarks granted to women – Share of trademarks granted to men

The ratio of trademarks granted to women entrepreneurs as measured by a percentage of trademarks granted to men is very revealing. In 1985 this ratio was 32.36%. This ratio has steadily climbed to 47.06% in 2010. Women entrepreneurs account for fully a third of all

“Women entrepreneurs account for fully a third of all trademarks currently granted in the United States showing the resilience and dynamism of this section of the work force.”

trademarks currently granted in the United States showing the resilience and dynamism of this section of the work force.



Trademarks granted to women – Share of trademarks granted to men

13. Trademarks granted to women by industry (top 5 industries)

“The top five industries with the highest participation in trademark activity by women were

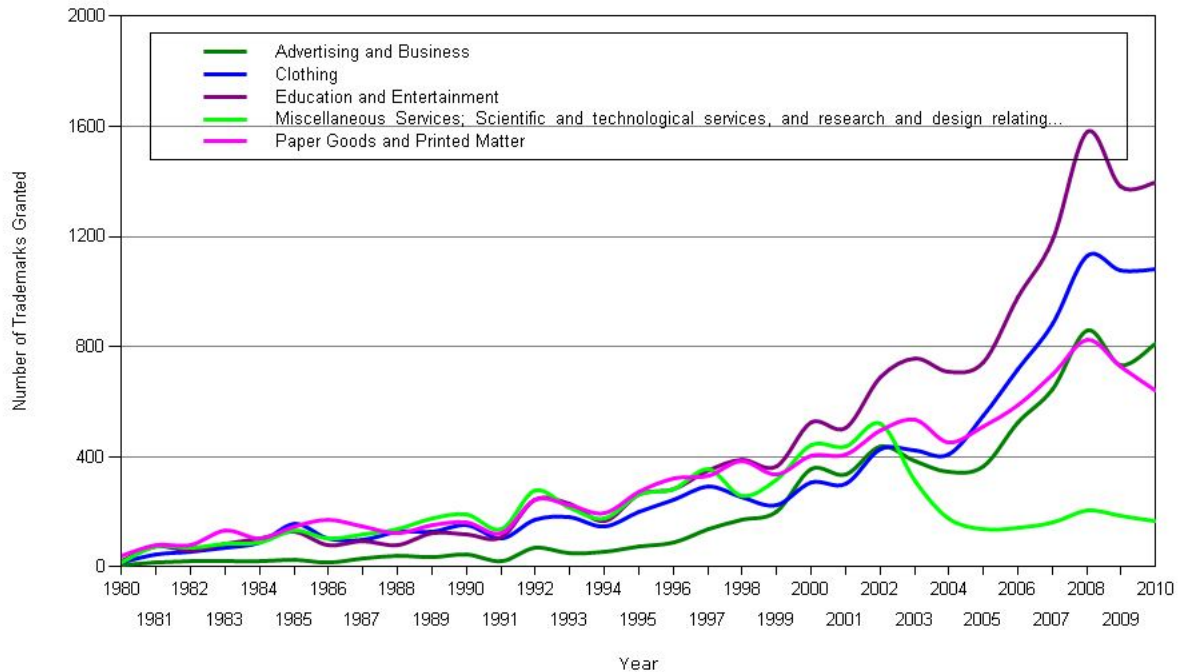
- *Advertising and Business*
- *Clothing*
- *Education and Entertainment*
- *Miscellaneous Services- Scientific and Technological Services and Design*
- *Paper Goods and Printed Matter”*

The Trademarks data was probed to determine the industries with the highest participation by women entrepreneurs. The top five industries with the highest participation in trademark activity by women were:

- Advertising and Business
- Clothing
- Education and Entertainment
- Miscellaneous Services- Scientific and Technological Services and Design
- Paper Goods and Printed Matter

The emergence of Scientific and Technological Services among the top 5 contributors to trademark activity by women is of particular significance as it shows the increasing penetration of women entrepreneurs in this field.

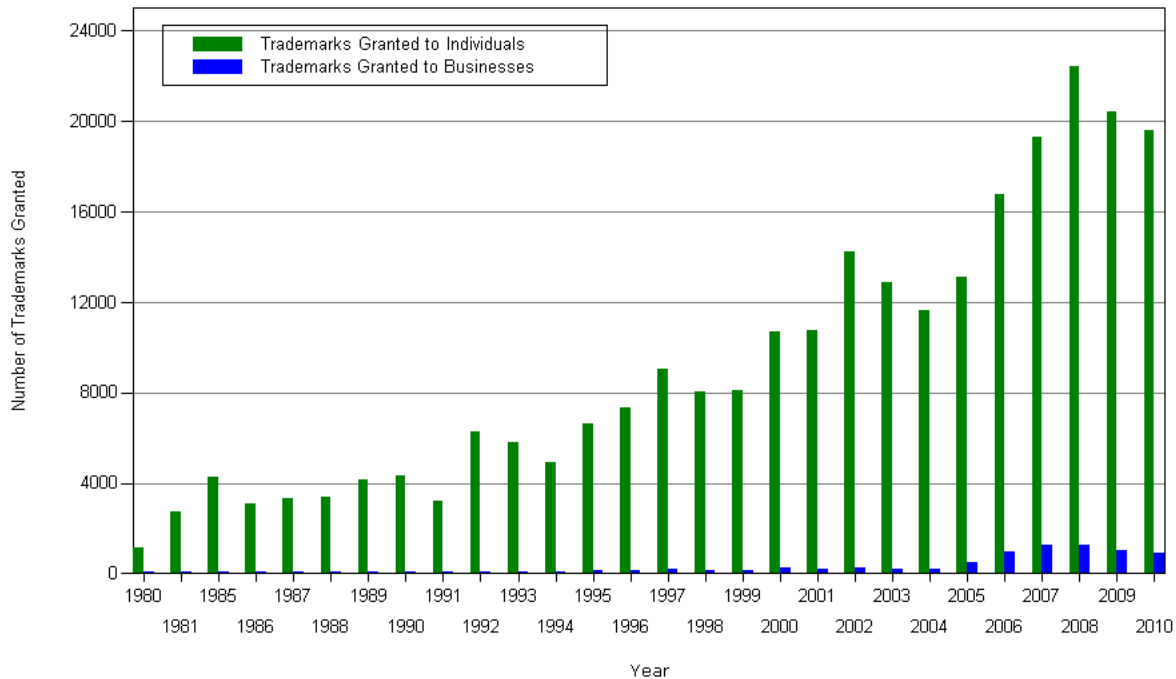
Further research is required to probe whether this concentration is due to demographic reasons, employment or other factors.



Trademarks granted to women by industry (top 5 industries)

14. Trademarks granted annually – individuals vs. businesses

The data was probed to determine how entrepreneurship influences the pursuit of trademark protection. The number of trademarks granted to individuals was separated from those granted to sole proprietorship businesses. The analysis showed an overwhelming number of trademarks were granted to individuals as determined by their filing. In 2010, only 4.8% of trademarks were awarded to sole proprietorship businesses. As to why this is so is also a possible area for further research.



Trademarks granted annually – individuals vs. businesses

3.6 CONCLUSIONS- TRADEMARKS DATA ANALYSIS

1. The participation of women in Trademarks activity as measured by the percentage of

“The participation of women in Trademarks activity as measured by the percentage of Trademarks granted has more than doubled from 1980 to 2010, from approximately 16.5% in 1980 to more than 33% in 2010.”

Trademarks granted has more than doubled from 1980 to 2010, from approximately 16.5% in 1980 to more than 33% in 2010. Whether this increase is due to demographic reasons such as employment patterns, education, or a greater inclination on the part of women entrepreneurs to file for IP protection is a possible subject for further research.

2. Women have a significantly higher participation in Trademark activity as compared to Patent activity. For instance, whereas women received approximately 18% of all patents granted in the year 2010, the contribution of women to Trademark activity was more than 33%.

3. There is no statistically measurable difference in the proportion of successful women Trademark applications and successful men Trademark applications; there is no measurable bias in the processing of applications by women.

“Women have a significantly higher participation in Trademark activity as compared to Patent activity.”

Further research is required to probe whether gender differences in Trademark activity are more a reflection of employment patterns, demographics, risk and reward perception.

4. The results in this report reflect only the trademarks for U.S. based individuals and proprietorships wherein the first name is identified. Caution must be exercised in applying the results to the entire USPTO database on trademarks.

4.0 REFERENCES

1. *The Idea Commercialization Gap and Pink and Black*, Lisa D. Cook and Chaleampong Kongcharoen, November 14, 2009, Michigan State University.
2. *Buttons to Biotech, 1996 Update Report, with supplement data through 1998*, U.S. Patents by Women, 1977 to 1996, United States Patents and Trademarks Office

APPENDIX 1

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Figure 1: Patents Filed by Women – Annually (1975-2002)

Annual U.S. Origin Patents Filed by Women, 1975-2002

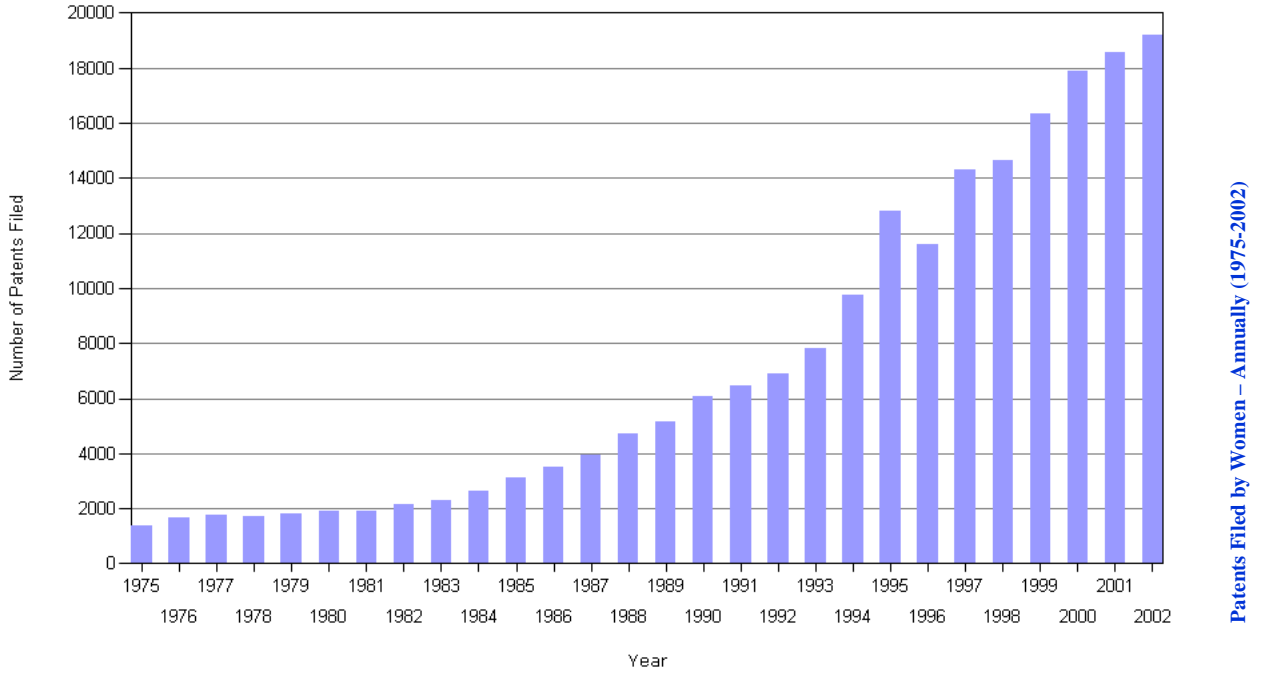
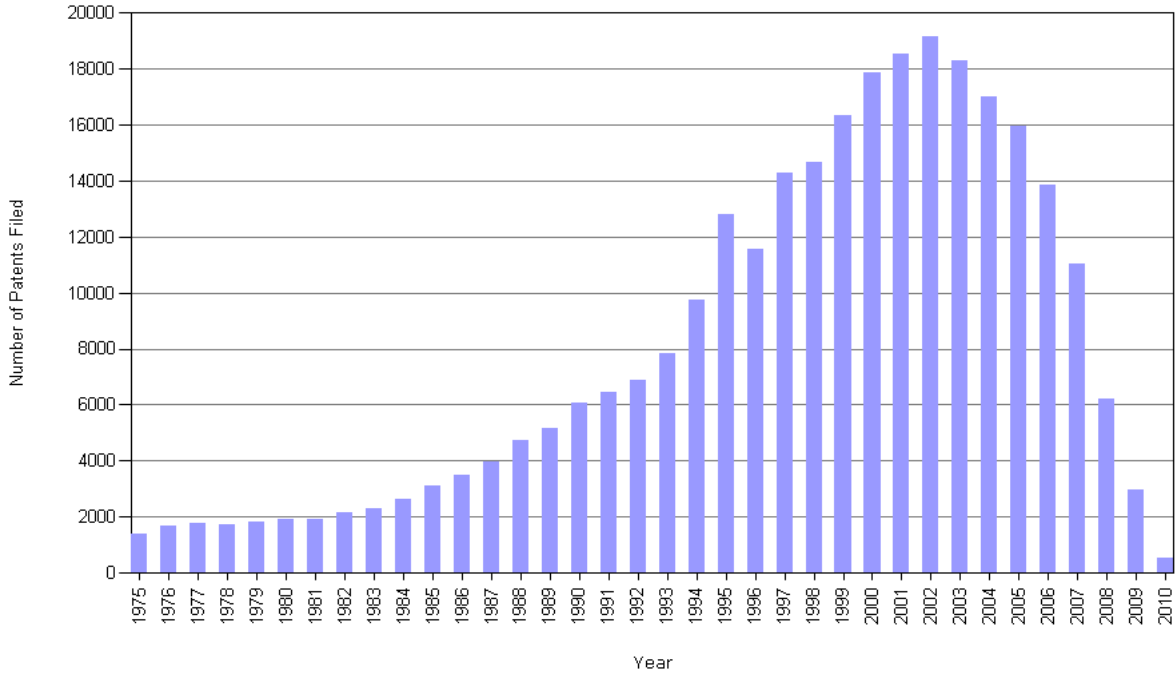


Figure 2: Patents Filed by Women – Annually (1975-2010)

Annual U.S. Origin Patents Filed by Women, 1975-2010



Patents Filed by Women – Annually (1975-2010)

Note: The USPTO data for patents filed drops off after the year 2002. Apparently, the USPTO data, as reflected in the disc supplied to Delixus, is as yet incomplete.

Figure 3: Patents Granted to Women – Annually

Annual Grants of U.S. Origin Woman-Inventor Patents, 1975-2010

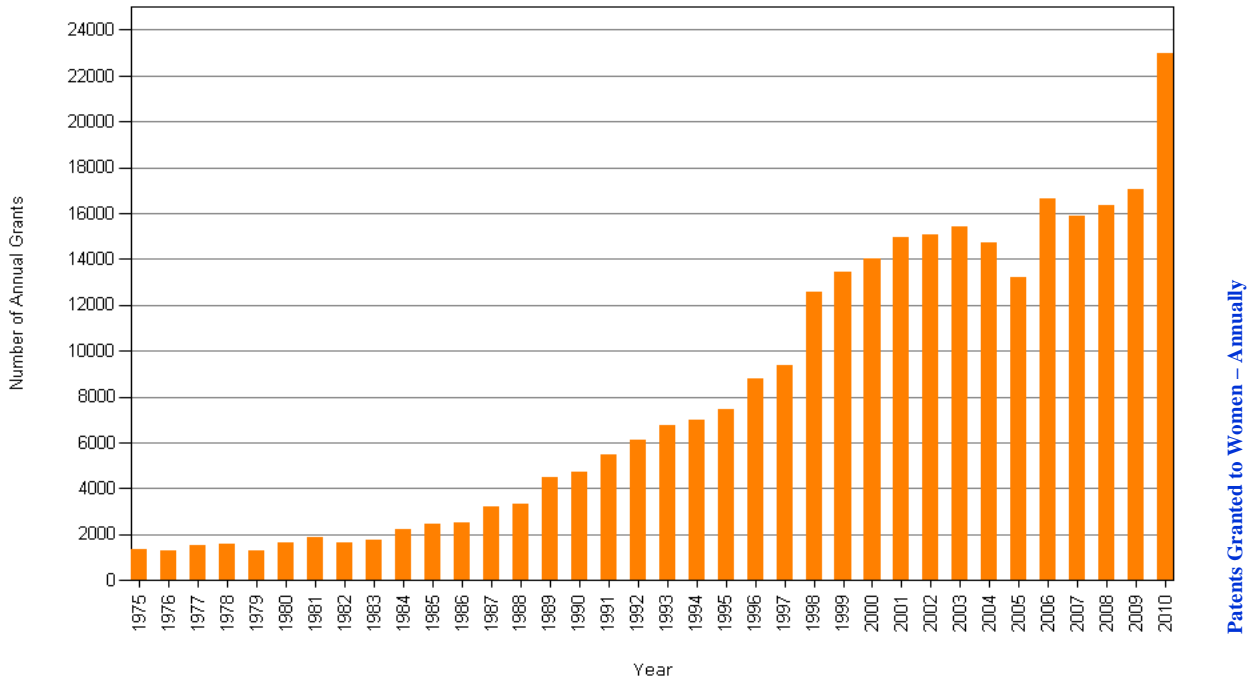


Figure 4: Ratio of Patents Granted to Patents Filed by Women – Annually

Ratio of Patents Granted to Women to Patents Filed by Women, 1975-2002

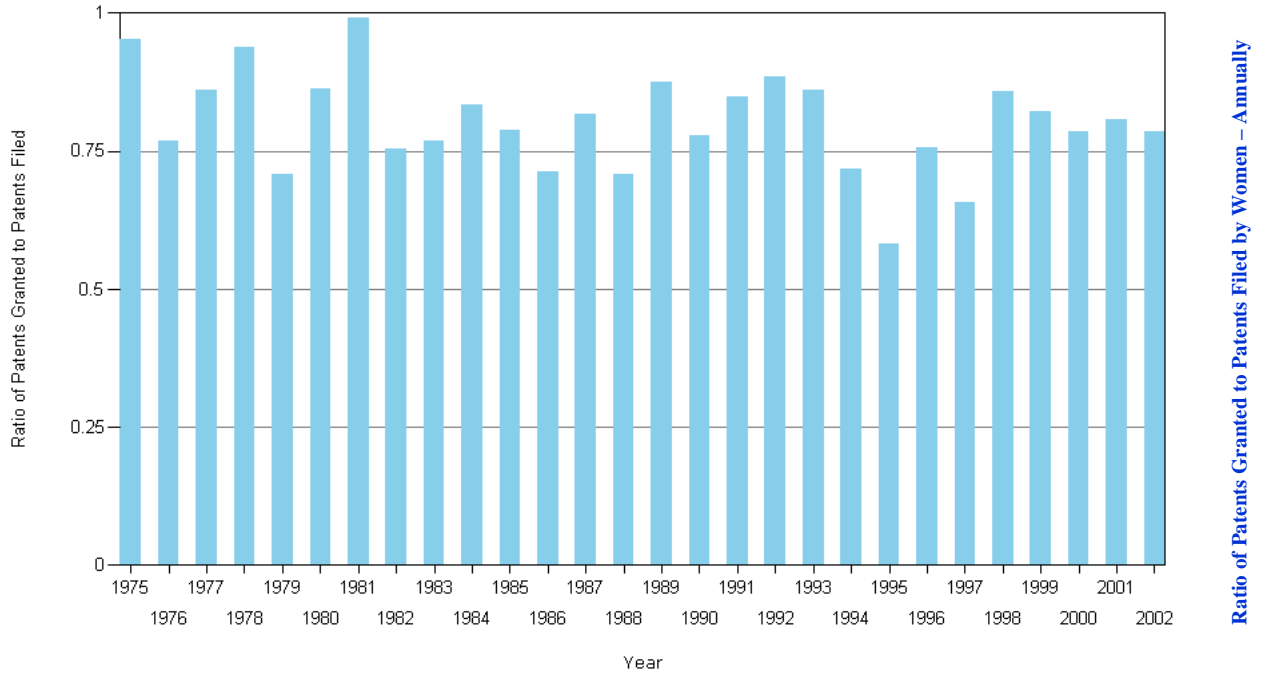


Figure 5: Patents Filed by Men – Annually (1975-2002)

Annual U.S. Origin Patents Filed by Men, 1975-2002

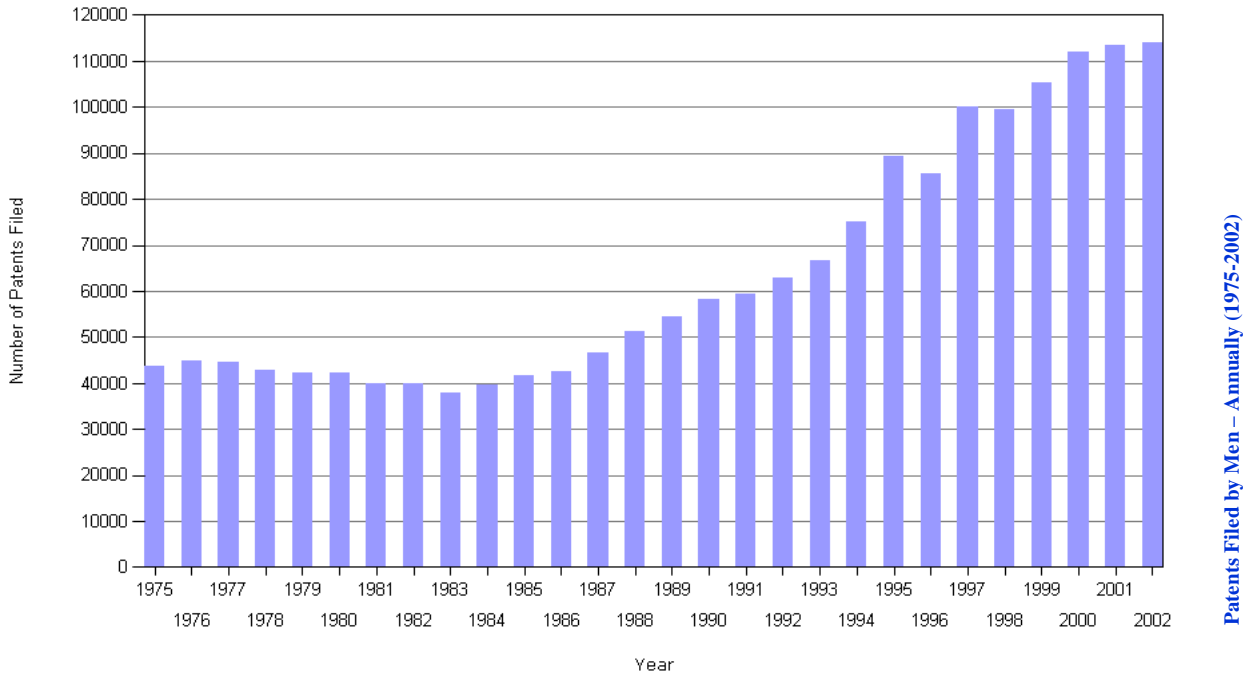
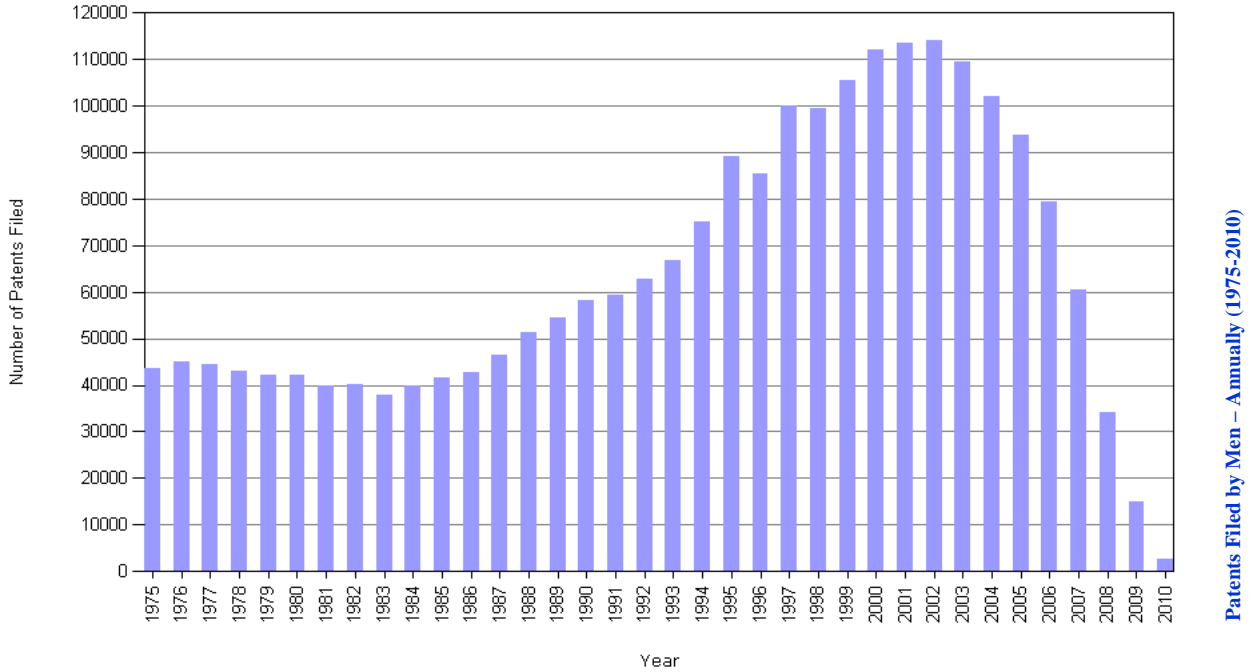


Figure 6: Patents Filed by Men – Annually (1975-2010)

Annual U.S. Origin Patents Filed by Men, 1975-2010



Note: The USPTO data for patents filed drops off after the year 2002. Apparently, the USPTO data, as reflected in the disc supplied to Delixus, is as yet incomplete.

Figure 7: Patents Granted to Men – Annually

Annual Grants of U.S. Origin Man-Inventor Patents, 1975-2010

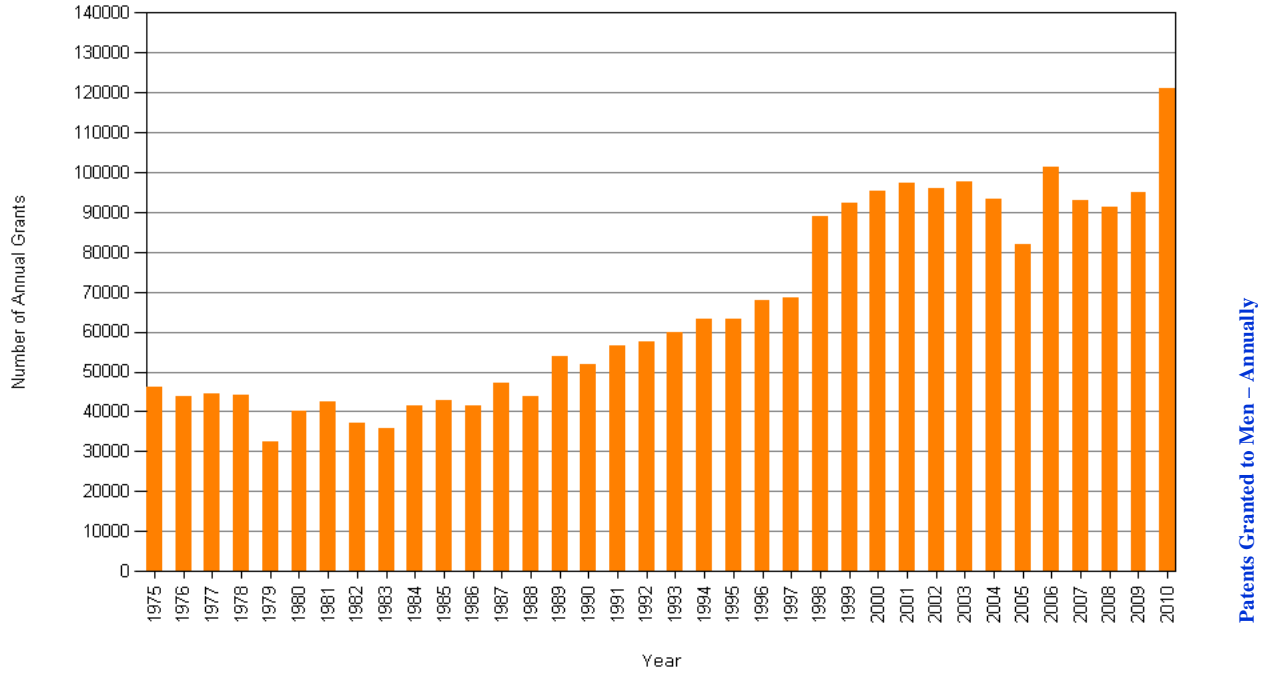


Figure 8: Ratio of Patents Granted to Patents Filed by Men – Annually

Ratio of Patents Granted to Men to Patents Filed by Men, 1975-2002

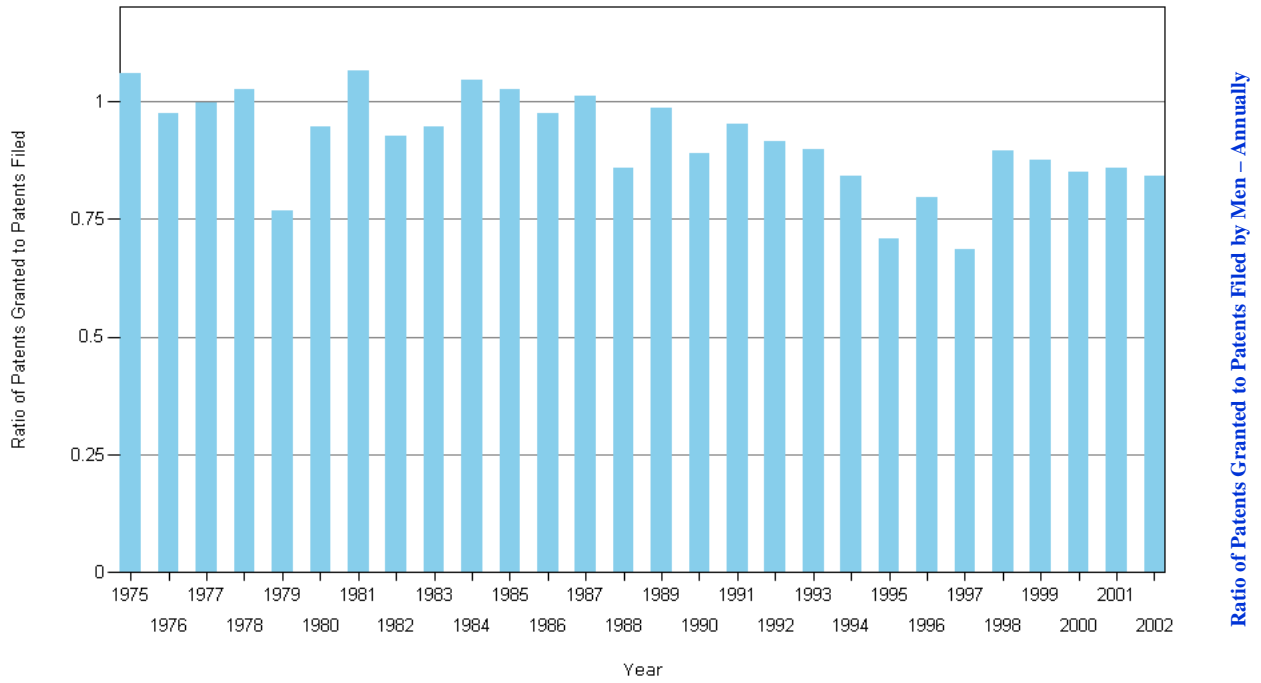


Figure 9: Patents Granted to Women – Share of All Patents

Share of U.S. Origin Patents which have a Woman Inventor, 1975-2010

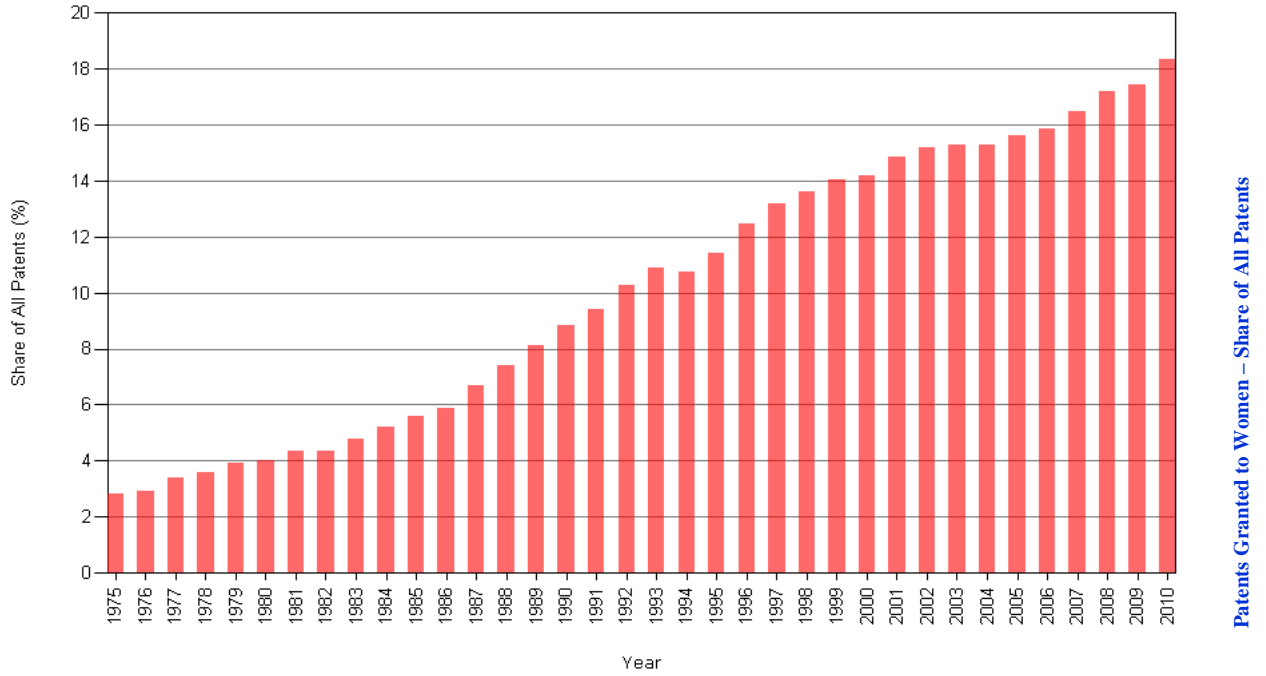


Figure 10: Patents Granted to Women (Primary Inventor) – Annually

Annual Grants of U.S. Origin Woman-Inventor (Primary) Patents, 1975-2010

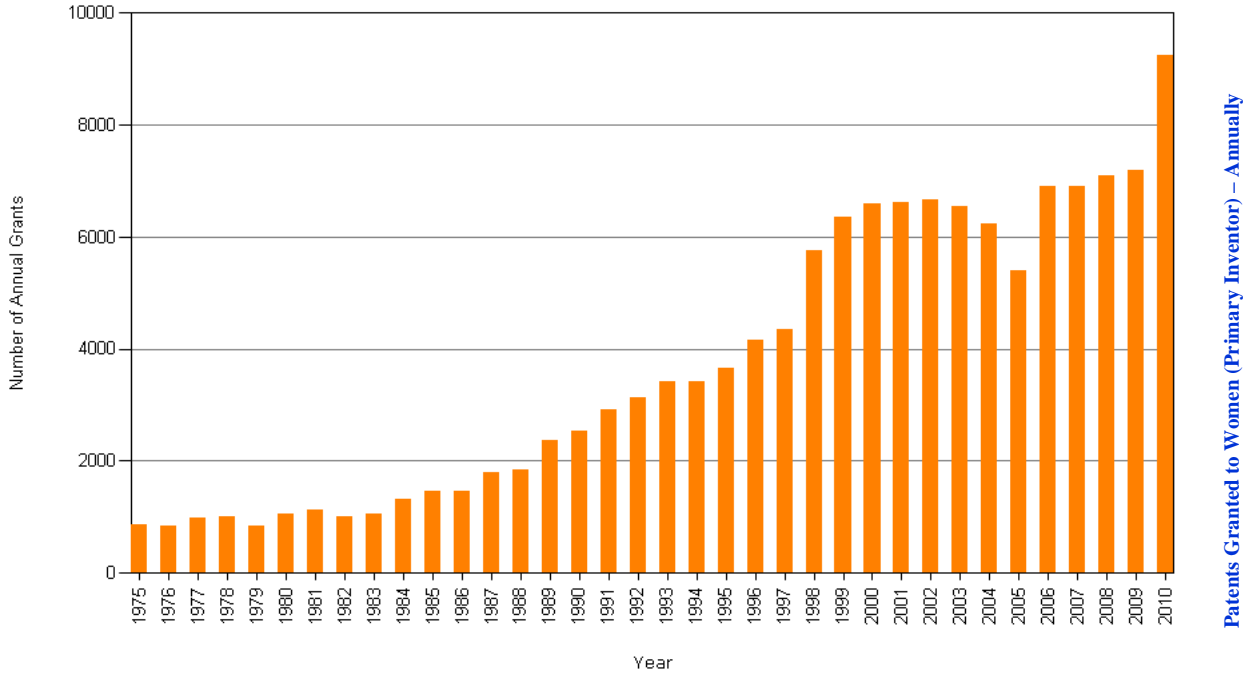
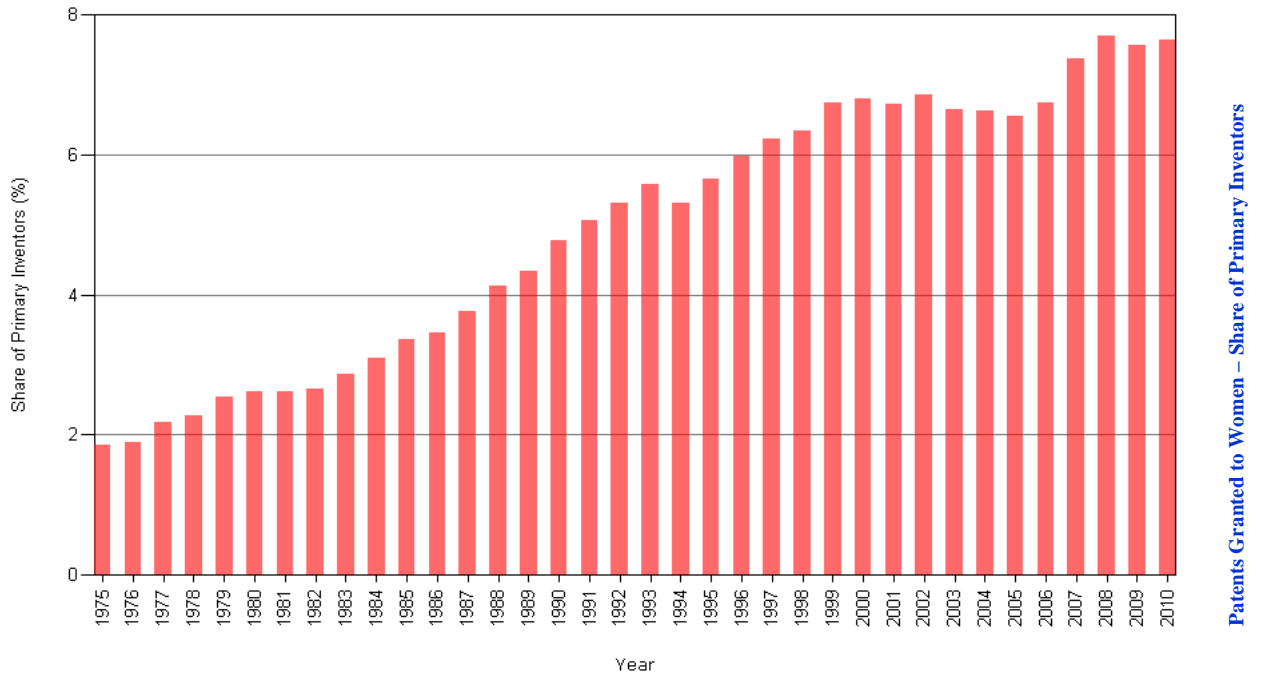


Figure 11: Patents Granted to Women – Share of Primary Inventors

Share of U.S. Origin Patents which have a Woman as the Primary Inventor, 1975-2010



Patents Granted to Women – Share of Primary Inventors

Figure 12: Patents Granted to Women (Non-Primary Inventor) –Annually

Annual Grants of U.S. Origin Woman-Inventor (Non-Primary) Patents, 1975-2010

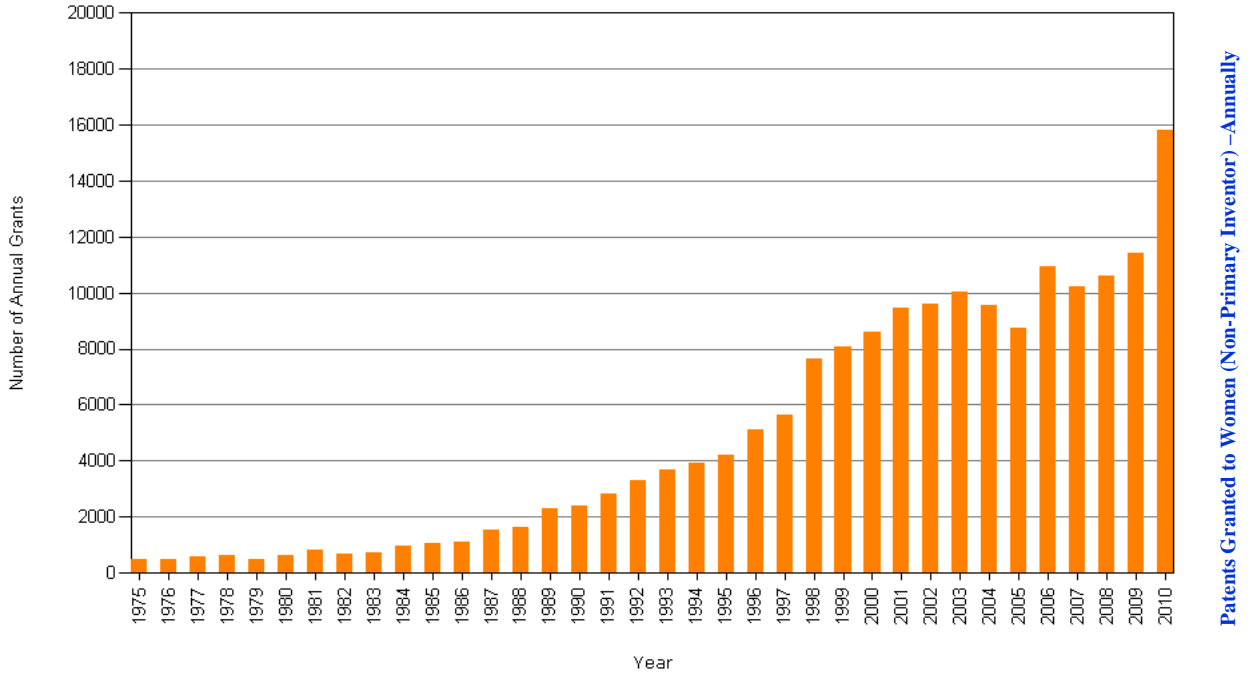
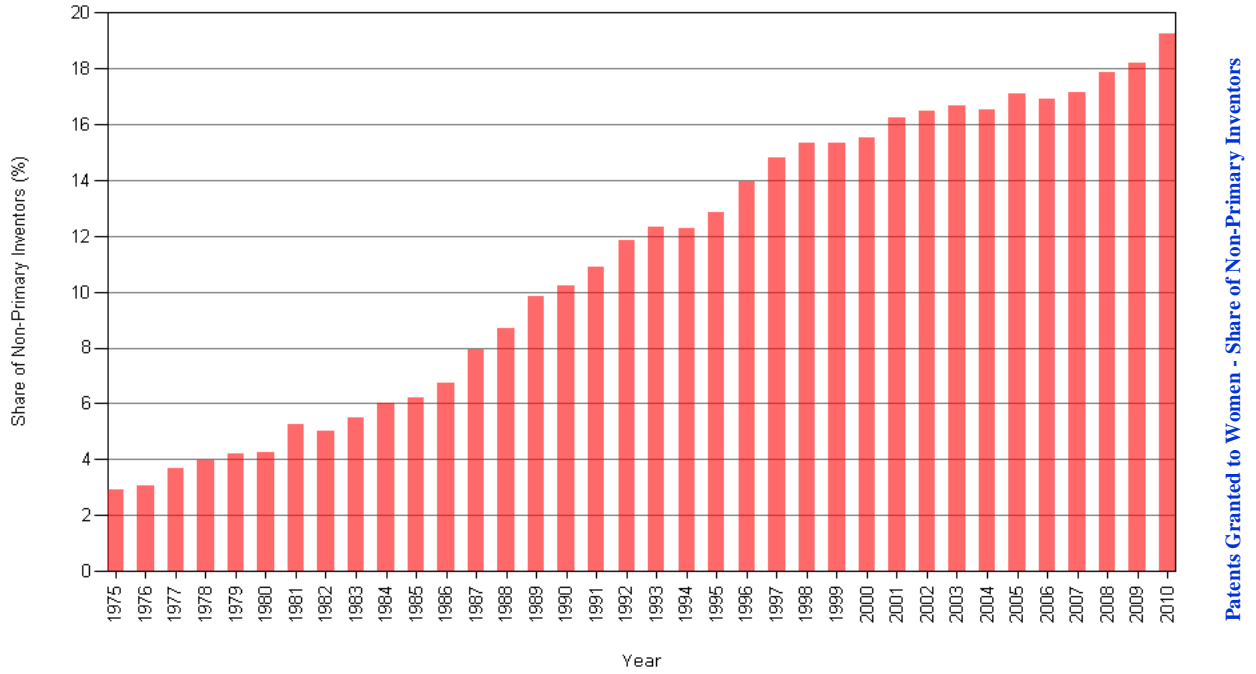


Figure 13: Patents Granted to Women - Share of Non-Primary Inventors

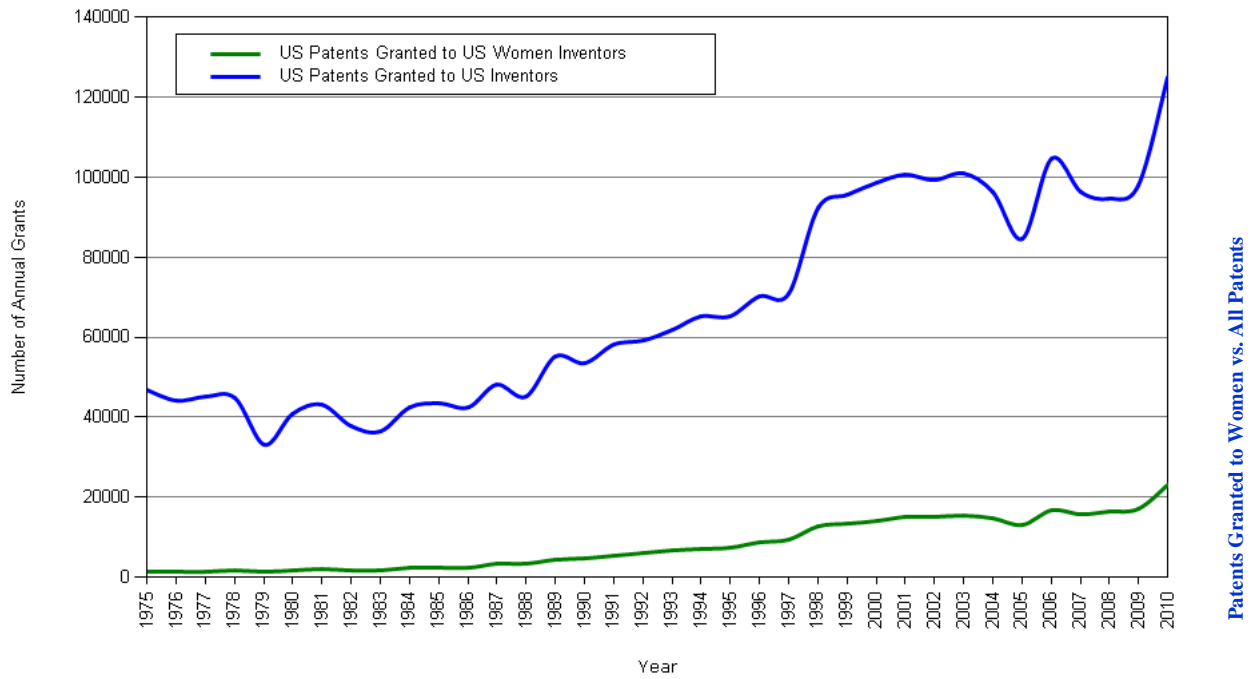
Share of U.S. Origin Patents which have a Woman as a Non-Primary Inventor, 1975-2010



Patents Granted to Women - Share of Non-Primary Inventors

Figure 14: Patents Granted to Women vs. All Patents

Annual Grants of U.S. Origin Woman-Inventor Patents compared with Annual Grants of All U.S. Patents, 1975-2010



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Table A.1: Patents by Patent Class

Patent Class Code	Patent Class Title (according to the United States Patents and Trademarks Office (USPTO))	Total no. of Patents	No. of Patents with at least 1 Woman Inventor	% Women Patents
435	Chemistry: Molecular Biology and Microbiology	40,314	14,129	35.05
514	Drug, Bio-Affecting and Body Treating Compositions	49,801	13,434	26.98
424	Drug, Bio-Affecting and Body Treating Compositions	32,515	9,625	29.6
438	Semiconductor Device Manufacturing: Process	34,848	5,677	16.29
D06	Furnishings	26,707	5,297	19.83
428	Stock Material or Miscellaneous Articles	32,518	4,780	14.7
604	Surgery	22,666	3,838	16.93
707	Data Processing: Database and File Management or Data Structures	17,901	3,664	20.47
370	Multiplex Communications	28,613	3,615	12.63
D14	Recording, Communication, or Information Retrieval Equipment	17,071	3,602	21.1
D07	Equipment for Preparing or Serving Food or Drink Not Elsewhere Specified	14,138	3,496	24.73
530	Chemistry: Natural Resins or Derivatives; Peptides or Proteins; Lignins or Reaction Products Thereof	9,356	3,413	36.48
257	Active Solid-State Devices (e.g., Transistors, Solid-State Diodes)	26,534	3,412	12.86
709	Electrical Computers and Digital Processing Systems: Multicomputer Data Transferring	19,922	3,239	16.26
D09	Packages and Containers for Goods	13,414	3,174	23.66
D02	Apparel and Haberdashery	10,807	3,087	28.56
430	Radiation Imagery Chemistry: Process, Composition, or Product Thereof	14,736	2,987	20.27
D21	Games, Toys, and Sports Goods	15,817	2,905	18.37
600	Surgery	23,491	2,812	11.97
426	Food or Edible Material: Processes, Compositions, and Products	12,503	2,719	21.75
D24	Medical and Laboratory Equipment	11,088	2,719	24.52
705	Data Processing: Financial, Business Practice, Management, or Cost/Price Determination	13,276	2,692	20.28
D03	Travel Goods and Personal Belongings	8,571	2,330	27.18
455	Telecommunications	20,520	2,322	11.32
536	Organic Compounds -- Part of the Class 532-570 Series	6,964	2,239	32.15
379	Telephonic Communications	14,613	2,224	15.22
D08	Tools and Hardware	16,757	2,191	13.08
D23	Environmental Heating and Cooling; Fluid Handling and Sanitary Equipment	13,423	2,140	15.94
2	Apparel	8,196	2,137	26.07
D12	Transportation	15,023	2,100	13.98
715	Data Processing: Presentation Processing of Document, Operator Interface Processing, and Screen Saver Display Processing	10,018	2,081	20.77
382	Image Analysis	14,614	2,076	14.21
606	Surgery	20,558	2,054	9.99
427	Coating Processes	13,777	1,928	13.99
524	Synthetic Resins or Natural Rubbers -- Part of the Class 520 Series	13,841	1,922	13.89

Contd...

Patent Class Code	Patent Class Title (according to the United States Patents and Trademarks Office (USPTO))	Total no. of Patents	No. of Patents with at least 1 Woman Inventor	% Women Patents
510	Cleaning Compositions for Solid Surfaces, Auxiliary Compositions Therefor, or Processes of Preparing the Compositions	6,619	1,877	28.36
714	Error Detection/Correction and Fault Detection/Recovery	15,879	1,853	11.67
800	Multicellular Living Organisms and Unmodified Parts Thereof and Related Processes	6,988	1,839	26.32
525	Synthetic Resins or Natural Rubbers -- Part of the Class 520 Series	12,027	1,795	14.92
385	Optical Waveguides	15,112	1,746	11.55
D11	Jewelry, Symbolic Insignia, and Ornaments	6,380	1,746	27.37
206	Special Receptacle or Package	13,801	1,690	12.25
340	Communications: Electrical	22,264	1,640	7.37
345	Computer Graphics Processing and Selective Visual Display Systems	16,233	1,626	10.02
73	Measuring and Testing	27,183	1,618	5.95
711	Electrical Computers and Digital Processing Systems: Memory	14,422	1,618	11.22
210	Liquid Purification or Separation	20,186	1,596	7.91
436	Chemistry: Analytical and Immunological Testing	7,258	1,560	21.49
375	Pulse or Digital Communications	16,454	1,546	9.4
PLT	Plants	8,369	1,467	17.53
250	Radiant Energy	20,108	1,461	7.27
365	Static Information Storage and Retrieval	15,527	1,445	9.31
5	Beds	7,205	1,434	19.9
359	Optical: Systems and Elements	16,434	1,402	8.53
324	Electricity: Measuring and Testing	20,208	1,396	6.91
528	Synthetic Resins or Natural Rubbers -- Part of the Class 520 Series	9,479	1,389	14.65
702	Data Processing: Measuring, Calibrating, or Testing	12,051	1,360	11.29
252	Compositions	7,621	1,321	17.33
D28	Cosmetic Products and Toilet Articles	3,762	1,315	34.95
D10	Measuring, Testing, or Signalling Instruments	8,251	1,304	15.8
361	Electricity: Electrical Systems and Devices	19,122	1,290	6.75
D26	Lighting	8,724	1,282	14.7
607	Surgery: Light, Thermal, and Electrical Application	9,256	1,256	13.57
D19	Office Supplies; Artists' and Teachers' Materials	4,961	1,255	25.3
235	Registers	8,809	1,241	14.09
422	Chemical Apparatus and Process Disinfecting, Deodorizing, Preserving, or Sterilizing	10,462	1,240	11.85

Contd...

Patent Class Code	Patent Class Title (according to the United States Patents and Trademarks Office (USPTO))	Total no. of Patents	No. of Patents with at least 1 Woman Inventor	% Women Patents
710	Electrical Computers and Digital Data Processing Systems: Input/Output	12,189	1,215	9.97
156	Adhesive Bonding and Miscellaneous Chemical Manufacture	15,332	1,206	7.87
713	Electrical Computers and Digital Processing Systems: Support	10,796	1,205	11.16
356	Optics: Measuring and Testing	14,657	1,200	8.19
502	Catalyst, Solid Sorbent, or Support Therefor: Product or Process of Making	7,964	1,174	14.74
29	Metal Working	20,223	1,172	5.8
280	Land Vehicles	17,839	1,168	6.55
360	Dynamic Magnetic Information Storage or Retrieval	12,690	1,164	9.17
264	Plastic and Nonmetallic Article Shaping or Treating: Processes	14,203	1,159	8.16
434	Education and Demonstration	4,837	1,159	23.96
423	Chemistry of Inorganic Compounds	10,076	1,147	11.38
119	Animal Husbandry	7,079	1,147	16.2
429	Chemistry: Electrical Current Producing Apparatus, Product, and Process	8,732	1,113	12.75
347	Incremental Printing of Symbolic Information	8,488	1,112	13.1
128	Surgery	8,521	1,098	12.89
526	Synthetic Resins or Natural Rubbers -- Part of the Class 520 Series	6,184	1,094	17.69
297	Chairs and Seats	7,753	1,068	13.78
439	Electrical Connectors	21,071	1,060	5.03
623	Prosthesis (i.e., Artificial Body Members), Parts Thereof, or Aids and Accessories Therefor	8,973	1,053	11.74
700	Data Processing: Generic Control Systems or Specific Applications	9,469	1,012	10.69
704	Data Processing: Speech Signal Processing, Linguistics, Language Translation, and Audio Compression/Decompression	6,154	1,012	16.44
717	Data Processing: Software Development, Installation, and Management	6,169	942	15.27
132	Toilet	2,911	938	32.22
546	Organic Compounds -- Part of the Class 532-570 Series	4,588	935	20.38
106	Compositions: Coating or Plastic	6,354	927	14.59
204	Chemistry: Electrical and Wave Energy	8,696	907	10.43
362	Illumination	12,001	867	7.22
D30	Animal Husbandry	3,018	866	28.69
219	Electric Heating	12,640	852	6.74
D13	Equipment for Production, Distribution, or Transformation of Energy	6,898	848	12.29
248	Supports	12,242	840	6.86
273	Amusement Devices: Games	7,373	837	11.35
348	Television	11,915	836	7.02
548	Organic Compounds -- Part of the Class 532-570 Series	4,925	815	16.55
15	Brushing, Scrubbing, and General Cleaning	8,619	810	9.4
585	Chemistry of Hydrocarbon Compounds	5,559	805	14.48
716	Computer-Aided Design and Analysis of Circuits and Semiconductor Masks	5,702	796	13.96

Contd...

Patent Class Code	Patent Class Title (according to the United States Patents and Trademarks Office (USPTO))	Total no. of Patents	No. of Patents with at least 1 Woman Inventor	% Women Patents
701	Data Processing: Vehicles, Navigation, and Relative Location	8,541	788	9.23
D25	Building Units and Construction Elements	5,914	786	13.29
446	Amusement Devices: Toys	5,033	772	15.34
358	Facsimile and Static Presentation Processing	6,416	769	11.99
523	Synthetic Resins or Natural Rubbers -- Part of the Class 520 Series	4,861	761	15.66
62	Refrigeration	13,079	743	5.68
D32	Washing, Cleaning, or Drying Machine	4,003	733	18.31
123	Internal-Combustion Engines	15,037	721	4.79
205	Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions	6,185	709	11.46
4	Baths, Closets, Sinks, and Spittoons	5,719	696	12.17
327	Miscellaneous Active Electrical Nonlinear Devices, Circuits, and Systems	12,393	695	5.61
549	Organic Compounds -- Part of the Class 532-570 Series	4,899	694	14.17
220	Receptacles	8,127	667	8.21
52	Static Structures (e.g., Buildings)	17,268	663	3.84
544	Organic Compounds -- Part of the Class 532-570 Series	4,016	658	16.38
208	Mineral Oils: Processes and Products	6,656	654	9.83
703	Data Processing: Structural Design, Modeling, Simulation, and Emulation	4,348	630	14.49
296	Land Vehicles: Bodies and Tops	8,308	627	7.55
372	Coherent Light Generators	7,017	621	8.85
712	Electrical Computers and Digital Processing Systems: Processing Architectures and Instruction Processing (e.g., Processors)	5,964	610	10.23
326	Electronic Digital Logic Circuitry	7,078	601	8.49
568	Organic Compounds -- Part of the Class 532-570 Series	5,925	600	10.13
222	Dispensing	10,256	598	5.83
134	Cleaning and Liquid Contact with Solids	6,059	598	9.87
166	Wells	13,752	597	4.34
224	Package and Article Carriers	4,989	595	11.93
174	Electricity: Conductors and Insulators	8,307	584	7.03
726	Information Security	4,255	571	13.42
378	X-Ray or Gamma Ray Systems or Devices	5,757	570	9.9
40	Card, Picture, or Sign Exhibiting	5,219	566	10.84
399	Electrophotography	5,690	559	9.82
482	Exercise Devices	7,765	541	6.97
521	Synthetic Resins or Natural Rubbers -- Part of the Class 520 Series	4,193	538	12.83
60	Power Plants	12,457	536	4.3
D34	Material or Article Handling Equipment	3,539	531	15
D15	Machines Not Elsewhere Specified	5,405	526	9.73
211	Supports: Racks	5,493	523	9.52

Contd...

Patent Class Code	Patent Class Title (according to the United States Patents and Trademarks Office (USPTO))	Total no. of Patents	No. of Patents with at least 1 Woman Inventor	% Women Patents
442	Fabric (Woven, Knitted, or Nonwoven Textile or Cloth, Etc.)	3,255	523	16.07
706	Data Processing: Artificial Intelligence	3,095	518	16.74
508	Solid Anti-Friction Devices, Materials Therefor, Lubricant or Separant Compositions for Moving Solid Surfaces, and Miscellaneous Mineral Oil Compositions	3,774	509	13.49
602	Surgery: Splint, Brace, or Bandage	3,636	500	13.75
D20	Sales and Advertising Equipment	2,298	497	21.63
473	Games Using Tangible Projectile	11,934	494	4.14
8	Bleaching and Dyeing; Fluid Treatment and Chemical Modification of Textiles and Fibers	2,829	491	17.36
564	Organic Compounds -- Part of the Class 532-570 Series	3,478	486	13.97
D04	Brushware	2,121	485	22.87
216	Etching a Substrate: Processes	3,018	481	15.94
162	Paper Making and Fiber Liberation	3,864	476	12.32
451	Abrading	7,588	475	6.26
463	Amusement Devices: Games	3,994	474	11.87
341	Coded Data Generation or Conversion	7,147	463	6.48
137	Fluid Handling	14,647	460	3.14
560	Organic Compounds -- Part of the Class 532-570 Series	4,019	458	11.4
118	Coating Apparatus	5,171	457	8.84
239	Fluid Sprinkling, Spraying, and Diffusing	8,585	448	5.22
501	Compositions: Ceramic	2,973	446	15
433	Dentistry	5,832	444	7.61
D01	Edible Products	1,128	444	39.36
313	Electric Lamp and Discharge Devices	5,392	443	8.22
398	Optical Communications	4,084	441	10.8
342	Communications: Directive Radio Wave Systems and Devices (e.g., Radar, Radio Navigation)	8,432	440	5.22
504	Plant Protecting and Regulating Compositions	3,778	425	11.25
351	Optics: Eye Examining, Vision Testing and Correcting	3,859	421	10.91
719	Electrical Computers and Digital Processing Systems: Interprogram Communication or Interprocess Communication (Ipc)	2,454	419	17.07
401	Coating Implements with Material Supply	2,365	415	17.55
148	Metal Treatment	4,586	412	8.98
562	Organic Compounds -- Part of the Class 532-570 Series	3,369	412	12.23
36	Boots, Shoes, and Leggings	3,655	403	11.03
33	Geometrical Instruments	7,144	397	5.56
D16	Photography and Optical Equipment	2,995	388	12.95
708	Electrical Computers: Arithmetic Processing and Calculating	4,971	385	7.74

Contd...

Patent Class Code	Patent Class Title (according to the United States Patents and Trademarks Office (USPTO))	Total no. of Patents	No. of Patents with at least 1 Woman Inventor	% Women Patents
450	Foundation Garments	598	384	64.21
725	Interactive Video Distribution Systems	3,164	382	12.07
310	Electrical Generator or Motor Structure	8,066	374	4.64
95	Gas Separation: Processes	3,793	373	9.83
24	Buckles, Buttons, Clasps, Etc.	4,349	371	8.53
312	Supports: Cabinet Structure	4,040	365	9.03
244	Aeronautics and Astronautics	7,646	359	4.7
540	Organic Compounds -- Part of the Class 532-570 Series	2,924	358	12.24
556	Organic Compounds -- Part of the Class 532-570 Series	2,739	357	13.03
718	Electrical Computers and Digital Processing Systems: Virtual Machine Task or Process Management or Task Management/Control	2,204	356	16.15
30	Cutlery	5,273	354	6.71
D05	Textile or Paper Yard Goods; Sheet Material	796	353	44.35
D18	Printing and Office Machinery	2,205	352	15.96
343	Communications: Radio Wave Antennas	6,939	350	5.04
47	Plant Husbandry	3,305	349	10.56
228	Metal Fusion Bonding	4,049	343	8.47
558	Organic Compounds -- Part of the Class 532-570 Series	2,662	343	12.89
43	Fishing, Trapping, and Vermin Destroying	6,605	334	5.06
D22	Arms, Pyrotechnics, Hunting and Fishing Equipment	3,531	329	9.32
D29	Equipment for Safety, Protection, and Rescue	1,502	327	21.77
294	Handling: Hand and Hoist-Line Implements	4,233	320	7.56
333	Wave Transmission Lines and Networks	4,970	319	6.42
99	Foods and Beverages: Apparatus	4,220	317	7.51
229	Envelopes, Wrappers, and Paperboard Boxes	4,147	315	7.6
53	Package Making	6,499	311	4.79
330	Amplifiers	6,127	311	5.08
242	Winding, Tensioning, or Guiding	6,183	309	5
315	Electric Lamp and Discharge Devices: Systems	7,081	306	4.32
84	Music	5,248	303	5.77
349	Liquid Crystal Cells, Elements and Systems	2,201	302	13.72
135	Tent, Canopy, Umbrella, or Cane	1,913	285	14.9
396	Photography	4,325	281	6.5
380	Cryptography	3,281	281	8.56
160	Flexible or Portable Closure, Partition, or Panel	2,905	277	9.54
131	Tobacco	2,128	274	12.88
318	Electricity: Motive Power Systems	6,720	269	4
425	Plastic Article or Earthenware Shaping or Treating: Apparatus	6,592	264	4
221	Article Dispensing	2,725	264	9.69

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Patent Class Code	Patent Class Title (according to the United States Patents and Trademarks Office (USPTO))	Total no. of Patents	No. of Patents with at least 1 Woman Inventor	% Women Patents
75	Specialized Metallurgical Processes, Compositions for Use Therein, Consolidated Metal Powder Compositions, and Loose Metal Particulate Mixtures	3,360	263	7.83
180	Motor Vehicles	6,119	261	4.27
D99	Miscellaneous	1,230	258	20.98
34	Drying and Gas or Vapor Contact with Solids	3,403	257	7.55
414	Material or Article Handling	9,392	256	2.73
522	Synthetic Resins or Natural Rubbers -- Part of the Class 520 Series	1,463	252	17.22
126	Stoves and Furnaces	5,992	251	4.19
65	Glass Manufacturing	3,801	249	6.55
215	Bottles and Jars	3,222	246	7.64
381	Electrical Audio Signal Processing Systems and Devices	4,796	244	5.09
506	Combinatorial Chemistry Technology: Method, Library, Apparatus	1,036	244	23.55
44	Fuel and Related Compositions	2,560	243	9.49
507	Earth Boring, Well Treating, and Oil Field Chemistry	1,935	241	12.45
405	Hydraulic and Earth Engineering	6,570	237	3.61
165	Heat Exchange	5,859	236	4.03
367	Communications, Electrical: Acoustic Wave Systems and Devices	4,868	234	4.81
601	Surgery: Kinesitherapy	1,973	234	11.86
417	Pumps	6,591	233	3.54
63	Jewelry	814	233	28.62
383	Flexible Bags	1,817	232	12.77
400	Typewriting Machines	3,091	224	7.25
320	Electricity: Battery or Capacitor Charging or Discharging	2,927	224	7.65
108	Horizontally Supported Planar Surfaces	2,777	224	8.07
141	Fluent Material Handling, with Receiver or Receiver Coating Means	4,718	217	4.6
283	Printed Matter	1,529	206	13.47
331	Oscillators	3,941	205	5.2
223	Apparel Apparatus	1,219	205	16.82
363	Electric Power Conversion Systems	4,449	204	4.59
114	Ships	6,246	202	3.23
369	Dynamic Information Storage or Retrieval	3,198	202	6.32
117	Single-Crystal, Oriented-Crystal, and Epitaxy Growth Processes; Non-Coating Apparatus Therefor	2,045	202	9.88
374	Thermal Measuring and Testing	2,624	200	7.62
175	Boring or Penetrating the Earth	5,169	199	3.85
55	Gas Separation	2,647	195	7.37
366	Agitating	3,481	193	5.54

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Patent Class Code	Patent Class Title (according to the United States Patents and Trademarks Office (USPTO))	Total no. of Patents	No. of Patents with at least 1 Woman Inventor	% Women Patents
503	Record Receiver Having Plural Interactive Leaves or a Colorless Color Former, Method of Use, or Developer Therefor	846	191	22.58
241	Solid Material Comminution or Disintegration	3,884	190	4.89
431	Combustion	3,348	190	5.68
416	Fluid Reaction Surfaces (i.e., Impellers)	3,638	189	5.2
200	Electricity: Circuit Makers and Breakers	5,802	186	3.21
D27	Tobacco and Smokers' Supplies	1,017	186	18.29
101	Printing	4,205	184	4.38
415	Rotary Kinetic Fluid Motors or Pumps	4,121	182	4.42
335	Electricity: Magnetically Operated Switches, Magnets, and Electromagnets	3,118	182	5.84
96	Gas Separation: Apparatus	2,519	177	7.03
323	Electricity: Power Supply or Regulation Systems	4,008	175	4.37
16	Miscellaneous Hardware (e.g., Bushing, Carpet Fastener, Caster, Door Closer, Panel Hanger, Attachable or Adjunct Handle, Hinge, Window Sash Balance, Etc.)	2,921	175	5.99
74	Machine Element or Mechanism	6,806	172	2.53
83	Cutting	5,197	171	3.29
307	Electrical Transmission or Interconnection Systems	4,065	167	4.11
368	Horology: Time Measuring Systems or Devices	1,878	166	8.84
164	Metal Founding	3,325	160	4.81
116	Signals and Indicators	1,726	160	9.27
56	Harvesters	4,475	159	3.55
70	Locks	4,289	158	3.68
505	Superconductor Technology: Apparatus, Material, Process	1,110	158	14.23
198	Conveyors: Power-Driven	6,292	155	2.46
81	Tools	4,726	155	3.28
554	Organic Compounds -- Part of the Class 532-570 Series	1,344	154	11.46
271	Sheet Feeding or Delivering	3,313	152	4.59
209	Classifying, Separating, and Assorting Solids	3,817	149	3.9
281	Books, Strips, and Leaves	829	149	17.97
516	Colloid Systems and Wetting Agents; Subcombinations Thereof; Processes Of	1,057	148	14
102	Ammunition and Explosives	3,822	147	3.85
570	Organic Compounds -- Part of the Class 532-570 Series	1,168	147	12.59
112	Sewing	2,128	145	6.81
441	Buoys, Rafts, and Aquatic Devices	1,790	144	8.04
136	Batteries: Thermoelectric and Photoelectric	1,863	143	7.68
150	Purses, Wallets, and Protective Covers	485	143	29.48
251	Valves and Valve Actuation	4,778	142	2.97
292	Closure Fasteners	3,771	141	3.74
285	Pipe Joints or Couplings	5,512	140	2.54

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Patent Class Code	Patent Class Title (according to the United States Patents and Trademarks Office (USPTO))	Total no. of Patents	No. of Patents with at least 1 Woman Inventor	% Women Patents
182	Fire Escape, Ladder, or Scaffold	3,262	137	4.2
355	Photocopying	2,362	137	5.8
181	Acoustics	2,719	129	4.74
149	Explosive and Thermic Compositions or Charges	1,330	129	9.7
72	Metal Deforming	5,930	128	2.16
376	Induced Nuclear Reactions: Processes, Systems, and Elements	3,548	128	3.61
386	Motion Video Signal Processing for Recording or Reproducing	1,765	127	7.2
49	Movable or Removable Closures	3,203	123	3.84
54	Harness for Working Animal	505	122	24.16
227	Elongated-Member-Driving Apparatus	2,125	121	5.69
512	Perfume Compositions	485	121	24.95
403	Joints and Connections	3,588	117	3.26
411	Expanded, Threaded, Driven, Headed, Tool-Deformed, or Locked-Threaded Fastener	3,337	117	3.51
353	Optics: Image Projectors	1,783	116	6.51
493	Manufacturing Container or Tube From Paper; or Other Manufacturing From a Sheet or Web	2,482	114	4.59
277	Seal for a Joint or Juncture	3,695	113	3.06
190	Trunks and Hand-Carried Luggage	615	112	18.21
51	Abrasive Tool Making Process, Material, or Composition	1,088	110	10.11
404	Road Structure, Process, or Apparatus	2,910	108	3.71
419	Powder Metallurgy Processes	1,134	108	9.52
588	Hazardous or Toxic Waste Destruction or Containment	1,004	108	10.76
552	Organic Compounds -- Part of the Class 532-570 Series	777	106	13.64
D17	Musical Instruments	992	102	10.28
445	Electric Lamp or Space Discharge Component or Device Manufacturing	1,207	101	8.37
261	Gas and Liquid Contact Apparatus	2,309	98	4.24
472	Amusement Devices	979	97	9.91
38	Textiles: Ironing or Smoothing	483	97	20.08
192	Clutches and Power-Stop Control	3,459	96	2.78
338	Electrical Resistors	1,463	95	6.49
203	Distillation: Processes, Separatory	1,302	94	7.22
475	Planetary Gear Transmission Systems or Components	2,784	93	3.34
392	Electric Resistance Heating Devices	1,522	92	6.04
89	Ordnance	2,685	91	3.39
188	Brakes	3,881	90	2.32
66	Textiles: Knitting	836	90	10.77
138	Pipes and Tubular Conduits	2,569	89	3.46
187	Elevator, Industrial Lift Truck, or Stationary Lift for Vehicle	1,541	89	5.78

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Patent Class Code	Patent Class Title (according to the United States Patents and Trademarks Office (USPTO))	Total no. of Patents	No. of Patents with at least 1 Woman Inventor	% Women Patents
420	Alloys or Metallic Compositions	1,400	86	6.14
402	Binder Device Releasably Engaging Aperture or Notch of Sheet	610	85	13.93
454	Ventilation	2,384	84	3.52
290	Prime-Mover Dynamo Plants	1,864	84	4.51
28	Textiles: Manufacturing	752	83	11.04
477	Interrelated Power Delivery Controls, Including Engine Control	1,168	81	6.93
534	Organic Compounds -- Part of the Class 532-570 Series	686	81	11.81
139	Textiles: Weaving	835	80	9.58
518	Chemistry: Fischer-Tropsch Processes; or Purification or Recovery of Products Thereof	671	79	11.77
336	Inductor Devices	1,465	78	5.32
232	Deposit and Collection Receptacles	776	75	9.66
42	Firearms	3,299	71	2.15
254	Implements or Apparatus for Applying Pushing or Pulling Force	2,791	70	2.51
452	Butchering	1,817	70	3.85
384	Bearings	3,136	69	2.2
440	Marine Propulsion	2,453	68	2.77
110	Furnaces	2,007	68	3.39
236	Automatic Temperature and Humidity Regulation	1,718	68	3.96
68	Textiles: Fluid Treating Apparatus	912	68	7.46
410	Freight Accommodation On Freight Carrier	1,652	65	3.93
48	Gas: Heating and Illuminating	1,069	63	5.89
432	Heating	1,663	62	3.73
144	Woodworking	2,177	61	2.8
152	Resilient Tires and Wheels	1,695	61	3.6
177	Weighing Scales	1,472	60	4.08
71	Chemistry: Fertilizers	923	59	6.39
100	Presses	1,968	58	2.95
127	Sugar, Starch, and Carbohydrates	445	57	12.81
301	Land Vehicles: Wheels and Axles	1,392	55	3.95
172	Earth Working	2,639	54	2.05
269	Work Holders	2,117	54	2.55
225	Severing by Tearing or Breaking	716	54	7.54
37	Excavating	2,163	53	2.45
267	Spring Devices	1,708	53	3.1
337	Electricity: Electrothermally or Thermally Actuated Switches	1,524	52	3.41
27	Undertaking	458	52	11.35
303	Fluid-Pressure and Analogous Brake Systems	1,872	51	2.72

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Patent Class Code	Patent Class Title (according to the United States Patents and Trademarks Office (USPTO))	Total no. of Patents	No. of Patents with at least 1 Woman Inventor	% Women Patents
377	Electrical Pulse Counters, Pulse Dividers, or Shift Registers: Circuits and Systems	1,339	51	3.81
249	Static Molds	1,290	50	3.88
256	Fences	1,212	50	4.13
474	Endless Belt Power Transmission Systems or Components	1,905	48	2.52
122	Liquid Heaters and Vaporizers	1,561	47	3.01
418	Rotary Expansible Chamber Devices	1,906	45	2.36
408	Cutting by Use of Rotating Axially Moving Tool	2,068	44	2.13
293	Vehicle Fenders	727	44	6.05
494	Imperforate Bowl: Centrifugal Separators	815	43	5.28
105	Railway Rolling Stock	1,620	42	2.59
92	Expansible Chamber Devices	1,573	42	2.67
57	Textiles: Spinning, Twisting, and Twining	1,012	42	4.15
266	Metallurgical Apparatus	1,541	41	2.66
14	Bridges	642	41	6.39
169	Fire Extinguishers	1,221	40	3.28
7	Compound Tools	696	40	5.75
194	Check-Actuated Control Mechanisms	998	38	3.81
91	Motors: Expansible Chamber Type	1,638	36	2.2
720	Dynamic Optical Information Storage or Retrieval	348	35	10.06
124	Mechanical Guns and Projectors	2,413	34	1.41
104	Railways	1,357	33	2.43
111	Planting	1,134	33	2.91
850	Scanning-Probe Techniques or Apparatus; Applications of Scanning-Probe Techniques, e.g., Scanning Probe Microscopy [Spm]	331	32	9.67
218	High-Voltage Switches with Arc Preventing or Extinguishing Devices	680	31	4.56
409	Gear Cutting, Milling, or Planing	1,346	29	2.15
173	Tool Driving or Impacting	1,242	29	2.33
332	Modulators	494	28	5.67
464	Rotary Shafts, Gudgeons, Housings, and Flexible Couplings for Rotary Shafts	1,346	27	2.01
202	Distillation: Apparatus	820	27	3.29
270	Sheet-Material Associating	783	27	3.45
346	Recorders	732	25	3.42
12	Boot and Shoe Making	305	25	8.2
406	Conveyors: Fluid Current	1,123	24	2.14
279	Chucks or Sockets	816	24	2.94
407	Cutters, for Shaping	783	24	3.07
186	Merchandising	197	23	11.68
412	Bookbinding: Process and Apparatus	302	21	6.95
168	Farriery	189	21	11.11

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Patent Class Code	Patent Class Title (according to the United States Patents and Trademarks Office (USPTO))	Total no. of Patents	No. of Patents with at least 1 Woman Inventor	% Women Patents
322	Electricity: Single Generator Systems	738	20	2.71
76	Metal Tools and Implements, Making	566	20	3.53
23	Chemistry: Physical Processes	192	19	9.9
299	Mining or In Situ Disintegration of Hard Material	1,494	18	1.2
184	Lubrication	991	18	1.82
462	Books, Strips, and Leaves for Manifolding	188	18	9.57
237	Heating Systems	532	17	3.2
19	Textiles: Fiber Preparation	489	17	3.48
289	Knots and Knot Tying	163	17	10.43
1	** Classification Undetermined **	96	17	17.71
140	Wireworking	649	16	2.47
352	Optics: Motion Pictures	614	16	2.61
305	Wheel Substitutes for Land Vehicles	598	16	2.68
87	Textiles: Braiding, Netting, and Lace Making	177	16	9.04
460	Crop Threshing or Separating	616	15	2.44
226	Advancing Material of Indeterminate Length	880	14	1.59
373	Industrial Electric Heating Furnaces	604	14	2.32
492	Roll or Roller	288	14	4.86
527	Synthetic Resins or Natural Rubbers -- Part of the Class 520 Series	176	14	7.95
82	Turning	1,219	12	0.98
329	Demodulators	385	12	3.12
388	Electricity: Motor Control Systems	395	11	2.78
109	Safes, Bank Protection, or a Related Device	354	11	3.11
26	Textiles: Cloth Finishing	294	11	3.74
260	Chemistry of Carbon Compounds	51	11	21.57
246	Railway Switches and Signals	599	10	1.67
238	Railways: Surface Track	446	10	2.24
213	Railway Draft Appliances	425	10	2.35
86	Ammunition and Explosive-Charge Making	414	10	2.42
298	Land Vehicles: Dumping	446	9	2.02
159	Concentrating Evaporators	264	9	3.41
300	Brush, Broom, and Mop Making	128	9	7.03
178	Telegraphy	530	8	1.51
193	Conveyors, Chutes, Skids, Guides, and Ways	467	8	1.71
59	Chain, Staple, and Horseshoe Making	312	8	2.56
483	Tool Changing	242	8	3.31
212	Traversing Hoists	757	7	0.92
453	Coin Handling	288	7	2.43
201	Distillation: Processes, Thermolytic	274	7	2.55

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Patent Class Code	Patent Class Title (according to the United States Patents and Trademarks Office (USPTO))	Total no. of Patents	No. of Patents with at least 1 Woman Inventor	% Women Patents
191	Electricity: Transmission To Vehicles	248	7	2.82
449	Bee Culture	126	7	5.56
217	Wooden Receptacles	79	7	8.86
125	Stone Working	585	6	1.03
476	Friction Gear Transmission Systems or Components	196	5	2.55
231	Whips and Whip Apparatus	19	5	26.32
147	Coopering	9	5	55.56
157	Wheelwright Machines	307	4	1.3
470	Threaded, Headed Fastener, or Washer Making: Process and Apparatus	258	4	1.55
171	Unearthing Plants or Buried Objects	167	4	2.4
413	Sheet Metal Container Making	208	2	0.96
196	Mineral Oils: Apparatus	94	2	2.13
291	Track Sanders	31	2	6.45
334	Tuners	70	1	1.43
69	Leather Manufactures	40	1	2.5
79	Button Making	9	1	11.11
163	Needle and Pin Making	5	1	20
D00	** Design Classification Undetermined **	2	1	50
185	Motors: Spring, Weight, or Animal Powered	71	0	0
142	Wood Turning	41	0	0
295	Railway Wheels and Axles	39	0	0
234	Selective Cutting (e.g., Punching)	31	0	0
245	Wire Fabrics and Structure	12	0	0
278	Land Vehicles: Animal Draft Appliances	3	0	0
199	Type Casting	2	0	0
258	Railway Mail Delivery	2	0	0
520	Synthetic Resins or Natural Rubbers -- Part of the Class 520 Series	2	0	0
314	Electric Lamp and Discharge Devices: Consumable Electrodes	1	0	0
276	Typesetting	0	0	0
	Total number of Patents (1975 - 2010)	2,441,601	290,169	11.88

Table A.2: Women Inventor Patents – Top 25 Patent Classes

Patent Class	Number of patents granted within patent class which have at least one woman inventor, 1975-2010																																			
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Food or Edible Material: Processes, Compositions, and Products (426)	45	24	14	24	29	30	49	22	42	45	57	68	47	68	100	88	100	103	99	92	100	89	72	79	129	165	158	138	144	111	59	82	55	46	56	90
Drug, Bio-Affecting and Body Treating Compositions (514)	29	40	48	55	37	61	67	46	70	91	91	77	133	188	190	178	222	266	279	252	302	462	567	650	683	673	745	843	831	592	619	763	709	647	821	1127
Surgery (604)	25	22	20	18	6	14	13	23	24	24	37	35	82	44	82	82	92	98	83	140	148	158	178	220	174	167	208	194	233	194	145	133	122	110	148	282
Radiation Imagery Chemistry: Process, Composition, or Product Thereof (430)	22	10	15	15	13	16	34	33	24	28	30	30	21	30	59	71	75	72	96	113	101	129	111	146	139	177	183	171	150	159	104	146	122	98	108	137
Stock Material or Miscellaneous Articles (426)	19	23	12	29	16	22	38	23	38	36	71	74	68	86	104	113	103	138	132	133	125	175	186	239	247	220	240	257	310	262	258	210	180	158	184	251
Drug, Bio-Affecting and Body Treating Compositions (424)	17	14	19	17	26	31	36	25	23	42	45	52	86	93	148	155	181	205	218	245	234	281	486	551	686	552	630	692	644	434	358	451	424	409	440	675
Chemistry: Molecular Biology and Microbiology (435)	16	17	22	26	22	21	49	43	41	28	59	57	92	105	142	148	184	244	294	272	310	452	661	1005	1085	893	971	938	782	685	588	821	746	664	712	934
Organic Compounds – Part of the Class 532: 570 Series (536)	11	7	4	6	6	6	10	11	7	9	5	3	10	10	14	25	26	43	40	29	50	63	78	141	125	99	153	146	114	108	96	135	149	126	177	197
Semiconductor Device Manufacturing: Process (438)	8	8	2	11	12	6	13	12	12	20	20	18	36	34	34	43	67	58	63	78	82	62	88	130	192	304	450	508	449	442	406	413	364	334	396	502
Surgery (600)	7	2	4	9	2	4	5	6	9	14	13	21	21	21	40	38	41	46	55	75	76	76	87	136	152	158	156	186	206	185	121	169	125	117	160	269
Chemistry: Natural Resins or Derivatives; Peptides or Proteins; Lignins or Reaction Products Thereof (530)	5	4	2	10	2	7	8	7	11	19	15	12	19	24	41	26	50	65	74	42	58	81	137	172	173	165	174	141	123	130	149	210	373	348	249	287
Active Solid-State Devices (e.g., Transistors, Solid-State Diodes) (257)	4	1	9	4	4	2	6	5	3	7	9	14	14	10	25	36	46	45	38	65	49	68	75	119	118	98	159	194	270	277	261	287	232	231	289	389
Multiplex Communications (455)	2	0	1	3	1	3	2	1	1	8	6	4	11	12	11	15	14	13	31	42	45	71	54	66	85	128	103	145	159	198	206	321	252	369	504	728
Telecommunications (455)	1	2	3	3	6	2	4	4	1	2	3	1	2	4	8	10	5	13	7	19	21	33	33	65	101	102	109	108	95	141	135	230	246	214	246	343
Data Processing: Financial, Business Practice, Management, or Cost/Price Determination (705)	0	1	0	0	0	1	0	3	0	2	0	1	2	4	10	9	11	7	19	20	19	24	28	58	100	109	76	68	65	44	111	212	199	305	354	830
Furnishings (D06)	0	0	34	43	34	42	61	45	35	43	61	53	76	79	74	120	122	119	203	146	221	243	187	241	251	325	307	242	215	213	190	263	291	300	207	212
Equipment for Preparing or Serving Food or Drink Not Elsewhere Specified (D07)	0	0	27	19	32	26	26	35	17	13	38	42	35	27	38	49	39	71	121	82	82	96	74	136	125	171	191	128	181	197	161	215	305	257	175	265
Apparel and Haberdashery (D02)	0	0	18	14	10	19	21	14	21	20	39	31	46	45	64	63	79	83	128	122	97	92	112	158	115	110	89	120	160	122	104	181	185	219	180	205
Games, Toys, and Sports Goods (D21)	0	0	16	34	16	37	30	33	65	38	42	56	59	65	64	83	100	76	94	111	111	108	88	128	98	118	130	96	131	92	61	122	159	188	152	84
Travel Goods and Personal Belongings (D03)	0	0	13	21	17	15	13	22	17	14	18	21	35	21	25	51	56	61	79	65	84	74	74	104	132	120	103	105	92	104	93	142	140	115	127	157
Medical and Laboratory Equipment (D24)	0	0	6	7	6	14	12	22	21	28	17	18	29	32	41	34	45	73	84	88	95	94	101	134	137	150	160	146	189	107	75	95	154	187	122	176
Packages and Containers for Goods (D09)	0	0	5	10	16	17	22	15	13	16	24	11	23	14	18	26	34	40	72	56	75	72	75	105	114	169	234	108	177	127	149	198	276	337	224	302
Recording, Communication, or Information Retrieval Equipment (D14)	0	0	2	1	1	5	7	4	12	15	20	9	29	41	26	43	36	37	59	53	82	111	121	144	132	211	175	175	198	182	163	230	396	421	210	251
Data Processing: Database and File Management or Data Structures (707)	0	0	0	0	1	2	1	0	1	2	0	1	3	1	5	9	7	9	19	23	31	35	50	125	119	131	138	195	220	215	173	287	266	322	489	734
Electrical Computers and Digital Processing Systems: Multicomputer Data Transferring (709)	0	0	0	0	0	0	0	2	0	1	0	2	3	3	4	7	2	11	14	17	16	41	29	97	111	149	150	125	133	195	180	301	245	313	456	632

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Share of patents granted within patent class which have at least one woman inventor, 1975-2010

Patent Class	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	
Food or Edible Material - Processes, Compositions, and Products (426)	9.3%	5.4%	4.2%	9.0%	11.7%	9.9%	14.8%	8.5%	14.6%	17.5%	16.6%	25.1%	16.8%	21.4%	21.7%	19.9%	22.7%	25.2%	26.1%	24.8%	25.8%	21.6%	21.1%	20.7%	23.9%	28.3%	29.0%	31.6%	34.8%	33.7%	31.4%	34.6%	27.6%	31.3%	32.6%	36.1%	
Drug, Bio-Affecting and Body Treating Compositions (514)	5.5%	6.1%	6.4%	7.3%	6.8%	8.1%	9.9%	7.8%	11.7%	12.3%	12.1%	10.9%	15.4%	19.5%	16.9%	17.1%	18.7%	23.4%	21.9%	23.1%	23.2%	27.9%	26.1%	29.2%	28.2%	29.1%	31.0%	32.2%	34.6%	33.9%	37.0%	37.5%	38.1%	38.5%	40.2%	41.4%	
Surgery (604)	8.7%	7.6%	7.4%	9.6%	4.4%	5.4%	5.5%	8.1%	8.7%	7.9%	10.8%	8.1%	15.6%	8.9%	13.0%	14.4%	12.7%	11.7%	13.1%	15.4%	17.7%	20.5%	18.9%	16.8%	18.6%	21.8%	22.5%	22.9%	23.0%	23.1%	21.9%	24.4%	22.2%	23.1%	22.6%	22.8%	
Radiation Therapy; Chemistry; Processes, Compositions, or Product Thereof (430)	5.3%	2.9%	4.5%	5.2%	6.4%	6.2%	6.4%	11.0%	6.3%	10.3%	12.3%	12.0%	6.3%	12.3%	17.9%	21.9%	21.1%	23.0%	16.9%	19.5%	19.8%	24.2%	22.8%	24.8%	21.6%	25.7%	27.0%	26.7%	24.9%	23.1%	26.9%	31.5%	32.6%	28.6%	33.2%	32.0%	32.0%
Stock Material or Miscellaneous Articles (428)	3.1%	3.9%	2.2%	5.1%	3.9%	3.9%	6.1%	3.9%	6.7%	5.9%	9.7%	9.9%	9.9%	11.6%	11.3%	12.4%	12.7%	14.5%	14.2%	13.7%	12.7%	15.3%	15.3%	16.9%	16.3%	16.3%	18.0%	18.0%	21.2%	19.2%	24.0%	24.5%	21.6%	23.7%	26.8%	24.7%	
Drug, Bio-Affecting and Body Treating Compositions (424)	8.2%	5.7%	7.9%	7.7%	11.6%	14.6%	14.5%	9.9%	12.2%	14.0%	15.9%	15.9%	20.8%	21.4%	21.8%	23.1%	24.8%	27.9%	26.8%	28.8%	26.6%	28.9%	28.9%	33.6%	31.6%	32.3%	35.3%	34.3%	31.2%	32.8%	31.3%	34.4%	35.1%	36.5%	37.9%	37.9%	
Chemistry; Molecular Biology and Microbiology (435)	7.9%	8.7%	11.6%	15.2%	17.9%	9.3%	16.3%	15.9%	17.6%	11.5%	23.4%	19.1%	19.8%	24.2%	24.3%	27.3%	30.9%	32.1%	31.0%	30.5%	31.3%	31.8%	32.8%	36.5%	39.2%	37.9%	36.4%	39.2%	37.4%	37.8%	37.2%	40.4%	40.2%	39.8%	42.7%	40.7%	40.7%
Organic Compounds - Part of the Class 532-570 Series (539)	10.3%	9.2%	4.8%	6.5%	10.2%	7.5%	12.6%	16.7%	12.3%	13.0%	11.4%	7.9%	25.6%	18.9%	18.4%	22.1%	24.3%	30.9%	28.8%	24.2%	24.8%	25.5%	23.4%	32.2%	31.9%	40.7%	37.9%	35.7%	36.4%	40.0%	39.2%	47.8%	40.4%	46.5%	43.3%	43.3%	
Semiconductor Device Manufacturing; Process (438)	3.3%	4.6%	1.2%	6.7%	7.9%	3.4%	6.4%	5.9%	5.2%	8.1%	7.7%	6.3%	10.5%	11.1%	8.6%	13.8%	15.8%	12.0%	11.5%	13.6%	12.3%	11.0%	11.3%	13.5%	12.6%	14.7%	17.9%	19.6%	18.7%	18.6%	19.5%	19.2%	17.6%	17.7%	20.5%	20.6%	
Surgery (600)	2.8%	0.9%	2.1%	5.0%	1.3%	1.5%	2.0%	2.6%	3.9%	5.6%	4.6%	6.2%	5.6%	7.8%	7.8%	7.6%	8.7%	6.4%	9.8%	9.8%	10.3%	11.9%	11.7%	13.3%	12.1%	12.5%	14.1%	14.9%	17.5%	15.2%	18.3%	15.4%	16.0%	18.2%	19.2%	19.2%	
Chemistry; Natural Resins or Derivatives; Peptides or Proteins; Lignins or Reaction Products Thereof (530)	6.0%	7.1%	2.9%	9.7%	4.3%	8.0%	6.5%	9.3%	12.8%	16.7%	16.3%	13.3%	17.5%	26.5%	20.8%	28.3%	29.4%	28.3%	31.2%	21.9%	29.7%	32.7%	35.9%	31.0%	34.8%	39.3%	42.2%	36.9%	34.3%	39.8%	47.3%	41.7%	56.9%	54.4%	49.0%	50.1%	
Active Solid-State Devices (e.g., Transistors, Solid-State Diodes) (257)	2.2%	0.5%	4.5%	2.9%	2.8%	1.2%	4.2%	4.6%	2.7%	5.3%	6.0%	6.8%	5.9%	4.7%	7.4%	9.0%	6.7%	10.3%	10.9%	12.2%	9.5%	10.5%	12.0%	12.1%	11.1%	8.7%	12.6%	13.5%	15.2%	14.8%	14.9%	16.3%	14.4%	15.2%	17.7%	16.5%	16.5%
Multiplex Communications (370)	2.1%	0.0%	1.2%	3.9%	1.6%	3.6%	2.9%	1.3%	1.0%	6.6%	3.2%	2.7%	5.2%	6.6%	6.0%	7.2%	7.6%	6.4%	12.0%	11.3%	9.9%	13.2%	10.8%	9.7%	10.3%	11.4%	8.9%	11.3%	11.1%	11.2%	12.4%	13.5%	13.2%	14.4%	16.2%	17.1%	17.1%
Telecommunications (455)	0.8%	1.4%	2.3%	2.8%	6.4%	1.8%	3.9%	1.0%	1.9%	2.9%	1.1%	1.9%	3.5%	6.8%	8.5%	3.0%	6.6%	3.2%	8.1%	7.1%	7.5%	9.1%	10.1%	12.5%	9.6%	11.5%	11.8%	10.2%	12.3%	12.0%	11.5%	13.9%	14.0%	14.2%	15.4%	15.4%	
Data Processing; Financial, Business Practice, Management, or Cost/Piece Determination (705)	0.0%	6.7%	0.0%	0.0%	0.0%	5.6%	0.0%	13.6%	0.0%	8.0%	0.0%	2.9%	3.8%	7.3%	11.2%	12.7%	15.1%	11.5%	15.2%	11.1%	20.7%	14.2%	14.4%	17.7%	17.6%	17.6%	18.0%	17.8%	16.7%	17.6%	20.5%	20.9%	23.0%	21.8%	24.3%	24.3%	
Furnishings (706)	0.0%	0.0%	9.2%	10.2%	10.3%	11.3%	13.6%	10.1%	8.6%	9.8%	12.9%	11.3%	17.0%	16.1%	19.4%	23.7%	19.6%	17.9%	21.4%	18.2%	21.1%	23.1%	21.7%	22.3%	23.0%	26.1%	24.6%	21.6%	19.6%	20.4%	24.5%	23.5%	20.4%	22.7%	18.5%	20.4%	
Equipment for Preparing or Serving Food or Drink Not Elsewhere Specified (707)	0.0%	0.0%	13.6%	9.6%	17.6%	11.0%	11.7%	16.6%	8.4%	7.5%	17.6%	15.4%	15.5%	19.8%	19.3%	14.4%	23.6%	28.3%	19.9%	21.5%	19.8%	20.2%	28.0%	26.9%	27.1%	31.4%	26.1%	29.8%	33.3%	30.6%	33.6%	28.7%	23.6%	27.9%	27.9%		
Apparel and Haberdashery (702)	0.0%	0.0%	31.6%	20.6%	20.8%	20.4%	30.6%	19.4%	26.3%	25.3%	28.5%	33.1%	20.3%	33.7%	34.6%	36.2%	29.9%	33.5%	32.3%	35.4%	35.6%	32.5%	25.7%	25.8%	24.0%	26.6%	21.8%	33.6%	36.5%	28.2%	28.4%	28.4%	28.8%	28.7%	29.2%	29.2%	
Games, Toys, and Sports Goods (721)	0.0%	0.0%	7.4%	14.4%	7.7%	14.3%	9.6%	9.9%	27.1%	14.0%	12.8%	30.4%	25.6%	18.1%	21.8%	16.8%	15.3%	19.4%	18.9%	18.2%	20.5%	17.9%	17.3%	15.9%	16.4%	21.8%	19.9%	22.5%	17.9%	14.5%	17.1%	21.5%	23.9%	20.5%	16.5%	16.5%	
Travel Goods and Personal Belongings (703)	0.0%	0.0%	17.3%	19.3%	17.9%	15.6%	9.9%	16.7%	12.3%	13.9%	17.6%	28.3%	16.7%	27.2%	23.7%	21.6%	27.0%	27.9%	23.4%	24.6%	25.8%	25.7%	33.8%	31.0%	34.7%	33.6%	26.8%	30.0%	25.8%	30.4%	31.5%	30.9%	33.0%	29.5%	31.2%	34.1%	34.1%
Medical and Laboratory Equipment (724)	0.0%	0.0%	3.7%	5.1%	7.1%	11.0%	7.9%	10.2%	12.3%	11.6%	10.5%	7.6%	11.7%	15.9%	17.9%	16.2%	17.2%	24.4%	26.5%	23.1%	23.9%	25.5%	28.2%	32.9%	31.6%	29.7%	33.3%	32.1%	40.0%	30.2%	33.3%	30.9%	30.9%	32.2%	21.6%	22.7%	22.7%
Packages and Containers for Goods (709)	0.0%	0.0%	3.8%	5.8%	13.9%	8.2%	6.7%	8.0%	1.7%	9.2%	13.9%	5.9%	11.4%	9.0%	11.7%	9.5%	11.0%	15.2%	22.6%	16.1%	21.1%	22.0%	19.3%	23.5%	23.4%	27.6%	37.1%	22.4%	26.6%	30.2%	27.5%	32.6%	38.1%	26.1%	31.4%	31.4%	
Recording, Communication, or Information Retrieval Equipment (714)	0.0%	0.0%	1.4%	0.7%	1.1%	4.5%	4.2%	2.7%	9.0%	7.7%	8.0%	4.4%	11.0%	18.7%	11.7%	13.7%	10.8%	14.0%	13.4%	10.8%	14.0%	19.8%	21.1%	20.1%	19.7%	26.3%	25.6%	25.9%	27.5%	31.9%	25.1%	35.6%	33.9%	16.1%	21.9%	21.9%	
Data Processing; Database and File Management; or Data Structures (707)	0.0%	0.0%	0.0%	6.3%	33.3%	16.7%	0.0%	16.7%	28.6%	0.0%	7.7%	15.0%	5.6%	35.7%	23.1%	21.2%	27.3%	32.8%	20.4%	24.6%	20.7%	19.5%	16.5%	17.2%	15.1%	18.3%	18.8%	19.3%	20.7%	19.8%	18.7%	20.4%	21.2%	22.1%	22.7%	22.2%	22.2%
Electrical Computers and Digital Processing Systems; Multicomputer Data Transferring (709)	0.0%	0.0%	0.0%	0.0%	0.0%	5.8%	0.0%	18.2%	0.0%	5.8%	0.0%	20.0%	17.6%	11.5%	19.0%	20.6%	5.4%	18.3%	18.2%	18.3%	13.9%	16.4%	13.0%	13.7%	14.3%	16.5%	16.8%	13.1%	14.2%	15.9%	15.2%	16.5%	14.2%	15.8%	18.8%	19.0%	

Table A.3: Women Primary Inventor Patents – Top 25 Patent Classes

Patents Granted within Patent Class which have a Woman as the Primary Inventor, 1975-2010

Patent Class	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Food or Edible Material Processes, Compositions, and Products (436)	22	16	8	10	16	22	24	11	14	12	28	22	22	29	43	41	43	41	50	45	43	31	39	31	53	75	77	52	61	48	22	42	20	16	17	41
Apparel (002)	19	22	20	23	14	20	25	19	28	36	26	31	82	28	45	40	63	62	38	32	41	65	85	89	108	94	109	97	44	53	44	59	42	40	26	73
Surgery (804)	17	13	15	13	5	11	10	15	17	18	26	29	51	40	51	57	53	55	46	84	75	77	75	111	67	85	94	90	133	74	63	60	60	45	57	95
Drug, Bio-Affecting and Body Treating Compositions (614)	15	15	17	28	15	27	27	18	37	45	42	32	50	64	67	67	89	89	104	82	107	161	192	195	240	218	255	224	205	165	160	200	176	169	263	292
Special Receptacles or Packages (206)	14	12	7	11	10	12	19	15	14	16	16	21	17	23	39	38	42	24	43	33	37	39	47	53	55	55	58	44	40	49	38	32	46	36	51	
Stock Material or Miscellaneous Articles (428)	12	17	8	12	7	11	17	17	22	19	43	38	31	37	51	62	42	77	55	60	45	79	66	98	97	93	88	94	113	105	89	70	65	65	64	114
Drug, Bio-Affecting and Body Treating Compositions (424)	9	8	12	6	13	12	18	13	15	23	22	25	40	42	65	63	85	85	82	87	96	104	189	209	275	205	246	282	268	175	136	163	153	166	170	266
Chemistry: Molecular Biology and Microbiology (435)	7	14	8	9	10	11	16	13	12	10	22	22	40	39	59	51	80	101	112	105	107	175	250	413	475	382	352	350	334	263	214	281	263	228	272	321
Chemistry: Natural Resins or Derivatives; Peptides or Proteins; Lipids or Reaction Products Thereof (630)	5	8	2	6	5	2	5	7	1	8	11	4	15	14	13	17	24	21	24	28	21	20	27	44	75	110	149	188	153	167	134	113	116	114	130	167
Semiconductor Device Manufacturing Process (438)	4	0	1	4	1	4	1	2	5	14	4	8	4	10	16	11	13	16	33	22	24	30	53	57	61	76	59	48	43	45	46	61	222	182	100	118
Active Solid-State Devices (e.g., Transistors, Solid-State Diodes) (257)	3	1	7	3	1	2	3	2	1	3	2	8	4	6	10	17	10	16	18	18	24	28	21	38	50	31	52	68	81	88	80	98	69	55	87	117
Multiplex Communications (370)	2	0	0	2	1	1	1	1	0	3	3	2	6	3	4	3	5	4	12	15	12	23	21	18	22	39	40	38	54	68	72	99	85	151	196	282
Furnishings (006)	0	0	29	40	30	35	53	37	31	37	52	47	69	62	54	91	88	106	165	116	173	173	140	205	202	242	171	182	149	133	109	172	202	229	164	151
Equipment for Preparing or Serving Food or Drink Not Elsewhere Specified (007)	0	0	27	18	24	24	18	29	13	13	35	36	31	21	28	39	32	50	61	53	55	64	45	95	91	119	142	86	114	114	108	135	222	191	105	166
Tools and Hardware (009)	0	0	25	6	20	9	15	4	11	20	8	14	7	11	27	26	28	34	37	29	41	56	38	54	47	74	49	52	63	77	72	72	123	123	78	55
Jewelry, Symbolic Insignia, and Ornaments (011)	0	0	17	33	22	24	14	16	20	19	16	23	12	12	18	20	49	36	56	53	52	40	50	57	65	61	55	65	70	80	49	86	75	103	60	69
Apparel and Haberdashery (002)	0	0	17	14	10	18	20	14	17	19	37	28	40	35	60	46	64	69	104	107	86	66	90	128	100	92	76	98	122	95	92	160	154	192	155	167
Travel Goods and Personal Belongings (003)	0	0	13	20	14	13	10	19	14	13	15	20	33	15	21	48	51	53	63	57	64	59	62	88	97	96	75	83	67	83	69	113	88	85	104	123
Games, Toys, and Sports Goods (021)	0	0	12	29	9	34	26	26	55	32	34	42	74	50	56	69	78	58	80	95	89	88	71	89	72	67	89	63	86	65	51	77	101	86	63	38
Transportation (012)	0	0	7	5	11	5	12	4	4	13	9	18	19	10	13	21	17	30	32	34	50	31	52	95	74	69	77	78	89	87	40	54	71	58	39	32
Environmental Heating and Cooling; Fluid Handling and Sanitary Equipment (023)	0	0	7	4	6	7	4	3	5	8	5	15	21	26	16	6	50	40	34	42	27	27	34	54	60	65	65	81	71	59	62	104	63	119	76	84
Medical and Laboratory Equipment (024)	0	0	6	6	2	13	10	15	13	20	9	13	15	21	34	28	32	50	56	64	72	60	57	78	92	101	101	88	92	60	46	52	104	103	75	101
Packages and Containers for Goods (008)	0	0	3	6	6	16	22	13	11	13	15	7	17	7	12	21	31	22	52	32	47	56	51	73	64	103	125	71	105	84	68	123	154	184	107	165
Recording, Communication, or Information Retrieval Equipment (014)	0	0	1	1	1	3	4	4	4	10	15	8	19	33	10	17	21	20	26	20	34	50	50	63	62	89	64	94	105	103	85	124	240	237	92	119
Data Processing; Database and File Management or Data Structures (007)	0	0	0	0	2	0	0	0	0	0	0	2	0	3	5	2	5	10	14	14	11	18	13	42	35	40	58	95	103	89	57	90	92	110	178	280

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Share of Patents Granted within Patent Class which have a Woman as the Primary Inventor, 1975-2010

Patent Class	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	
Food or Edible Material: Processes, Compositions, and Products (426)	4.6%	3.7%	2.4%	3.8%	6.5%	7.3%	7.3%	4.3%	4.9%	4.7%	6.2%	8.2%	8.0%	9.2%	9.5%	9.3%	9.8%	10.2%	12.8%	12.1%	11.3%	7.7%	11.7%	8.4%	10.2%	13.3%	14.5%	12.3%	15.1%	15.1%	11.9%	18.1%	10.6%	11.8%	10.4%	17.2%	
Apparel (602)	14.0%	22.7%	14.2%	17.0%	16.3%	17.1%	13.1%	19.6%	26.0%	24.8%	16.7%	17.9%	27.2%	16.8%	19.1%	20.0%	19.8%	22.9%	19.4%	14.8%	19.0%	20.2%	19.2%	22.0%	22.9%	21.1%	27.7%	25.9%	18.0%	17.8%	17.9%	20.0%	22.6%	25.3%	19.4%	25.3%	
Surgery (604)	5.9%	4.5%	5.6%	6.9%	3.7%	4.2%	4.3%	5.3%	6.2%	7.6%	6.7%	9.8%	8.2%	8.5%	9.1%	8.3%	7.2%	5.8%	8.0%	7.9%	8.7%	8.8%	9.7%	8.8%	9.2%	6.6%	9.6%	10.0%	10.7%	11.0%	9.1%	10.2%	10.0%	12.3%	9.4%	9.1%	7.8%
Drug, Bio-Affecting and Body Treating Compositions (614)	2.9%	2.3%	3.8%	2.8%	3.8%	2.8%	3.8%	4.0%	3.1%	6.3%	5.7%	4.8%	6.0%	7.7%	6.1%	6.7%	7.7%	8.4%	6.4%	7.8%	8.5%	10.1%	9.3%	9.2%	10.8%	9.9%	11.1%	9.0%	9.1%	9.4%	10.2%	10.4%	10.1%	10.7%	13.1%	11.5%	
Special Receptacle or Package (206)	3.8%	3.5%	2.4%	3.4%	3.9%	3.9%	6.8%	5.8%	4.9%	6.0%	5.4%	7.5%	4.8%	5.6%	7.8%	8.4%	9.7%	5.7%	9.4%	6.7%	8.1%	8.4%	10.4%	8.7%	9.2%	10.3%	12.0%	14.4%	12.1%	12.5%	13.8%	12.1%	12.0%	12.5%	12.7%	12.9%	
Stock Material or Miscellaneous Articles (424)	2.0%	2.8%	1.5%	2.1%	1.7%	2.0%	2.7%	2.9%	3.9%	3.1%	5.9%	5.1%	4.3%	5.0%	5.6%	6.9%	5.2%	8.1%	6.0%	6.3%	4.6%	7.0%	5.5%	7.0%	6.5%	7.0%	6.7%	6.8%	7.9%	7.8%	8.5%	8.4%	8.1%	10.1%	9.7%	11.7%	
Drug, Bio-Affecting and Body Treating Compositions (424)	4.4%	3.3%	5.0%	2.8%	5.9%	5.6%	7.3%	5.2%	8.0%	7.7%	7.9%	7.7%	9.8%	9.8%	9.7%	9.6%	11.8%	11.8%	10.3%	10.4%	11.2%	10.7%	12.0%	11.4%	14.1%	12.3%	13.2%	15.0%	14.9%	13.1%	13.0%	11.9%	13.0%	15.1%	15.7%	15.6%	
Chemistry: Molecular Biology and Microbiology (435)	3.5%	7.3%	4.3%	5.3%	6.2%	4.9%	5.4%	4.9%	5.3%	4.1%	6.8%	7.4%	8.8%	9.1%	10.3%	9.8%	13.6%	13.5%	12.3%	12.1%	11.0%	12.6%	12.8%	15.5%	11.7%	17.2%	13.8%	15.2%	16.6%	15.1%	14.0%	14.8%	14.3%	16.9%	14.7%		
Semiconductor Device Manufacturing: Process (438)	2.1%	4.7%	1.2%	3.7%	3.3%	1.1%	2.5%	3.5%	0.4%	3.3%	4.2%	1.4%	4.4%	4.7%	3.7%	5.5%	5.7%	4.4%	4.4%	5.0%	3.3%	3.6%	3.6%	4.6%	5.0%	5.5%	6.1%	7.5%	6.6%	7.2%	6.6%	5.4%	5.8%	6.2%	6.9%	7.1%	
Chemistry: Natural Resins or Derivatives; Peptides or Proteins; Lipids or Reaction Products Thereof (530)	4.9%	0.0%	1.4%	4.0%	2.2%	4.8%	1.1%	2.7%	5.9%	12.5%	4.3%	8.9%	2.9%	7.4%	10.5%	9.2%	7.9%	7.3%	14.3%	12.0%	12.7%	12.3%	14.2%	10.7%	12.6%	18.7%	14.8%	13.2%	12.3%	14.3%	15.3%	12.8%	35.4%	29.9%	20.8%	21.9%	
Active Solid-State Devices (e.g., Transistors, Solid-State Diodes) (257)	1.7%	0.5%	3.6%	2.2%	0.7%	1.2%	2.1%	1.9%	0.9%	2.3%	1.3%	3.9%	1.7%	2.9%	3.0%	4.3%	1.9%	3.7%	5.3%	3.4%	4.8%	4.5%	3.5%	4.0%	4.8%	2.8%	4.2%	4.9%	4.7%	4.8%	4.7%	5.7%	4.5%	3.7%	5.9%	5.6%	
Multiplex Communications (970)	2.1%	0.0%	0.0%	2.6%	1.6%	1.2%	1.5%	1.4%	0.0%	2.5%	1.6%	1.4%	2.9%	1.7%	2.2%	1.5%	2.8%	2.0%	4.7%	4.2%	2.7%	4.4%	4.3%	2.7%	2.7%	3.6%	3.6%	3.3%	3.9%	4.0%	4.5%	4.3%	4.6%	6.1%	6.6%	7.0%	
Furnishings (016)	0.0%	0.0%	7.9%	9.5%	9.1%	9.4%	11.8%	8.5%	7.7%	8.9%	11.0%	15.4%	12.7%	14.2%	18.1%	14.3%	15.9%	17.5%	14.5%	16.6%	16.5%	16.3%	19.1%	16.6%	19.5%	19.5%	19.3%	16.3%	13.7%	12.8%	14.1%	15.5%	14.3%	17.5%	14.9%	14.8%	
Equipment for Preparing or Serving Food or Drink Not Elsewhere Specified (007)	0.0%	0.0%	13.8%	9.1%	13.4%	10.1%	8.1%	13.7%	6.4%	7.6%	16.6%	13.4%	14.1%	12.4%	13.3%	15.4%	11.9%	16.7%	14.4%	12.9%	14.5%	13.3%	12.3%	19.6%	19.6%	19.1%	23.6%	18.0%	18.9%	20.8%	22.5%	19.3%	25.0%	21.8%	14.3%	17.7%	
Tools and Hardware (008)	0.0%	0.0%	11.7%	3.3%	14.5%	4.8%	6.4%	1.8%	5.6%	7.3%	4.4%	6.3%	2.7%	4.0%	8.1%	7.1%	6.2%	6.8%	6.8%	5.5%	7.1%	9.8%	7.3%	7.4%	7.0%	8.7%	8.4%	9.0%	9.2%	10.5%	14.1%	9.3%	12.9%	11.7%	9.5%	7.2%	
Apparel and Haberdashery (002)	0.0%	0.0%	28.8%	20.8%	19.4%	19.6%	19.6%	21.3%	24.1%	27.0%	28.9%	28.8%	16.1%	31.6%	25.3%	29.4%	23.8%	27.0%	23.7%	31.4%	23.3%	20.7%	21.0%	21.1%	22.8%	18.7%	28.6%	28.9%	22.8%	28.0%	25.6%	23.2%	26.3%	23.7%	24.0%		
Jewelry, Symbolic Insignia, and Ornaments (011)	0.0%	0.0%	15.0%	20.9%	18.0%	16.7%	6.8%	10.8%	18.3%	27.9%	18.2%	21.3%	14.0%	18.8%	16.4%	20.6%	29.5%	22.5%	26.2%	17.2%	16.8%	18.4%	21.2%	28.1%	28.0%	20.8%	20.8%	26.7%	32.9%	34.2%	25.3%	30.6%	26.8%	34.3%	25.8%	26.7%	
Travel Goods and Personal Belongings (003)	0.0%	0.0%	17.3%	18.3%	14.7%	13.5%	7.6%	14.5%	10.1%	12.9%	9.4%	16.8%	27.0%	11.9%	22.8%	22.3%	19.9%	23.5%	22.3%	20.5%	21.9%	20.5%	21.6%	26.2%	25.6%	26.9%	19.5%	24.0%	18.8%	24.3%	23.6%	24.8%	21.0%	21.8%	25.6%	26.9%	
Games, Toys, and Sports Goods (021)	0.0%	0.0%	5.5%	12.3%	4.3%	13.1%	6.3%	7.9%	18.3%	12.0%	10.5%	17.1%	22.8%	19.8%	16.0%	18.2%	14.7%	11.6%	16.5%	16.0%	14.7%	16.8%	14.6%	12.1%	11.8%	9.3%	15.0%	13.1%	14.8%	12.8%	12.1%	11.0%	13.7%	11.0%	9.9%	7.5%	
Environmental Heating and Cooling; Fluid Handling and Sanitary Equipment (D 22)	0.0%	0.0%	4.7%	3.1%	4.5%	5.0%	2.2%	1.5%	3.0%	4.8%	3.3%	8.8%	9.5%	13.3%	9.0%	2.3%	12.4%	11.0%	11.6%	10.0%	7.4%	7.7%	9.6%	10.7%	11.0%	10.8%	11.7%	14.2%	12.5%	13.4%	11.8%	10.1%	8.3%	14.5%	11.9%	11.9%	
Transportation (D1 2)	0.0%	0.0%	3.5%	3.5%	6.7%	3.4%	6.7%	2.3%	2.2%	7.3%	5.4%	9.6%	8.2%	5.2%	5.4%	6.0%	4.5%	7.9%	7.2%	7.5%	6.2%	9.4%	8.1%	11.7%	8.7%	11.5%	12.5%	13.9%	11.8%	6.3%	7.7%	8.9%	7.8%	6.3%	4.5%		
Medical and Laboratory Equipment (D24)	0.0%	0.0%	3.7%	4.4%	10.2%	6.6%	7.0%	7.6%	8.8%	5.6%	5.8%	6.0%	10.4%	14.8%	13.3%	12.3%	16.8%	17.0%	16.9%	16.8%	16.3%	16.0%	19.4%	21.5%	20.1%	18.8%	19.6%	19.7%	17.1%	20.6%	17.2%	21.3%	18.1%	13.7%	13.8%		
Packages and Containers for Goods (D09)	0.0%	0.0%	2.3%	3.5%	5.2%	7.7%	6.7%	6.9%	6.5%	7.6%	8.9%	3.7%	8.5%	4.5%	7.8%	7.7%	10.1%	8.5%	16.4%	9.3%	13.4%	17.1%	13.2%	16.4%	13.3%	17.0%	17.0%	20.0%	14.8%	17.0%	18.2%	14.0%	17.6%	16.5%	21.1%	12.3%	17.3%
Recording, Communication, or Information Retrieval Equipment (D 14)	0.0%	0.0%	0.7%	0.1%	1.1%	2.8%	2.4%	2.7%	3.0%	5.2%	6.0%	3.9%	7.3%	15.3%	4.6%	5.5%	6.4%	7.8%	6.0%	4.1%	5.9%	9.1%	6.9%	8.9%	9.4%	11.3%	9.7%	14.7%	14.4%	16.2%	17.6%	14.2%	21.6%	19.8%	7.3%	10.8%	
Data Processing; Database and File Management or Data Structures (707)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	15.2%	17.5%	12.4%	11.1%	6.8%	7.2%	4.3%	5.9%	8.1%	5.6%	8.1%	9.6%	8.4%	6.2%	6.6%	7.6%	7.8%	8.6%	8.8%	

Table A.4: Women Non-Primary Inventor Patents – Top 25 Patent Classes

Patent Class	Number of Patents Granted within Patent Class which have a Woman as a Non-Primary Inventor, 1975-2010																																				
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	
Food or Edible Material: Processes, Compositions, and Products (426)	24	9	6	15	14	10	32	12	23	35	36	48	28	44	63	53	62	69	67	59	74	63	43	55	86	103	99	102	103	78	46	53	44	36	47	63	
Drug, Bio-Affecting and Body Treating Compositions (514)	14	25	31	27	24	35	42	29	38	51	56	48	86	113	138	121	150	187	190	184	220	328	424	506	501	516	570	680	683	476	512	622	588	540	685	864	
Radiation Imagery Chemistry: Process, Composition or Product Thereof (430)	13	6	10	6	6	10	22	20	14	20	17	22	13	13	36	46	49	55	76	79	80	103	83	115	110	135	153	143	119	126	79	117	90	76	92	118	
Chemistry: Molecular Biology and Microbiology (435)	10	4	15	17	14	12	34	31	30	20	39	38	66	75	99	113	120	175	212	197	221	323	505	728	824	662	741	734	575	529	463	649	572	516	548	736	
Organic Compounds -- Part of the Class 52: 570 Series (636)	8	5	2	6	2	3	9	11	6	6	3	2	6	8	7	17	22	34	34	24	35	49	63	104	82	83	129	115	93	91	67	86	114	102	143	168	
Drug, Bio-Affecting and Body Treating Compositions (424)	8	6	8	11	13	19	19	12	9	21	27	34	50	59	96	104	109	143	146	174	159	194	335	386	482	406	450	489	437	306	260	333	317	307	348	516	
Surgery (604)	8	10	6	5	1	4	4	10	7	6	11	11	43	10	36	28	43	50	54	68	86	93	115	129	117	100	136	132	193	143	100	91	72	78	107	214	
Stock Material or Miscellaneous Articles (428)	7	8	5	17	9	12	21	6	16	18	30	36	40	52	55	58	61	69	89	86	87	107	135	161	168	145	169	189	220	182	187	157	127	106	140	173	
Coating Processes (427)	4	7	5	9	5	8	12	8	8	11	10	15	20	19	32	27	24	34	24	46	42	53	51	67	80	62	74	83	85	71	66	32	46	43	69	104	
Semiconductor Device Manufacturing: Process (438)	3	0	0	5	7	4	8	6	11	12	9	16	23	21	22	28	48	40	43	52	63	47	66	98	131	216	320	371	336	303	296	319	271	239	301	372	
Cleaning Compositions for Solid Surfaces, Auxiliary Compositions Therefor, or Processes of Preparing the Compositions (510)	2	2	2	2	6	4	7	3	11	7	17	12	15	17	22	21	26	39	35	37	32	45	45	83	84	94	87	106	93	91	51	66	55	68	60	68	
Chemistry: Natural Resins or Derivatives: Peptides or Proteins: Lignins or Reaction Products Thereof (530)	1	4	1	6	1	3	7	5	6	6	13	5	15	17	27	18	41	52	48	26	40	64	100	135	132	115	142	109	95	103	121	175	260	284	192	223	
Surgery (600)	1	1	1	4	0	2	2	2	3	9	2	9	14	13	26	19	26	25	37	47	51	56	52	83	106	103	101	129	150	126	89	122	90	86	106	205	
Active Solid-State Devices (eg., Transistors, Solid-State Diodes) (527)	1	0	2	1	3	0	3	3	2	4	7	6	10	4	15	20	37	31	21	48	26	42	58	84	76	70	116	137	201	196	195	207	169	182	205	263	
Telecommunications (455)	1	1	1	1	4	2	1	3	0	1	0	1	0	1	0	5	4	3	4	4	14	13	21	19	47	65	71	67	71	59	89	81	143	182	140	159	241
Image Analysis (582)	0	2	1	0	0	0	0	1	0	0	3	3	5	10	12	11	10	14	16	17	16	37	50	54	45	58	48	70	79	68	101	134	123	158	214		
Furnishings (006)	0	0	5	5	5	8	10	10	5	9	10	7	14	21	22	39	43	16	44	34	57	78	56	47	68	105	158	86	81	95	89	118	110	107	57	79	
Packages and Containers for Goods (009)	0	0	2	5	10	2	2	3	2	4	10	4	7	7	6	6	5	18	29	31	35	22	32	39	66	79	125	41	91	55	99	104	167	192	130	194	
Multiplex Communications (370)	0	0	1	2	0	2	1	0	1	5	3	2	6	10	7	13	10	9	19	29	35	53	36	49	66	91	64	110	109	134	140	235	175	234	338	499	
Recording, Communication, or Information Retrieval Equipment (D14)	0	0	1	0	0	2	3	0	8	5	6	1	10	10	17	27	16	20	35	34	52	65	76	91	75	138	125	98	119	104	95	129	206	241	142	178	
Data Processing: Presentation Processing of Document, Operator Interface Processing, and Screen Saver Display Processing (715)	0	0	1	0	0	0	0	0	2	6	3	2	8	4	7	5	8	11	9	16	25	28	47	64	55	91	85	54	85	58	75	120	121	171	197	195	
Telephone Communications (379)	0	0	1	2	2	1	2	2	2	2	6	5	12	5	14	10	22	12	16	22	44	55	64	50	78	78	69	66	94	81	123	88	114	97	94	92	138
Data Processing: Database and File Management or Data Structures (707)	0	0	0	1	0	1	0	1	2	0	1	1	3	4	5	6	9	11	19	26	34	40	94	96	102	87	119	147	146	127	215	192	235	355	525		
Data Processing: Financial Business Practice, Management, or Cost Price Determination (705)	0	0	0	0	0	1	0	3	0	2	0	1	2	3	4	4	7	4	14	13	14	20	24	49	67	73	62	50	46	33	89	161	150	236	263	654	
Electrical Computers and Digital Processing Systems: Multicomputer Data Transferring (709)	0	0	0	0	0	0	0	2	0	0	0	2	3	2	3	6	2	10	10	14	13	35	21	73	88	100	102	88	95	128	142	222	184	228	329	446	

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Share of Patents Granted within Patent Class which have a Woman as a Non-Primary Inventor, 1975-2010

Patent Class	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	
Food or Edible Material: Processes, Compositions and Products (42)	8.8%	3.7%	3.2%	10.6%	9.9%	6.1%	17.2%	8.7%	17.7%	21.5%	20.7%	30.8%	16.7%	21.4%	22.8%	19.6%	23.8%	26.3%	26.3%	26.6%	30.3%	25.2%	21.9%	22.8%	26.5%	27.7%	28.9%	33.7%	33.5%	35.8%	38.2%	32.5%	31.4%	31.3%	33.3%	33.9%	
Drug: Bio-Affecting and Body Treating Compositions (514)	5.2%	7.8%	7.9%	8.4%	8.6%	11.4%	9.2%	11.8%	13.4%	12.8%	11.9%	14.8%	19.0%	18.0%	16.6%	19.2%	22.6%	20.8%	23.1%	21.9%	25.6%	25.0%	29.5%	27.6%	28.9%	30.8%	33.0%	33.0%	35.9%	33.3%	37.0%	36.5%	37.4%	37.2%	39.5%	41.8%	
Radiation Imagery Chemistry: Process, Composition, or Product Thereof (430)	7.0%	3.9%	5.8%	4.1%	5.4%	7.1%	9.4%	11.6%	8.5%	11.9%	12.2%	15.1%	9.4%	7.8%	16.5%	20.2%	18.9%	24.2%	20.7%	18.2%	20.0%	24.5%	22.1%	24.1%	21.0%	23.8%	27.3%	27.1%	24.8%	29.0%	25.3%	30.5%	28.1%	28.2%	35.1%	34.8%	
Chemistry: Molecular Biology and Microbiology (435)	9.2%	3.9%	14.2%	18.1%	19.4%	9.1%	17.5%	21.1%	21.7%	14.3%	24.4%	20.7%	24.7%	24.5%	24.8%	29.9%	28.2%	31.4%	30.9%	30.8%	29.9%	30.2%	32.2%	34.2%	37.9%	36.3%	35.2%	38.5%	35.1%	36.9%	37.2%	40.0%	37.9%	37.9%	40.1%	40.1%	
Surgery (604)	9.5%	12.2%	7.5%	8.1%	2.6%	5.4%	5.2%	9.7%	6.7%	4.6%	8.1%	6.7%	18.8%	4.9%	14.6%	10.9%	13.9%	12.8%	14.6%	12.2%	16.9%	18.8%	23.8%	19.9%	19.0%	18.2%	23.3%	24.3%	24.1%	25.4%	25.5%	23.0%	23.0%	23.9%	25.1%	24.4%	
Organic Compounds - Part of the Class 52-570 Series (536)	11.0%	12.2%	4.5%	10.5%	7.1%	6.7%	19.1%	20.2%	18.8%	17.1%	13.0%	8.3%	23.1%	19.5%	13.0%	22.1%	9.10%	31.5%	32.4%	26.1%	22.6%	25.5%	23.8%	29.1%	26.5%	32.4%	40.6%	34.5%	34.4%	38.1%	32.7%	34.3%	43.0%	36.6%	43.7%	42.0%	
Drug: Bio-Affecting and Body Treating Compositions (424)	8.5%	4.7%	5.8%	9.3%	10.6%	17.3%	15.1%	10.3%	10.2%	15.3%	17.1%	18.5%	21.4%	22.1%	23.1%	24.4%	22.1%	28.3%	26.1%	20.0%	26.2%	29.6%	28.3%	32.9%	31.4%	32.0%	34.0%	32.0%	32.2%	30.4%	34.1%	34.7%	34.1%	37.2%	37.2%		
Stock Material or Miscellaneous Articles (428)	2.7%	3.1%	2.0%	6.5%	4.6%	4.6%	7.5%	2.4%	6.1%	6.3%	8.6%	9.2%	10.8%	12.9%	11.9%	13.9%	13.1%	16.2%	14.7%	15.3%	14.6%	17.7%	18.3%	16.9%	16.6%	17.9%	18.3%	21.5%	18.5%	23.8%	25.5%	20.4%	21.8%	26.9%	23.0%		
Coating Processes (427)	2.5%	5.6%	3.7%	5.8%	5.2%	5.7%	8.3%	5.3%	6.9%	6.9%	6.0%	9.0%	12.1%	10.2%	16.7%	13.8%	11.1%	12.0%	10.0%	14.2%	15.1%	17.4%	14.7%	17.9%	20.2%	14.5%	20.4%	21.4%	21.0%	21.2%	24.4%	16.9%	20.2%	18.9%	24.0%	24.2%	
Semiconductor Device Manufacturing: Process (438)	2.3%	0.0%	0.0%	5.4%	7.9%	4.2%	7.4%	5.6%	8.1%	8.9%	5.8%	9.6%	11.2%	12.4%	9.2%	14.4%	18.0%	13.1%	11.4%	13.4%	13.9%	12.2%	12.8%	14.2%	12.1%	14.1%	17.5%	19.9%	19.4%	17.1%	19.0%	19.5%	17.4%	16.4%	20.0%	19.6%	
Cleaning Compositions for Solid Surfaces, Auxiliary Compositions Thereof, or Processes of Preparing the Compositions (510)	3.6%	2.7%	3.2%	3.1%	11.6%	7.7%	10.6%	7.7%	20.4%	12.1%	21.5%	22.6%	19.2%	23.3%	21.6%	23.1%	24.3%	35.1%	28.5%	20.4%	28.1%	29.2%	32.2%	32.2%	36.6%	34.7%	38.3%	37.8%	45.0%	39.5%	40.5%	40.7%	47.2%	40.8%	38.9%		
Chemistry: Natural Resins or Derivatives; Peptides or Proteins; Lignins or Reaction Products Thereof (530)	2.0%	18.2%	2.7%	12.2%	4.3%	7.7%	14.3%	10.9%	13.6%	9.0%	21.0%	8.2%	17.6%	17.2%	25.7%	19.8%	32.5%	30.8%	26.2%	19.5%	27.6%	32.3%	53.3%	31.0%	34.4%	34.2%	42.0%	35.7%	32.9%	38.1%	47.5%	41.6%	46.0%	51.6%	43.1%	45.6%	
Surgery (600)	1.2%	1.4%	1.2%	5.5%	0.0%	1.8%	2.4%	2.3%	4.1%	10.1%	1.8%	6.0%	9.8%	8.3%	11.6%	7.9%	9.9%	8.9%	10.9%	10.7%	11.9%	13.6%	12.4%	13.9%	15.2%	12.3%	12.2%	15.4%	16.2%	17.5%	17.6%	19.2%	16.8%	16.8%	17.5%	20.8%	
Telecommunications (455)	2.4%	2.2%	2.2%	3.8%	11.4%	4.0%	2.7%	6.1%	0.0%	2.6%	0.0%	4.9%	0.0%	4.9%	6.1%	3.8%	4.0%	3.2%	4.0%	3.2%	4.0%	7.2%	7.7%	8.6%	11.1%	12.5%	10.8%	11.4%	12.1%	8.8%	12.2%	11.6%	11.6%	15.6%	14.4%	14.2%	16.8%
Active Solid-State Devices (e.g., Transistors, Solid-State Diodes) (257)	1.4%	0.0%	2.0%	1.7%	4.3%	0.0%	4.5%	4.6%	3.8%	5.8%	9.1%	5.1%	7.8%	3.4%	8.1%	8.3%	12.0%	11.5%	9.9%	14.2%	7.9%	10.3%	14.3%	13.0%	10.4%	9.4%	13.3%	13.8%	16.0%	15.1%	15.9%	16.5%	14.7%	16.8%	18.7%	16.2%	
Image Analysis (382)	0.0%	8.3%	4.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.2%	0.0%	6.7%	5.9%	9.4%	14.4%	10.4%	8.2%	11.7%	11.3%	14.0%	10.4%	16.6%	12.5%	19.3%	11.7%	11.8%	12.4%	13.4%	13.4%	15.3%	14.0%	18.1%	16.0%	17.5%	19.9%	19.9%		
Furnishings (006)	0.0%	0.0%	10.4%	7.2%	13.2%	11.3%	10.3%	10.0%	6.7%	9.4%	10.6%	8.6%	13.2%	19.3%	22.2%	26.9%	25.5%	11.3%	20.7%	19.7%	20.6%	24.1%	25.0%	16.0%	19.8%	24.3%	34.4%	25.4%	25.7%	27.0%	31.7%	30.4%	24.4%	24.4%	15.6%	23.8%	
Packages and Containers for Goods (D09)	0.0%	0.0%	7.1%	11.1%	37.0%	4.5%	3.4%	5.8%	6.7%	10.0%	17.5%	6.7%	10.8%	17.1%	13.6%	9.4%	6.0%	22.8%	22.7%	25.4%	29.4%	16.7%	19.6%	19.8%	29.2%	29.9%	38.8%	18.2%	28.1%	25.8%	33.2%	25.9%	34.5%	39.6%	26.9%	33.6%	
Data Processing: Presentation Processing of Document, Operator Interface Processing, and Screen Saver Display Processing (715)	0.0%	0.0%	33.3%	0.0%	0.0%	0.0%	0.0%	0.0%	18.2%	22.2%	15.0%	14.3%	44.4%	18.2%	21.2%	25.0%	20.4%	14.3%	16.7%	18.7%	13.9%	21.1%	18.4%	16.0%	23.5%	22.9%	15.4%	24.8%	19.3%	19.9%	21.5%	23.0%	30.3%	26.9%	23.0%		
Recording, Communication, or Information Retrieval Equipment (D14)	0.0%	0.0%	1.8%	0.0%	0.0%	5.6%	5.2%	0.0%	12.5%	5.6%	5.2%	1.0%	7.5%	8.8%	14.8%	11.9%	9.9%	15.3%	15.0%	13.3%	18.0%	21.3%	21.7%	22.2%	21.2%	29.7%	28.0%	24.8%	26.1%	27.0%	30.6%	24.3%	29.3%	30.0%	17.6%	23.0%	
Telephonic Communications (379)	0.0%	0.0%	1.3%	2.4%	4.5%	2.0%	2.9%	4.2%	3.9%	6.3%	6.5%	11.3%	4.2%	11.6%	8.6%	14.5%	9.8%	14.8%	17.7%	21.7%	21.2%	21.8%	20.2%	18.1%	17.5%	17.9%	15.5%	20.3%	16.6%	20.5%	20.9%	18.0%	20.9%	24.7%	23.2%	28.9%	
Multiple Communications (370)	0.0%	0.0%	2.6%	6.3%	0.0%	5.3%	2.9%	0.0%	2.0%	8.6%	3.0%	2.6%	4.8%	8.5%	7.1%	10.4%	9.1%	7.1%	11.4%	12.3%	11.7%	14.2%	10.5%	10.4%	12.1%	11.4%	8.3%	12.8%	10.9%	10.8%	12.1%	14.1%	13.0%	12.2%	14.8%	15.9%	
Data Processing: Database and File Management; Data Structures (D07)	0.0%	0.0%	0.0%	10.0%	0.0%	20.0%	0.0%	33.3%	40.0%	0.0%	11.1%	14.3%	16.7%	37.5%	18.2%	20.0%	26.1%	25.0%	13.1%	24.1%	23.4%	17.4%	19.8%	20.6%	17.9%	20.5%	16.4%	16.9%	19.7%	19.2%	19.3%	21.1%	20.6%	21.2%	21.3%	20.9%	
Data Processing: Financial, Business Practice, Management, or Cost/Price Determination (705)	0.0%	0.0%	0.0%	0.0%	9.1%	0.0%	30.0%	0.0%	15.4%	0.0%	7.1%	5.9%	9.4%	8.3%	10.0%	17.5%	11.4%	18.2%	18.3%	26.9%	29.4%	20.5%	21.1%	19.1%	25.8%	21.5%	21.0%	20.7%	21.0%	22.0%	24.1%	23.5%	26.8%	23.6%	28.0%		
Electrical Computers and Digital Processing Systems: Multi-computer Data Transferring (709)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	26.6%	0.0%	0.0%	0.0%	21.4%	13.3%	18.5%	23.1%	8.0%	22.7%	19.2%	19.7%	15.1%	18.2%	14.2%	14.8%	16.0%	15.6%	13.1%	14.6%	15.3%	16.7%	16.7%	14.6%	15.3%	16.5%	17.6%		

Table A.5: Patents filed versus patents granted to women-1975-2010

Year	No. of Patents Filed	No. of Patents Granted
1975	1395	1328
1976	1672	1284
1977	1770	1523
1978	1706	1600
1979	1829	1294
1980	1901	1643
1981	1900	1884
1982	2172	1637
1983	2276	1750
1984	2642	2206
1985	3102	2445
1986	3507	2503
1987	3950	3229
1988	4716	3341
1989	5143	4496
1990	6053	4712
1991	6473	5490
1992	6893	6103
1993	7830	6735
1994	9758	7006
1995	12814	7463
1996	11583	8766
1997	14299	9390
1998	14658	12577
1999	16351	13424
2000	17893	14039
2001	18565	14974
2002	19178	15087
2003	18288	15414
2004	17031	14738
2005	15978	13211
2006	13851	16637
2007	11059	15874
2008	6213	16321
2009	2948	17061
2010	552	22984
Total	287949	290169

Table A.6: Patents filed versus patents granted to men – 1975-2010

Year	No. of Patents Filed	No. of Patents Granted
1975	43619	46148
1976	44959	43737
1977	44454	44366
1978	42960	44098
1979	42211	32394
1980	42298	40015
1981	39870	42493
1982	40018	37055
1983	37989	35913
1984	39753	41557
1985	41697	42696
1986	42625	41469
1987	46531	47088
1988	51236	43910
1989	54514	53718
1990	58331	51840
1991	59411	56529
1992	62792	57505
1993	66747	59878
1994	75203	63160
1995	89274	63247
1996	85577	68032
1997	100062	68710
1998	99628	89050
1999	105395	92372
2000	112144	95364
2001	113427	97425
2002	114169	95988
2003	109649	97768
2004	102169	93361
2005	93908	81986
2006	79446	101523
2007	60406	92871
2008	34249	91342
2009	14976	94850
2010	2598	121257
Total	2294295	2370715

Table A.7: % Successful Women Patent Applicants/% Successful Men Patent Applicants, 1975-2002

Year	Ratio of Successful Applicants
1975	0.90
1976	0.79
1977	0.86
1978	0.91
1979	0.92
1980	0.91
1981	0.93
1982	0.81
1983	0.81
1984	0.80
1985	0.77
1986	0.73
1987	0.81
1988	0.83
1989	0.89
1990	0.88
1991	0.89
1992	0.97
1993	0.96
1994	0.85
1995	0.82
1996	0.95
1997	0.96
1998	0.96
1999	0.94
2000	0.92
2001	0.94
2002	0.94

Table A.8: Patents filed versus patents granted to women-1975-2002

Year	No. of Patents Filed	No. of Patents Granted
1975	1395	1328
1976	1672	1284
1977	1770	1523
1978	1706	1600
1979	1829	1294
1980	1901	1643
1981	1900	1884
1982	2172	1637
1983	2276	1750
1984	2642	2206
1985	3102	2445
1986	3507	2503
1987	3950	3229
1988	4716	3341
1989	5143	4496
1990	6053	4712
1991	6473	5490
1992	6893	6103
1993	7830	6735
1994	9758	7006
1995	12814	7463
1996	11583	8766
1997	14299	9390
1998	14658	12577
1999	16351	13424
2000	17893	14039
2001	18565	14974
2002	19178	15087
Total	202029	157929

Table A.9: Patents filed versus patents granted to men-1975-2002

Year	No. of Patents Filed	No. of Patents Granted
1975	43619	46148
1976	44959	43737
1977	44454	44366
1978	42960	44098
1979	42211	32394
1980	42298	40015
1981	39870	42493
1982	40018	37055
1983	37989	35913
1984	39753	41557
1985	41697	42696
1986	42625	41469
1987	46531	47088
1988	51236	43910
1989	54514	53718
1990	58331	51840
1991	59411	56529
1992	62792	57505
1993	66747	59878
1994	75203	63160
1995	89274	63247
1996	85577	68032
1997	100062	68710
1998	99628	89050
1999	105395	92372
2000	112144	95364
2001	113427	97425
2002	114169	95988
Total	1796894	1595757

Table A.10: Trademark applications filed by year

Year	No. of Trademark Applications Filed
1980	2139
1981	2561
1982	5027
1983	3596
1984	4232
1985	4506
1986	4712
1987	5192
1988	5709
1989	6930
1990	11016
1991	11216
1992	10890
1993	14470
1994	14285
1995	16597
1996	18763
1997	19736
1998	21032
1999	33655
2000	33009
2001	25718
2002	29957
2003	33226
2004	38080
2005	42071
2006	44385
2007	49256
2008	46026
2009	42950
2010	44533
Total	645475

Table A.11: Trademark applications filed by women by year

Year	No. of Trademark Applications Filed
1980	396
1981	521
1982	1076
1983	723
1984	972
1985	1220
1986	1162
1987	1349
1988	1450
1989	1716
1990	2596
1991	2685
1992	2461
1993	3466
1994	3467
1995	3787
1996	4433
1997	4775
1998	5135
1999	7683
2000	7974
2001	6615
2002	8135
2003	8830
2004	10163
2005	11357
2006	11934
2007	14353
2008	13741
2009	12604
2010	13171
Total	169950

Table A.12: Trademark applications filed by men by year

Year	No. of Trademark Applications Filed
1980	1780
1981	2100
1982	4038
1983	2940
1984	3359
1985	3460
1986	3716
1987	4028
1988	4467
1989	5457
1990	8767
1991	8850
1992	8657
1993	11386
1994	11070
1995	13155
1996	14728
1997	15399
1998	16287
1999	26505
2000	25430
2001	19493
2002	22514
2003	24621
2004	27073
2005	29585
2006	31153
2007	34063
2008	31835
2009	29807
2010	31104
Total	476827

Table A.13: Total trademarks granted by year

Year	No. of Trademarks Granted
1980	1133
1981	2720
1982	2671
1983	2855
1984	3243
1985	4268
1986	3114
1987	3349
1988	3388
1989	4147
1990	4361
1991	3250
1992	6323
1993	5913
1994	5041
1995	6738
1996	7501
1997	9209
1998	8213
1999	8266
2000	10913
2001	10946
2002	14499
2003	13080
2004	11807
2005	13637
2006	17724
2007	20537
2008	23709
2009	21398
2010	20547
Total	274500

Table A.14: Trademarks granted to women by year

Year	No. of Trademarks Granted
1980	189
1981	480
1982	529
1983	643
1984	704
1985	1077
1986	828
1987	878
1988	918
1989	1103
1990	1120
1991	841
1992	1656
1993	1492
1994	1262
1995	1746
1996	1941
1997	2290
1998	2180
1999	2208
2000	2975
2001	2905
2002	3786
2003	3750
2004	3367
2005	3821
2006	5045
2007	5811
2008	7274
2009	6617
2010	6533
Total	75969

Table A.15: Trademarks granted to men by year

Year	No. of Trademarks Granted
1980	959
1981	2295
1982	2192
1983	2296
1984	2619
1985	3328
1986	2396
1987	2597
1988	2600
1989	3216
1990	3393
1991	2535
1992	4895
1993	4585
1994	3904
1995	5174
1996	5703
1997	7069
1998	6197
1999	6243
2000	8149
2001	8264
2002	10937
2003	9566
2004	8686
2005	9803
2006	12452
2007	14241
2008	16074
2009	14618
2010	13881
Total	200867

Table A.16: Trademarks granted to women – Share of total trademarks granted to individuals

Year	Share of Trademarks Granted to Individuals (%)
1980	16.70
1981	17.65
1982	19.81
1983	22.52
1984	21.71
1985	25.25
1986	26.62
1987	26.23
1988	27.10
1989	26.62
1990	25.78
1991	26.12
1992	26.45
1993	25.69
1994	25.56
1995	26.47
1996	26.41
1997	25.39
1998	27.05
1999	27.28
2000	27.88
2001	27.06
2002	26.61
2003	29.17
2004	28.99
2005	29.11
2006	30.14
2007	30.15
2008	32.42
2009	32.44
2010	33.31

Table A.17: Trademarks granted to men – Share of total trademarks granted to individuals

Year	Share of Trademarks Granted to Individuals (%)
1980	84.72
1981	84.41
1982	82.07
1983	80.42
1984	80.76
1985	78.03
1986	77.02
1987	77.59
1988	76.76
1989	77.61
1990	78.11
1991	78.73
1992	78.18
1993	78.94
1994	79.06
1995	78.43
1996	77.59
1997	78.37
1998	76.90
1999	77.12
2000	76.38
2001	76.97
2002	76.87
2003	74.41
2004	74.79
2005	74.67
2006	74.38
2007	73.89
2008	71.64
2009	71.66
2010	70.78

Table A.18: Successful women trademark applications %/Successful men trademark applications %

Year	Ratio of Successful Women to Men Applicants
1980	0.89
1981	0.84
1982	0.91
1983	1.14
1984	0.93
1985	0.92
1986	1.11
1987	1.01
1988	1.09
1989	1.09
1990	1.11
1991	1.09
1992	1.19
1993	1.07
1994	1.03
1995	1.17
1996	1.13
1997	1.04
1998	1.12
1999	1.22
2000	1.16
2001	1.04
2002	0.96
2003	1.09
2004	1.03
2005	1.02
2006	1.06
2007	0.97
2008	1.05
2009	1.07
2010	1.11

Table A.19: Trademarks granted to women – Share of applications filed by women

Year	Share of Trademark Applications Filed by Women (%)
1980	47.73
1981	92.13
1982	49.16
1983	88.93
1984	72.43
1985	88.28
1986	71.26
1987	65.09
1988	63.31
1989	64.28
1990	43.14
1991	31.32
1992	67.29
1993	43.05
1994	36.40
1995	46.11
1996	43.79
1997	47.96
1998	42.45
1999	28.74
2000	37.31
2001	43.92
2002	46.54
2003	42.47
2004	33.13
2005	33.64
2006	42.27
2007	40.49
2008	52.94
2009	52.50
2010	49.60

Table A.20: Trademarks granted to men – Share of applications filed by men

Year	Share of Trademark Applications Filed by Men (%)
1980	53.88
1981	109.29
1982	54.28
1983	78.10
1984	77.97
1985	96.18
1986	64.48
1987	64.47
1988	58.20
1989	58.93
1990	38.70
1991	28.64
1992	56.54
1993	40.27
1994	35.27
1995	39.33
1996	38.72
1997	45.91
1998	38.05
1999	23.55
2000	32.04
2001	42.39
2002	48.58
2003	38.85
2004	32.08
2005	33.14
2006	39.97
2007	41.81
2008	50.49
2009	49.04
2010	44.63

Table A.21: Trademarks granted to women – Share of trademarks granted to men

Year	Share of Trademarks Granted to Men (%)
1980	19.71
1981	20.92
1982	24.13
1983	28.01
1984	26.88
1985	32.36
1986	34.56
1987	33.81
1988	35.31
1989	34.30
1990	33.01
1991	33.18
1992	33.83
1993	32.54
1994	32.33
1995	33.75
1996	34.03
1997	32.39
1998	35.18
1999	35.37
2000	36.51
2001	35.15
2002	34.62
2003	39.20
2004	38.76
2005	38.98
2006	40.52
2007	40.80
2008	45.25
2009	45.27
2010	47.06

Table A.22: Trademarks granted to women by industry (top 5 industries)

Year	Advertising and Business	Clothing	Education and Entertainment	Miscellaneous Services; Scientific and technological services, and research and design relating thereto; Industrial analysis and research services; Design and development of computer hardware and software; Legal services	Paper Goods and Printed Matter
1980	5	18	19	16	40
1981	18	48	73	74	79
1982	22	56	61	70	81
1983	21	72	85	85	131
1984	22	88	104	90	103
1985	28	155	126	134	147
1986	18	103	79	102	170
1987	30	98	95	119	148
1988	43	128	81	136	124
1989	35	130	123	177	154
1990	45	154	118	193	161
1991	21	106	110	138	121
1992	70	170	244	278	246
1993	50	181	232	214	225
1994	54	149	166	174	196
1995	73	199	265	263	275
1996	89	246	283	281	324
1997	140	293	350	355	332
1998	173	254	390	258	383
1999	201	225	366	316	336
2000	357	307	526	443	403
2001	337	300	504	438	410
2002	439	430	691	518	494
2003	385	424	758	314	534
2004	347	411	710	176	453
2005	367	548	745	137	509
2006	524	717	981	143	587
2007	645	882	1188	163	698
2008	858	1132	1579	205	825
2009	731	1077	1380	184	728
2010	810	1080	1396	165	639

Table A.23: Trademarks granted annually – individuals vs. businesses

Year	No. of Trademarks Granted to Individuals	No. of Trademarks Granted to Businesses
1980	1132	1
1981	2719	1
1985	4265	3
1986	3111	3
1987	3347	2
1988	3387	1
1989	4144	3
1990	4344	17
1991	3220	30
1992	6261	62
1993	5808	105
1994	4938	103
1995	6597	141
1996	7350	151
1997	9020	189
1998	8059	154
1999	8095	171
2000	10669	244
2001	10737	209
2002	14228	271
2003	12856	224
2004	11614	193
2005	13128	509
2006	16740	984
2007	19274	1263
2008	22436	1273
2009	20400	998
2010	19611	936
Total	257490	8241