An Investigation Into Printing Industry Demographics

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Frank J. Romano

Roger K. Fawcett
Distinguished Professor,
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Abstract

What is the printing industry? The goal of this study is to define the printing industry universe. There are about a dozen major sources of information about the printing industry, only one of which is the Federal Government. Although printing is one of the most documented industries in the United States, each of these sources arrives at a different view for the size and scope of the industry. This report investigates the challenges in developing a meaningful set of criteria for defining and quantifying the printing industry. Using the criteria from 15 points of definition, a database of just under 3,000 firms was developed and all relevant data sources were reviewed. The goal was to list all of the major printing firms in a comprehensive database and to understand the demographics of the largest printers, as well as a sampling of medium and small printers. The results found that less than 1,000 firms represented 65% of the revenue of the entire industry.

Defining The Printing Industry

WHO KEEPS COUNT?

The Bureau of Labor Statistics (BLS) keeps track of the number of businesses by category within each U.S. county, called the County Business Patterns (CBP), an important information resource and business tool. Data for 1993 through 2001 are readily available on the Internet. These data count every printing establishment (plant) in a county, as well as the printing companies in that county. All establishments counted are categorized as printers by their NAICS (North American Industry Classification System) code, which is the successor to the old SIC (Standard Industrial Classification) code. This categorization is based on how each company defines itself on its tax form (Form 941 for reporting FICA payments).

The tax form data collection method, however, misses some plants because of primary industry or size. These companies either do not file tax forms because they have no employees or have a non-printing primary industry, such as packaging or converting. Data is shared between the IRS and the BLS via Schedule SE for self-employed individuals; however, some proprietorships may file a Schedule C instead of a Schedule SE.

There is a more detailed economic census every five years—the last was conducted in 1997 and reported in 2000 (U.S. Census Bureau, 2000). Forms for the 2002 economic census were sent in February 2003 with publication expected in the Fall of 2004. Firms that constitute 80% of the printing industry receive the long form, and the balance of firms is sampled.

Thus, any information is from "old" data in an industry that is changing rapidly. There are more data sources for the printing industry, but no one knows what is happening as it is happening. Data, as always, needs interpretation, opinion, and explanation.

COMMERCIAL DATABASES AND INFORMATION SOURCES

There are several private companies that maintain databases of printing companies. They acquire information in many different ways. In some cases they use the 5,200 Yellow Page and Business White Page directories in the U.S. InfoUSA says that 17 million phone calls are made to derive information for direct mail lists, and every business is called one to four times a year. In addition, County Courthouse and Secretary of State data, new business registration and incorporations, 10Ks and other SEC filings, annual reports, and leading business magazines and newspapers are checked. Postal service information including Change of Address, ZIP+4 carrier route and Delivery Sequence Files are also used.

The major printing industry information sources are:

Cahners' Blue Book (Reed Business Information) www.gabb.com

Started by A. F. Lewis in the early 1900s, the Graphic Arts Blue Book was the first published directory of printing companies. Blue Books are available for the U.S. and allow printing establishments to be tracked by city and state; in addition, equipment and other user information is maintained in a database. The Blue Books were acquired by Cahners Publishing in the late 1990s, and Cahners was later acquired by Reed Business Information.

Reed Business Information then acquired TrendWatch in November 2000 and integrated

it with Graphic Arts Monthly, AF Lewis Market Information Services, the Graphic Arts Blue Book, Quick Print Products, and Converting Magazine. TrendWatch Graphic Arts is part of the AF Lewis Group that includes AF Lewis Market Information Services and the Graphic Arts Blue Book. They also publish GraphStats (formerly Blue Book Marketing Information Reports). The eight editions of the Graphic Arts Blue Books comprise a comprehensive list of more than 123,000 individuals at 73,000 printer, trade shop, and supplier locations.

Graphic Arts Blue Book (A. F. Lewis & Co., 2002)

- *Northeastern Edition:* $22 billion market: Maine, Vermont, New Hampshire, Rhode Island, Massachusetts, Connecticut, Upstate New York, Ontario, Quebec, Prince Edwards Island, Nova Scotia, Newfoundland, and New Brunswick. Published annually in the summer. Current edition: 2002

- *Metro New York/New Jersey Edition:* $30 billion market. Published annually in the spring. Current Edition: 2003

- *Delaware Valley/Ohio Edition:* $32 billion market: Pennsylvania, Ohio, Maryland, Delaware, District of Columbia and its Virginia suburbs. Published annually in the fall. Current Edition: 2002

- *Southeastern Edition:* $29 billion market: Virginia (except DC suburbs), West Virginia, North and South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama and Mississippi. Published annually in the fall. Current Edition: 2002

- *Midwestern Edition:* $33 billion market: Illinois, Indiana, Iowa, Michigan, Minnesota, Wisconsin, North and South Dakota. Published annually in the spring. Current Edition: 2003

- *Texas/Central Edition:* $22 billion market: Texas, New Mexico, Colorado, Nebraska, Kansas, Oklahoma, Arkansas, Missouri, and Louisiana. Published annually in the summer. Current Edition: 2002

- *Pacific Northwestern Edition:* $13 billion market: Northern and Central California, Oregon, Washington, Northern and Central Nevada, Utah, Idaho, Wyoming, Montana, Alaska, Alberta, British Columbia, Manitoba, Saskatchewan, Northwest Territories, and the Yukon. Published annually in the winter. Current Edition: 2003

- *Southern Cal./Southwestern Edition:* $10 billion market: Southern California, Arizona, Southern Nevada, and Hawaii. Published annually in the winter. Current Edition: 2003

A.F. Lewis Marketing Services' latest product is a CD-ROM that includes a list of the largest 100 printers in the United States and Canada by revenue. The CD includes contact information for over 1,000 direct mail and marketing firms, with both central locations and additional facilities listed.

Dun & Bradstreet
www.dnb.com

Dun & Bradstreet (D&B) develops and maintains credit ratings; their products and services are drawn from a global database of 79 million companies. They gather business information in 214 countries around the world, in 95 languages and 181 currencies. They claim to use sophisticated data collection tools and update their database nearly one million times a day. The study involved a review of a recent D&B database of printing companies. The database mixed plants and firms, but was not a complete representative of plants. It listed "shell" corporations, which were not operating businesses. Its employee counts did not match other published information, though contact information for the firms listed was very good. D&B updates its database from filings made at County Courthouses and Secretary of State offices. New corporations and limited liability partnerships are filed with each states' Secretary of State. "Doing Business As" (DBA) proprietorships and certain partnerships are filed at County Courthouses.

National Association for Printing Leadership (NAPL)
www.napl.org

The National Association for Printing Leadership does a superb job surveying the commercial printing market. NAPL tracks trends, financial and revenue patterns, and provides an index of printing activity. The NAPL discovered that the 20-year trend of printing revenues following the GDP had ended in 1998-99. The NAPL does not publish lists or provide estimates on the number of firms; revenue estimates are for commercial printers only. Their Blue Book series is the primary source of information on budgeted hourly rates for specific equipment and systems.

Yellow Pages
www.infousa.com

Anyone in the U.S who has a business phone number is automatically listed in the Yellow Pages directory. Additional listings in other categories may be purchased. InfoUSA has 14 million U.S. and 1.2 million Canadian telephone verified businesses. Approximately one million businesses change information in the database each month. Each year, 70% of the

businesses within the database have a significant amount of change. InfoUSA gathers data from multiple sources and verifies the information by telephone. It attempts to include every business, regardless of size of length of establishment. List compiled form all U.S. Yellow Pages directories are available. InfoUSA is a major supplier; its web site was used to define a list of printers. The result was that the total number of listings was significantly higher that other totals found or industry establishments (see Table 1).

Employees	Listings
1-4	28,248
5-9	12,294
10-19	6,937
20-49	5,756
50-99	2,037
100-249	1,447
250-499	416
500-999	171
1,000-4,999	119
5,000-9,999	24
10,000+	37
Total	57,486

(infoUSA, Inc., 2003)

Table 1. Yellow Pages Data: Number of Printers by Number of Employees

Printing Industries of America (PIA)
www.gain.org

In 1998, the PIA merged with the Graphic Arts Technical Foundation (GATF). The PIA/GATF has 13,000 members, each of whom belongs to a local affiliate. The national association provides government affairs, management, and administrative services. The GATF provides testing, training, and research services, while the PIA publishes through its Economics department and does extensive research into plant operations. The PIAs Ratio Studies are published annually for printing companies by

market and technology. The Ratio database allows printers to compare costs and other data against peer companies. The PIA uses per-employee revenue to extrapolate the revenue for the entire industry; no other organization provides such an estimate.

State Street Consultants (SSC)
www.statestreetconsultants.com

SSC maintains an extensive database of major printing firms with information on equipment and usage patterns. SSC is a general management consulting firm specializing in sales productivity and growth for the graphic arts, packaging, digital imaging, and other high-tech industries. It has developed an in-depth database of over 22,000 telephone qualified end user sites for the North American graphic arts, packaging, and digital imaging industries. These sites are constantly updated and expanded. It targets high-volume digital and color sites in each major market segment. Site-specific details, such as demographics, key applications, market segments, workflow, installed equipment, buying habits, and purchasing plans, enable clients to estimate a site's purchase potential. The Market Scanning Service data is available as a subscription or as a targeted purchase. SSC shared one segment of their database the authors. The information was found to be very accurate, with only 2 listings out of 200 incorrect.

C. Barnes & Co.
www.cbarnes.com

C. Barnes & Co. is a market research firm based in Alexandria, Virginia, that specializes in the printing and graphic arts industry. They publish annual directories, reports, and custom research studies, and sell custom mailing lists of sales leads and industry contacts. The research is available as a detailed set of pages in a binder; a CD-ROM details the majority of larger printing companies with information on company, market, revenue, and key executives. The data available from C. Barnes is extremely comprehensive.

The 2003 Printing & Graphic Arts Directory— U.S. & Canada edition (C. Barnes & Co., 2003) lists 3,000 companies, over 12,000 executives, $124 billion in total worldwide sales in the following categories:

- Midwest (650 companies) - IA, IL, IN, KS, MI, MN, MO, ND, NE, OH, SD, WI

- Northeast (550 companies) - CT, MA, ME, NH, NJ, NY, PA, RI, VT

- South (900 companies) - AL, AR, DC, FL, GA, KY, LA, MD, MS, NC, OK, PR, SC, TN, TX, VA, WV

- West (600 companies) - AZ, CA, CO, HI, ID, MT, NM, NV, OR, UT, WA, WY

- Canada (200 companies)

- Market Segment Directories
  - General commercial printing (940 companies)
  - Book printing (140 companies)
  - Magazine/periodical printing (150 companies)
  - Business form printing (130 companies)
  - Catalog/directory printing (190 companies)
  - Financial/legal printing (95 companies)
  - Direct mail printing (175 companies)
  - Specialty printing (170 companies)
  - Label printing (85 companies)
  - Package printing (200 companies)
  - Prepress services (220 companies)
  - Trade binding (160 companies).

CAP Ventures (CAPV)
www.capv.com

CAPV performs continuing analysis of the corporate, print buying, and printing environments and uses its databases to survey the industry. CAPV is a strategic consulting firm for providers and users of digital business communication technologies and services. It provides knowledge and business strategies to its clients through timely research, analysis, forecasting, benchmarking, and strategy recommendations. CAPV provides ongoing consulting programs that foster industry growth, optimize business processes, improve market and product positioning, and help increase profitability. These services are customized to meet a client's business needs, and include:

- Communication supplies (North America & Europe)

- Digital peripheral solutions (North America & Europe)

- Dynamic content software strategies

- Financial research service

- Network document solutions

- On demand printing & publishing (North America & Europe)

- Production workflow solutions

- Visual communication technologies.

CAPV assists corporate clients and users in auditing, analyzing, and improving business processes for the management and delivery of information. In 2002, CAP Ventures acquired InfoTrends Research Group, a consulting firm that tracks the digital photography, Internet imaging, image processing, and scanning markets. CAPV does not report total industry establishments; it concentrates on statistically relevant surveys to develop trends and revenue projections.

NPES – The Association for Suppliers of Printing, Publishing and Converting Technologies
www.npes.org

Founded as the National Printing Equipment Association in 1933, the NPES has grown from 26 charter member manufacturers of printing presses, bindery equipment, typesetting machinery, and specialty equipment to more than 460 members. These members include manufacturers and importers of machinery, equipment, supplies, and systems and software used in every printing, publishing and converting process. Through the Graphic Arts Show Company (GASC) it is one-third owner of the major printing exhibitions (including Graph Expo) in the U.S. with NAPL and PIA/GATF. NPES is involved in government affairs on behalf of its supplier membership, and provides data and assistance with international trade, market data, and market research. It is the U.S. secretariat for the Committee for Graphic Arts Technical Standards of ANSI and is involved in product safety and standards. The organization sponsors in-depth research on behalf of its members, but does not publish industry demographic information.

Trade Magazines

Various publications list the top 101, 250, and 400 printing firms. Some printing companies ask not to be published in these compilations or do not provide the requested data. Publication mailing lists are often used for direct mail and surveys. The three major printing magazines have circulation of about 80,000 each (see Table 2); this includes copies to every plant and multiple copies in some plants (Standard Rate and Data Service, 2003).

Recipient Type	Circulation
General Commercial Printer	52,608
Greeting Card Printer	710
Specialty Printer	5,494
Screen Printer	4,666
Quick Printer	2,779
Publication Printer	3,838
Rotary Business Forms Printer	895
Book Printer - Manufacturer	1,713
Converter - Flexible Packaging, Paperboard, Envelope or Tag Printer	2,852
Newspaper Printing:	
Daily Newspaper with Commercial Printing Dept.	1,963
Non-dailies and Shoppers with Commercial Printers	954
Trade Plants:	
Binding and Finishing	717

(Standard Rate and Data Service, 2003)

Table 2. Circulation For One Of The Top Three Printing Magazines (Magazine Name Withheld)

Industry Suppliers

Some suppliers have acquired commercial databases and mailing lists and have then used their sales force and other marketing approaches to create their own databases. These databases, while among the best in the industry, are proprietary.

U.S. Government
www.census.gov/epcd/www/naics.html

The U.S. Government publishes statistics through the Bureau of Labor Statistics and the Census Bureau; the County Business Patterns reports establishments by U.S. county. There are 3,173 county level units in the United States. Data from the 1997 Economic Census were published on the basis of the North American Industry Classification System (NAICS), unlike earlier censuses, which were published according to the Standard Industrial Classification (SIC) system. NAICS has now been adopted in the United States, Canada, and Mexico.

The County Business Patterns (CBP) covers most of the economic activity in the U.S. The series excludes data on self-employed individuals, employees of private households, railroad employees, agricultural production employees, and most government employees. Thus, a one-person printing proprietorship may be listed in the Yellow Pages but not be counted by CBP.

CBP data are extracted from the Business Register, the U.S. Census Bureau's file of all known single and multi-establishment companies. The Economic Censuses and Annual Company Organization Surveys provide individual establishment data for multi-location firms. Data for single-location firms are obtained from various programs conducted by the U.S. Census Bureau, such as the Economic Censuses, the Annual Survey of Manufacturers, and Current Business Surveys, as well as from administrative records of the Internal Revenue Service, the Social Security Administration, and the Bureau of Labor Statistics.

For this project, six different years of County Business Patterns data, organized by establishment size, were used to compare changes in printing industry. The results can be found in Table 3.

Firm Size by Number of Employees	1976	1981	1986	1994	1998	2001
1-4	9,462	8,863	13,135	16,886	18,254	14,932
5-9	4,435	5,220	7,094	8,303	9,255	7,550
10-19	3,325	3,988	4,970	5,230	6,174	4,938
20-49	2,232	2,685	3,344	3,341	4,813	3,789
50-99	734	906	1,179	1,250	1,996	1,568
100+	547	631	842	987	1,569	1,395
Total	20,735	22,293	30,564	35,924	42,115	34,172

Table 3. County Business Patterns Data Comparing Changes in Printing Industry Size

It appears that 1998 was the watershed year for the printing industry. The reliability of the CBP data, however, can be questioned, as the transition from SIC to NAICS occurred in 1997 and 1998. This may provide challenges in comparing data from before and after 1998. A. F. Lewis estimated that approximately 500 establishments per month have gone out of business from 1999 through 2001, and appears to be related to the drop in establishments from 1998 to 2001 (Dr. Joseph Webb, personal communication, August 10, 2003).

County Business Patterns uses the NAICS system, which is oriented to printing process. Newspaper, book, and periodical publishers have been moved to another category so that printing establishment data is less contaminated (see Table 4).

Defining The Printing Industry

NAICS Code	Description	Total	1-4 employees	5-9 emp.	10-19 emp.	20-49 emp.	50-99 emp.	100-249 emp.	250-499 emp.	500-999 emp.	1,000+ emp.
32311	Printing	34,172	14,932	7,550	4,938	3,789	1,568	1,008	265	96	26
323110	Commercial lithographic printing	15,662	5,853	3,485	2,610	2,066	853	578	147	56	14
323111	Commercial gravure printing	415	219	62	35	40	18	18	11	9	3
323112	Commercial flexographic printing	930	237	149	177	201	98	53	11	4	0
323113	Commercial screen printing	4,061	1,848	872	588	457	171	96	23	5	1
323114	Quick printing	7,458	4,198	1,955	832	369	72	25	4	3	0
323115	Digital printing	589	299	130	69	69	18	4	0	0	0
323116	Manifold business form printing	914	235	110	117	192	132	106	19	2	1
323117	Book printing	667	173	116	90	109	74	52	34	13	6
323118	Blank book, loose-leaf binder	239	35	24	38	61	42	31	6	2	0
323119	Other commercial printing	3,237	1,835	647	382	225	90	45	10	2	1
32312	Printing support activities	3,723	1,520	718	584	553	228	102	14	4	0
323121	Trade binding & related work	1,197	363	226	224	217	114	45	6	2	0
323122	Prepress services	2,526	1,157	492	360	336	114	57	8	2	0

Table 4. County Business Patterns Using NAICS, 2001

A QUICK COMPARISON

The five information sources listed in Table 5 show conflicting numbers for the size and scope of the printing industry. The counts, especially for larger firms, tend to be within a reasonable range, though there are variances of 20% or more.

Data Source	1-9 employees	10-19 employees	20-49 employees	50+ employees	Total	Units counted
County Business Patterns	22,482	4,938	3,789	2,963	34,172	Establishments
Blue Book	23,438	5,717	3,956	2,895	36,006	Establishments
Dun & Bradstreet	37,685	5,136	2,897	2,257	47,975	Firms + Establishments
Yellow Pages	40,542	6,937	5,756	4,251	57,486	Firms
Magazine Circulation	30,700	6,300	6,908	8,700	52,608	Subscribers

Note. One would think that the Yellow Pages would be the most complete since it represents businesses currently selling their service. We find many of the listings to be duplicates (the same company operating under multiple names) and printing brokers (with no equipment).

Table 5. A Quick Comparison of Five Data Sources

CRITERIA/QUESTIONS DEFINING "PRINTER"

In order to determine the size of the printing industry, the approach and terms of the research, including the term "printer," must be defined. This brings up 15 basic questions to be addressed:

1. Is any person or company with a reproduction device that sells print a printer?

2. Should anyone who provides copying services be counted?

3. Should anyone who provides digital printing services be included?

4. Do packaging printers count?

5. Do specialty printers count?

6. Do screen printers count?

7. Do newspapers count?

8. Should we include prepress and post-press (finishing) services?

9. Should we count firms or plants?

10. What years' data are we using?

11. What is the difference between a small printer and a quick printer?

12. Should we categorize by reproduction processes?

13. Should "in-plant" operations be considered?

14. What about companies that do not provide data?

15. What about multi-national firms?

The responses to these questions change the basis for comparable demographic information about the printing industry.

1. Is any person or company with a reproduction device that sells print a printer?

If so, a number of concerns follow:

- This would exclude in-plant (not-for-pay) operations, even though some of them may sell a portion of their printing production to other firms.

- Newspaper establishments own presses, but usually only print for themselves. Some of them, however, provide commercial printing services.

- Prepress businesses that have digital printers for proofing and short run jobs raise an issue, because it is necessary to consider whether we count the entire firm or only that portion devoted to print. Prepress revenue in printing company results is included; should printing revenue in prepress company results be counted as well?

- Lettershops (mailing services) do some accommodation printing but primarily perform stuffing and mailing services.

- And, most interestingly, there are individuals with presses in their basement or garage who sell print, but have a full-time job doing something else. A 1999 survey of small printers found that printing was not the full-time job of the owner in 27% of the cases (see Table 6).

Revenue	Owners' age in 1999				
	Under 40	41-60	Over 60	Total	Percent Fulltime
Under $100,000	1,390	2,409	2,245	6,044	22%
$100,000–$500,000	1,426	2,333	2,123	5,882	31%
$500,000–$1,000,000	1,366	3,432	2,789	7,587	79%
$1,000,000–$1,500,000	367	2,267	3,400	6,034	87%
$1,500,000–$2,000,000	210	3,888	1,197	5,295	97%
Total	4,759	14,329	11,754	30,842	63%

(RIT/Romano, 1999) Note. 2,882 responses were extrapolated to estimate the total universe at the time.

Table 6. Small Printing Companies (Under 20 Employees)

The County Business Patterns covers most of the country's economic activity, but excludes data on self-employed individuals. Thus, a one-person printing proprietorship may be listed in the Yellow Pages and operations as a DBA (doing business as) but not counted by CBP. Because tax filings are at the heart of the system tracking businesses between censuses, non-employers do not get census questionnaires and are not reflected in any of the other core business statistics reports or detailed sector-specific reports. (Non-employers are, however, included in "all firms" totals in reports on minority- and women-owned business.)

Non-employer businesses, such as independent contractors, are small and constitute a large part of the business universe in terms of number of establishments, but contribute a relatively small portion of overall sales and receipts. Non-employer statistics have been released every 5 years since 1972 for selected industries in conjunction with economic census publications. Comparability of data over time is affected by definitional changes for establishments, activity status, industrial classifications, and methodology. An establishment is usually a single physical location at which business is conducted or services or industrial operations are performed. Each distinct business income tax return filed by a non-employer business is counted as an establishment and the businesses may operate from either a home address or a separate business location.

Non-employer statistics data originate from administrative records of the Internal Revenue Service (IRS). Data are comprised of sole proprietorship businesses filing IRS Form 1040, Schedule C, although a small percentage of the data is derived from filers of partnership and corporation tax returns that report no paid employees. There is processing, editing, and analytical review at the U.S. Census Bureau to distinguish non-employers from employers. The Social Security Administration, the IRS, and the Bureau of Labor Statistics are sources for assigning non-employer statistics industry classifications. Industry classifications from the IRS are self-classified by tax filers. The legal form of organization for non-employer businesses is determined by the business tax return filed. Non-employer statistics include individual proprietorships, partnerships, and corporations.

According to the U.S. Census Bureau, "In terms of sales or receipts, non-employers account for roughly 3% of business activity. At the same time, non-employers account for nearly 75% of all businesses. Most non-employer businesses are very small, and many are not the primary source of income for their owners." (U.S. Census Bureau, 2003).

In 2000, 28,173 non-employer entities with a total revenue of $1,471,229,000 were reported. That is $52,221 per entity (http://

www.census.gov/epcd/nonemployer/2000/us/US000_31.HTM). Whether that was a printing brokers' commission, an inactive company, or a shell corporation is unknown.

This study contends that any entity, individual, or company that sells reproduced material should be considered in the demographics of the printing industry. Thus, newspaper, lettershop, and prepress firms that produce commercial services should be counted.

2. Should anyone who provides copying services be counted?

There are over 6,000 defined copy shops and most of them do not own printing presses. However, light-lens and digital copiers abound. Under the new NAICS system, copy shops have been integrated into "Other Business Services" (U.S. Census Bureau, 2002):

> *NAICS 561 439: Other Business Service Centers (Including Copy Shops)*
> This U.S. industry comprises (1) establishments generally known as copy centers or shops primarily engaged in providing photocopying, duplicating, blueprinting, and other document copying services, without also providing printing services (e.g., offset printing, quick printing, digital printing, prepress services) and (2) establishments (except private mail centers) engaged in providing a range of office support services (except printing services), such as document copying services, facsimile services, word processing services, on-site PC rental services, and office product sales.

The data published with NAICS code 561 439 are comprised of the SIC industry 7334 Photocopying and Duplicating Services, and includes (see Table 7):

- Blueprinting services

- Business service centers (except private mail centers)—not originally in SIC 7334 (SIC 7339)

- Copy centers (except combined with printing services)

- Copy shops (except combined with printing services)

- Document copying services (except combined with printing services)

- Document duplicating services (except combined with printing services)

- Photocopying services (except combined with printing services)

- Reprographic services.

Year	SIC/NAICS Code	Description	Establish-ments	Sales ($1,000s)	Payroll ($1,000s)	Employees
1992	7334	Photocopying and duplicating services	4,949	3,464,252	1,100,959	58,149
1997	561439	Other business service centers (including copy shops)	5,780	6,844,260	1,811,334	87,221
2002	561439	Other business service centers (including copy shops)	6,202	N/A	2,340,697	82,790

Table 7. Evolution of Federal Definition of Copy Shops

This study contends that copy shops and business services that provide reproduction services should be counted among printing industry firms as quick printers. Although location like post offices and libraries have coin-operated, walk-up copiers, these are "occasional" copier locations and should not be counted.

3. Should anyone who provides digital printing services be included?

The first users of digital printing were desktop service bureaus; the first users of digital color printing were prepress services. This study contends that any commercial reproduction service—with copiers or printers—counts. Office supply retailers such as Staples and OfficeMax must also be counted.

A company that sells press rollers does not market to Staples. Market definition and segmentation is based on what someone needs to do their job. Suppliers often drive the research agenda based on their needs and

thus industry statistics reflect a narrower view. Some analysts do not count Staples because it is not a commercial printer. If the supplier sold copier equipment, however, it would be counted. Staples competes with the quick printing market, and, perhaps, with a part of the commercial printing market. To exclude them would be to exclude a major competitive area and distort the real size of the industry.

It must be noted that the copier and digital printer world are merging. Virtually all new copiers are digital printers with scanners. These devices are multifunctional; they can accept hard copy pages and digital files. Today, digital printing is a substitute for offset lithography, just as offset was a substitute for letterpress. This study contends that any entity that sells digital printing—and digital copying—should be counted. How they are counted is a different problem. Counting each location as a printing establishment is appropriate. Counting all of Staples' revenue would be inappropriate.

4. Do packaging printers count?

Printing the same side of a Fritos bag for weeks on end is not like printing *Time* magazine every week, but both *are* printing. Packaging printers print on board and flexible materials. We must be careful to segregate packaging plants owned by companies that make the board or film or aluminum. They are essentially in-plant operations, but they then sell the printed package to a beverage or food company.

Packaging and labels represent 16% of the revenue of the study's large-plant database. Thus, commercial printers count if they print packaging, but packaging printers do not count. The confusion may come in the difference between a packaging printer and a converter. A converter takes a raw substrate, like board, and converts it into cartons, or takes rolls of aluminum and makes them into cans. In the process they print color, code numbers and other information on the carton, can, or package. They are defined under NAICS as converters. See the sidebar with a sample of the NAICS codes for packaging converting. Over the last decade much of the growth in packaging has been in flexible packaging, as shown in Table 8:

- The flexible packaging industry currently supports 375,000 employees; about 88,000 are directly employed by converters

- The typical flexible packaging converter operates one facility and employs less than 100 people

- The largest market for flexible packaging is food, accounting for 50 percent of shipments

- U.S. shipments of labels are projected to advance at an annual pace of nearly 7 percent through the year 2004, and will approach $14 billion

- Paper will remain the dominant label stock, plastic films will continue to make inroads, logging annual gains upwards of 10 percent

- Pressure sensitive adhesive labels will continue to capture market shares; they already account for over two-thirds of the label industry's value

- 665 companies with 950 flexible packaging manufacturing plants exist in the United States (Gravure Association of America, 2002).

Packaging Markets	1985	1989	1993	1997	2001
	(Revenue in millions of dollars)				
Flexible packaging	$1,583.3	$2,507.3	$3,169.6	$4,237.3	$4,501.3
Folding cartons	1,085.8	1,431.4	1,512.9	1,672.6	1,815.4
Labels & wrappers	437.4	434.4	397.3	412.3	475.3
Other packaging gravure	1.3	2.6	5.9	8.7	11.9
Total	$3,107.8	$4,375.7	$5,085.7	$6,330.9	$6,803.9

(Gravure Association of America, 2002)

Table 8. Growth Patterns In Selected Packaging Markets

Defining The Printing Industry

Flexography and gravure have been the primary printing processes for packaging, though an increasing volume is being done with offset lithography. Digital printing is evolving rapidly for packaging and labels (see Table 9).

Flexography Packaging Areas	Revenue, Billions	Plants	Percent of Total
Corrugated production	$29.0	1,400	34%
Flexible film packaging	$20.2	950	25%
Folding carton	$16.5	125	20%
Labels	$10.5	3,200	13%
Envelopes, bags	$3.8	260	5%
Newspapers	$2.0	45	3%
Publications	$0	0	0%
Products	$0	0	0%
Total	$82.0	5,980	100%
Gravure Packaging Areas	Revenue, Billions	Plants	Percent of Total
Corrugated production	$0	0	0%
Flexible film packaging	$4.5	94	29%
Folding carton	$1.8	84	12%
Labels	$0.5	84	3%
Envelopes, bags	$0	4	0%
Newspapers	$0	0	0%
Publications	$5.4	23	35%
Products	$3.3	160	21%
Total	$15.5	449	100%

(Gravure Association of America, 2002)

Table 9. Comparison of Eight Packaging Areas By Flexography And Gravure Printing

According to the Gravure Association of America (2002) (see Table 10):

Metal containers will see the slowest container growth as plastics have taken market share in food and beverage markets—plastics now account for about 25 percent of all unit shipment and 50 percent of carbonated soft drinks. Low metal can growth is projected. Best opportunities will reside in petfood and nutritional supplements markets. Plastic food containers are expanding 5.5 percent per year to $3.6 billion in 2005. Paperboard food container demand will expand 2.6 percent yearly to over $4 billion in 2005. Paperboard will remain dominant because of strength, stiffness, competitive pricing structure and favorable environmental-profile. Improved graphics capabilities

and stronger moisture barriers will also aid growth. Further advances will be threatened by competition from flexible packaging.

Paperboard and plastic lend themselves to offset lithography, which opens the packaging market to commercial printers (see Table 11). As an increasing amount of packaging moves to commercial plants, packaging printing will need to be included in all demographics in order to measure activity and determine trends. Certain areas of packaging have been dominated by flexography, as shown in Table 12.

Printing Process	Percent
Flexography	41%
Gravure	8%
Offset Lithography	37%
Digital	10%
Other	4%
Total	100%

(RIT/Romano, 2002) Note. Based on revenue
(North America = $10 Billion)

Table 11. Percent of Packaging Printed by Printing Process

Container Type	Growth
Paperboard	Moderate
Metal	Moderate
Plastic	Strong
Glass	Down

(The Freedonia Group, Inc., 2000)

Table 10. Food Container Demand

Packaging Type	Percentage Growth		
	1996	2000	2004
Paper bags	95%	95%	95%
Corrugated board	75%	80%	80%
Flexible packaging	70%	75%	80%
Labels	30%	35%	40%
Folding cartons	20%	30%	40%

(Gravure Association of America, 2002)

Table 12. Flexography Growth (Percentage) By Packaging Type

Defining The Printing Industry

A Sampling Of NAICS Codes That Cover Packaging And Converting

3222110 3   Corrugated and solid fiber boxes, including pallets [include shipping containers, pads, partitions, and corrugated paperboard shipped in rolls and sheets]

3222120 2   Folding paperboard boxes, packaging, and packaging components [include die-cut, nonfolded packaging items]

3222130 1   Setup (rigid) paperboard boxes

3222141 8   Paperboard fiber drums with ends of any material

3222143 4   Fiber cans, tubes, and similar fiber products [include composite cans, cores and tubes, reels, cones, vulcanized fiber cans, boxes, etc.; exclude drums]

322214W 4   Fiber cans, tubes, drums, and similar products, nsk, total

3222151 7   Milk and milk-type paperboard cartons, including juice, beverage, and other products

3222153 3   Cups and liquid-tight paper and paperboard containers [include lids and tops]

3222155 8   Other sanitary paper and paperboard food containers, boards, and trays, nec, except folding [include plates, dishes, spoons, trays, tablecloths, straws, etc.]

322215W 3   Nonfolding sanitary food containers, nsk, total

3222211 9   Single-web paper, coated rolls and sheets, including waxed, for flexible packaging uses

3222213 5   Multiweb laminated rolls and sheets, except foil and film-film, for flexible packaging uses

322221W 5   Coated and laminated packaging paper and plastics film, nsk, total

3222221 8   Printing paper, coated at establishments other than where paper was produced [include coated paper for labels, magazines, datalogs, and similar uses]

3222223 4   Gummed products [include unprinted stock labels, gummed sealing tape, corrugators' kraft tapes, and flat gummed paper]

3222225 9   Pressure-sensitive products [exclude surgical adhesive and bubble backings; include tape, unprinted labels and base stock]

3222226 7   Wallcoverings [include paper, nonwovens, coated fabrics; exclude rigid, plastics, and rubber wallcoverings]

3222227 5   Gift wrap paper [include plain, printed, and decorated, rolls or folded; exclude foil]

3222229 1   Other coated and processed papers, nec, except for packaging uses [include casein, oiled, waxed, plastics, and other special coated, processed, leatherette; exclude photocopy]

322222W 4   Coated and laminated paper, nsk, total

3222231 7   Specialty bags, pouches, and liners, coated single-web paper

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3222233 3   Specialty bags, pouches, and liners, multiweb laminations and foil, except film-film

322223W 3   Plastics, foil, and coated paper bags, nsk, total

3222241 6   Uncoated single-web paper grocers' bags and sacks and variety and shopping bags

3222243 2   Shipping sacks and multiwall bags, all materials except textiles

322224W 2   Uncoated paper and multiwall bags, nsk, total

3222250 7   Laminated aluminum foil rolls and sheets for flexible packaging uses
             [include film/foil and paper/foil combinations and giftwrap]

3222260 6   Pasted, lined, laminated, or surface-coated paperboard [exclude paperboard coated at the board mill]

3222311 7   Die-cut paper and paperboard office supplies [include index cards, file folders, file jackets, guide cards,
             report covers, single-cut tab cards]

3222313 3   Paper supplies for business machines and other miscellaneous unprinted paper office supplies, nec
             [include rolls, tapes, teletypes, facsimile, manifold carbon paper sets]

322231W 3   Die-cut paper and paperboard office supplies, nsk, total

3222320 8   Envelopes, commercial, all types and materials

3222331 5   Stationery [include boxed stationery and portfolios, wedding and social announcements, package paper,
             and noncommercial envelopes; exclude tablets]

3222333 1   Tablets, pads, and related products [include notebooks, looseleaf fillers, etc.; exclude stationery]

322233W 1   Stationery, tablets, and related products, nsk, total

3222911 4   Sanitary napkins and tampons (not made in paper mills) (see also code 322121J 2)

3222913 0   Disposable diapers (usually containing pulp or cellulose fibers) and similar disposable products
             (not made in paper mills) (see also code 322121L 8)

3222915 5   Sanitary tissue paper products (not made in paper mills) [include facial tissues, table napkins, toilet tissue,
             towels, wipers, pads, etc.; exclude disposable diapers, surgical and medical products]
             (see also code 322121N 4)

322291W 0   Sanitary paper products, nsk, total

3222991 6   Molded pulp goods, including egg cartons, florist pots, food trays, etc.
             [include egg cartons, plates, dishes, trays, papier-mache articles, bituminous fiber pipe, etc.]

3222993 2   Other converted paper and paperboard products, nec

322299W 2   All other converted paper products, nsk, total

According to State Street Consultants, which conducted research for GAMIS, packaging will grow in line with its long-term historical growth rate, but perhaps a bit slower than the peak growth of the 1990s. Labels and flexible packaging will be the fastest growing packaging segments. The value of printing in packaging for the four studied segments is $21.2 billion. State Street reports that between 2000 and 2005 the four packaging segments studied will experience compound annual growth rates as follows:

- Corrugated, 3.5%
- Flexible packaging, 4.5%
- Folding carton, 2.5%
- Labels, 4.5%.

The study found that the move to digital workflow and computer-to-plate are the biggest changes and challenges on the horizon for packaging segments. Prepress trade services are handled by traditional prepress firms, and 25% of all trade shops concentrate on packaging, working primarily with converters. State Street also found that there is an increasing use of complex process color, especially in flexible packaging and folding cartons. Label printing is considered part or both the printing and packaging industries, but no Federal source is available that breaks it out as a category (see Table 13).

Some converters may only fabricate plastic or paper into unprinted bags or cartons. This study contends that packaging printers, as well as converters who print, should be counted. Commercial printers who produce packaging are counted; neither packaging printers nor converters should be excluded.

Process	Percent of Volume	Percent of Revenue
Flexography	59%	56%
Offset Lithography	30%	29%
Gravure	9%	13%
Other	2%	2%
Total	100%	100%

(RIT/Romano, 2000)

Table 13. Labels Printed By Process, 2000

5. Do specialty printers count?

Specialty printers print on vinyl and plastic and other non-paper substrates. Those who sell a service must be separated from those who are part of a company's manufacturing process. Products printed or decorated include: automotive trim, automotive license plates, bank forms, bank notes and securities, bottle closures, business forms, candy trademarking, cigarette filter tips, decalcomania, decorative adhesives, film ribbons, fine art reproductions, floor coverings, food stamps, foreign currency, games, gift wraps, heat transfer papers for textile printing, hot foil stamping, instrument panels, insulation trademarking, laminate flooring, lamp shades, lottery tickets, insulation trademarking, lamp shades, lottery tickets, luggage fabric, and marble pattern book end papers. Many commercial printers print on plastic substrates, or on special papers which are then laminated. Thus, specialty or decorative printing firms should be counted.

6. Do screen printers count?

Screen printers print on textiles and wood and other unusual substrates. Wide-format printing is beginning to compete with screen printing for signage, but many screen printers print apparel and manufacturing components.

Screen printing is used for applications that cannot be handled by offset, gravure, or flexography. Applications with substrates such as cloth, wood, or rigid plastic are primarily printed with screen printing because of the flexibility of the screen. Ink jet printing may be a potential fit because of the similar substrate flexibility in at least some current screen-printing applications. Screen printing is described as an "invisible" industry. Independent screen print providers tend to be small proprietorships, and most of the capacity is in organizations that don't identify themselves as screen printers, such as textile factories or companies that make printed circuit boards. Applications are specialized and the industry is highly fragmented. I.T. Strategies has suggested some plausible points of entry: (1) automotive and transportation furnishings, (2) textiles, (3) flatbed display, (4) wide-format applications with difficult ink requirements, and (5) flatbed industrial printing (Digital Printing Council/Printing Industries of America, 2003).

The commercial graphics screen printing industry is said to be comprised of about 19,000 companies (Duennes, 1996). This number is consistent with circulation data from *Screen Printing* magazine and data collected from the Screen Printing and Graphic Imaging Association International's Industry Profile Studies (http://www.sgia.org). But, it does not correlate with Census data at 8,262 establishments, as show in Table 14. The difference may be based on several factors: (1) the 19,000 represents a circulation list, (2) it includes individuals/proprietors, and (3) it includes in-plant (manufacturing industries) establishments.

NAICS Code/Description	Firms	Establishments	Employees
323113 Commercial screen printing	4,084	4,131	72,005
239630 Automotive & apparel trimmings	N/A	2,158	34,120
275920 Commercial printing, n.e.c.	N/A	1,970	37,795
277140 Greeting cards	N/A	3	90
399940 Manufacturing industries, n.e.c.	N/A	N/A	N/A
Total		8,262	

Table 14. 1997 NAICS Screen Printing Data

NAICS data indicates a small number of firms that concentrate on screen printing, as shown in Table 15. The difference is clearly the number of small businesses and non-employers, as well as the in-plant nature of the industry. For the purposes of this study, in-plant and apparel-oriented screen printers are not counted.

Employee Size Range	Establishments
1-4	1,868
5-9	891
10-19	598
20-49	464
50-99	185
100-249	95
250-499	22
500-999	7
1,000-2,499	1
2,500+	0
Total	4,131

Table 15. 1997 NAICS Screen Printers By Employee Size Range

7. Do newspapers count?

Almost all daily newspapers own their own press or presses. Most weekly newspapers are printed on presses owned by dailies or commercial services; some of these services are not involved in newspaper publishing. (Table 16 illustrates the number of each in the U.S.) The challenge is placing a value on printing done when newspaper printing is integrated with a publishing operation. The majority of newspapers (67%) with presses now provide "commercial" printing services (RIT/Romano). They print other newspapers, newsprint magazines, ad circulars, and other materials. Under NAICS, newspaper publishers are now in a separate category from printing (see Table 17). This study contends that newspapers that offer commercial printing services should be counted.

Newspaper Type	Number
Daily	1,468
Weekly	7,689
Total	9,157

(National Newspaper Association, 2003)

Table 16. Number of U.S. Daily And Weekly Newspaper Publishers

Newspaper Type	Number
Newspaper Publishers	8,758
Newspaper Printing:	
Daily Newspaper with Commercial Printing	1,963
Non-dailies and Shoppers with Commercial Printing	954
Total Newspaper Printing	2,917

Table 17. NAICS 511 110 Newspaper Figures (Includes The Old SIC 2711)

8. Should we include prepress and post-press (finishing) services?

Prepress (or pre-media) and post-press firms are certainly a part of the printing industry. An increasing number of prepress firms are providing digital printing or conventional printing services, as shown in Table 18. Prepress firms are most likely to integrate printing. For many years, the earliest adopters of digital color print-

ing and the majority of users were prepress services. They had the technical and color skills to deal with new technology. Finishing services, however, are not as likely to integrate printing as printers are likely to integrate finishing. Because both prepress and post-press firms are an integral part of the industry, they should be categorized and counted.

Service	1960	1970	1980	1990	2000
Typographers	9,200	10,800	11,800	3,800	100
Desktop Publishers	0	0	0	4,100	3,900
Color Separators	2,700	4,000	5,000	4,900	2,100
Other Prepress	2,300	3,500	3,600	2,900	1,200
Total Prepress Firms	14,200	18,300	20,400	15,700	7,300
Employment	340,000	260,000	200,000	120,000	65,000
Industry Revenue (in Billions)	$12.5	$13.0	$16.0	$10.0	$5.5
Revenue per employee	$36,765	$50,000	$80,000	$83,333	$84,615

(Robert H. Rosen & Associates, 2003)

Table 18. U.S. Prepress Firms by Type of Service

9. Should we count firms or plants?

According to the U.S. Census Bureau (2003, *Census Bureau home page):*

> An establishment is a single physical location at which business is conducted or services or industrial operations are performed. It is not necessarily identical with a company or enterprise, which may consist of one or more establishments. When two or more activities are carried on at a single location under a single ownership, all activities are generally grouped together as a single establishment. The entire establishment is classified on the basis of its major activity and all data are included in that classification.

> Establishment-size designations are determined by paid employment in the mid-March pay period. The size group "1 to 4" includes establishments that did not report any paid employees in the mid-March pay period but paid wages to at least one employee at some time during the year and were in the proper NAICS category. Small businesses are notorious for using an incorrect code, or not paying taxes at all.

This is also where most of the confusion arises in quantification of the industry. In some cases, sales offices or prepress offices are counted. For example, AGT, a prepress service has an office in the McGraw-Hill building in New York City. This office, which serves as a contact point for McGraw-Hill customers, has computers, servers, high-speed transmission lines, and

technical people. This type of office should be counted if there is equipment, personnel, and a production operation.

On the other hand, it is relatively easy to find and identify the largest industry firms:

- The *Graphic Arts Monthly's* list of 100 largest printers have a total revenue of $41.2 billion; the smallest printer on that list has a revenue of $30 million

- The *Printing Impressions* magazine's list of 400 printers shows about 5,000 plants, ranging in revenue from $6 billion to $13 million and represents $112 billion in total revenue

- If only firms with $20 million or more in revenue are examined, RIT discovered that 680 firms had a total revenue of $95 billion. 292 firms had 6,235 plants and a total revenue of $58.6 billion.

Firms and establishments should be counted under the same guidelines the U.S. Census Bureau adopts:

- All production facilities should be counted; sales offices should not

- The Census counts both firms and establishments, but reports all of its data in establishment format

- Dun & Bradstreet and other database services count business entities, which results in a large number of shell corporations in their counts

- Data from the Yellow Pages is full of companies operating under multiple names and print brokers who have no equipment

- The County Business Patterns counts only businesses that pay Social Security tax on Form 941 (which is the same used for the Census, and is the best indicator of a real business).

10. What years' data are we using?

An increasing number of company closings and consolidations have been observed. When comparing data from different sources, the data from both sources must be from the same year. County Business Patterns data is published every two years; 2002 data will be available at the end of 2004. If 2000 CBP data is compared against other sources, the other data must be from 2000 also.

After 1997, the SIC system changed to the NAICS system. This changed the basis for defining and counting establishments. Although there is a bridge between SIC and NAICS, a significant amount of interpretation is required. This is primarily publishing and printing were combined in the old SIC system.

11. What is the difference between a small printer and a quick printer?

The term "small printer" can mean that a firm has a small press (offset duplicator), though definitions of a small press can vary. Press size has traditionally be an indicator of a firm's nature; this is why many printers define themselves by their press ("I'm a 40-inch house," for example). One very large commercial printer claimed that the company was a quick printer even though it had almost 500 employees. Small employee counts have also been traditional indicators, though the definitions here, too, can vary: some say under 10 and some say under 20 employees.

One of the ways to better understand the business differences among the three segments is to view each one as being a location on the print production chain. As shown in Figure 1, at one end is the copy center; at the other is the so-called commercial printer. There is a significant overlap in terms of services provided between these segments. There is an overlap of 50% or better between each segment, as shown in Table 19.

```
┌──────────┐        ┌──────────────┐        ┌──────────────┐
│ Copy Shop │──────▶ │ Quick Printer │──────▶ │  Commercial  │
│          │        │              │        │   Printer    │
└──────────┘        └──────────────┘        └──────────────┘
```

Figure 1. Print production chain.

Service	Copy Shop	Quick Printer	Commercial Printer
Copying services	Yes	Yes	No
Design services	No	Yes	Some
Digital printing	Yes	Yes	Some
Small offset litho	No	Yes	Some
Large offset litho	No	Some	Yes
Bindery services	Some	Yes	Yes
Mailing services	Some	Some	Some
Wide-format print	Some	Some	Some

Table 19. Services Provided in Different Printing Segments

The term "instant printer" or "quick printer" arose in the 1960s as the camera-platemaker and offset duplicator allowed printers to offer while-you-wait services. These firms evolved into black-and-white and color copying as well and split into two markets: franchise and independent companies.

GAMIS undertook a study in 1999 to develop a view of the quick printing market. 24,800 firms were said to provide offset printing, network publishing, convenience copying, and post-printing services. In GAMIS' definition, quick printers may have up to 20 employees, multiple locations, and revenues exceeding $2 million. However, they typically operate from a single storefront location and have fewer than 10 full-time employees. The average annual revenues of these companies fall between $600,000 and $800,000, but actual sales figures per year can range from $100,000 to $30 million.

Quick printers are often thought to rely on walk-in customers for the bulk of their business. Many of these firms are refocusing their resources on local corporate accounts. "As part of their changing business strategy, they are pursuing corporate business instead of waiting for the customer to walk through the door," says the GAMIS study (1999). During the 1993-1998 period, quick printers' dependence on walk-in business decreased from 27% to 13%. The GAMIS study also revealed that quick printers aren't necessarily quick. Their typical turnaround for jobs is longer than 24 hours.

During the 1993-1998 period, the number of quick printers in North America decreased by 4%. The GAMIS study states that this decline will gradually continue through 2003 (1999). Most of the firms disappearing from the market have fewer than five full-time employees. The study anticipates that there will be an increase in the percentage of franchise firms in North America. Franchise firms generate about $800,000 in annual revenue; independents average annual sales of $600,000.

Franchise	Number of Locations
Minuteman Press	840
Sir Speedy/PIP	840
Kwik Kopy	630
Allegra	470
AlphaGraphics	320
Insty-Prints	240
Lazerquick	40
Ink Well	40
Signal Graphics	25
Copy Club	15
Others	40
Total	3,490

(Status of Franchise Printing, 2003) *Note.* Kinko's is not a franchise; all stores are owned by the company.

Table 20. Number of Locations of Franchise Printing Firms

There appears to be widespread need for mailing/fulfillment and wide-format printing services. Quick printers are now involved with pick-and-pack, kitting, fulfillment, mailing, and other post-printing services—a trend that is expected to accelerate. Corporate customers are also ordering posters, trade show exhibits, and other point-of-purchase products. They need fast turnaround and usually provide the digital file to the output provider. Therefore, the quick printer essentially functions as an output service provider by producing the POP media and mounting or laminating the output.

Quick printers are usually considered to be franchises. The franchise segment of the quick printing industry continues to contract. In January 2003, there were about 3,500 franchise print shops, according to *Quick Printing* magazine in July 2003 (see Table 20). That is 184 fewer than the previous year. That, coupled with a struggling economy, has lead to a challenging year for U.S. franchise systems, generating total sales in 2002 of more than $1.66 billion.

The Printing Industries of America defines quick printing as short-turnaround commercial printing and copying. Quick printing was just a $10 million-a-year business at the start of the 1970s (PIA). Today it generates more than $2 billion in annual sales (NAQP). The National Association of Quick Printers—now PrintImage International—counts 25,000 to 30,000 quick printers in the United States (2003). When *Quick Printing* magazine was founded their circulation and claim of 42,000 quick printers in the U.S. was the same as the total number of printers. The publisher remarked that all printers were quick.

According to the GAMIS study (1999):

- Offset printing accounted for a total of 39.9% of all sales, and copying/digital printing made up 37.5%

- Color work made up 39% of sales, while black-and-white provided 38.4%

- Single-color offset made up 14.5% of sales, down 0.1% from last year

- Multi-color offset was good for 20.3% of total sales, up 0.2%. Four-color process work decreased by 1.1% to account for 5.1% of all work.

- Black-and-white digital/copy output was the largest category, overall. However, it was down 1.1% from last year to make up 23.9% of sales.

- Color digital work was up by 0.1% to produce 12.1% of sales

- The newly categorized wide-format printing was responsible for 1.5% of overall sales

- Non-print services counted for a total of 22.6% of the total. Of that, 7.2% of sales came from prepress services—down 0.3%

- The back of the shop produced 6.6% of sales in finishing/bindery work. That was a 1.4% increase

- Brokered work and "other" made up 8.8% of sales.

The definition of "small" depends on many factors. A $5 million printing firm has been described as small, as have $10 million firms. This study uses $2 million as the dividing line, which translates into less than 20 employees.

The line is blurring between copy shop, quick printer, and commercial printer, and present definitions are less helpful. All should be counted. To determine an estimated size of the market, the mid-point of the revenue range of the small printers was used (see Table 21).

Revenue range	Firms	Revenue Factor	Total Revenue
Under $100,000	6,044	$50,000	$302,200,000
$100,000–$500,000	5,882	$300,000	$1,764,600,000
$500,000–$1,000,000	7,587	$750,000	$5,690,250,000
$1,000,000–$1,500,000	6,034	$1,250,000	$7,542,500,000
$1,500,000–$2,000,000	5,295	$1,750,000	$9,266,250,000
Total	30,802		$24,565,800,000

(RIT/Romano)

Table 21. Total Estimated Revenue For All Small Printers

TrendWatch Graphic Arts released a report in July 2003, that analyzed the demographics of the graphic arts industry. According to the report:

- Over half of all printers are small commercial and quick printers

- The number of small commercial and quick printing establishments hit a high point in 1990 at 37,352 U.S. establishments and has been declining ever since

Process	Percent
Litho	
Publication	40
Packaging	25
Promotion	30
Product	5
Gravure	
Publication	35
Packaging	40
Promotion	1
Product	24
Flexo	
Publication	2
Packaging	78
Promotion	5
Product	15

(RIT/Romano estimates)

Table 22. Reproduction on Percent of Total Market by Process

- 86% of the commercial and quick printing establishments with presses no larger than offset duplicators have fewer than 10 employees (the offset duplicator is becoming the dinosaur of the printing industry as work moves to digital printers and copiers)

- Small commercial and quick printers account for 15% of all shipments in the industry.

It is this study's contention that small and quick printers represent over 70% of U.S. printing firms, with an estimated annual revenue of $24.6 billion, which may be in line with the TrendWatch estimates.

12. Should we categorize by reproduction processes?

What difference would it make? This type of exclusion occurred in the 1950s and 1960s when offset lithography began to truly challenge letterpress. Litho was not considered a true reproduction process and excluded from industry data and discussion. At one time Frank Romano owned New *England Printer & Lithographer,* named because lithographers in 1950 were not considered real printers. Specialized associations and publications arose (NAPL was the National Association for Photo Lithographers when it was founded, and GATF began as the Lithographic Technical Foundation). Yet, within a decade, offset lithography replaced letterpress printing. New digital printing technology is growing in use and should be considered in all demographics. Table 22 provides this study's estimates of reproduction volumes by process.

Many printers now use a blend of printing processes and their reports to the U.S. Census Bureau may often be faulty or non-existent. For instance, offset lithographic printers with digital printing do not report the digital printing volumes separately. A major trend has been the move to hybrid printing—printed products produced with different printing processes and assembled into one unit. A comparison of the gravure printing share of the publication markets over the last decade is found in Table 23, and a comparison of gravure to offset is found in Table 24.

Publication Type	1989	2001	Based on
Consumer Magazines	100%	2 of 10 all; 8 partially gravure	Top 10
All Magazines	50%	36%	Circulation
Catalogs	31%	17%	Copies printed
Ad Inserts	35%	54%	Revenue

(Gravure Association of America, 2002)

Table 23. Comparison by Year of Gravure Printing in the Publication Market

Publication Type	1993		2001	
	Gravure	Offset	Gravure	Offset
Magazines	42%	58%	27%	73%
Sunday Magazines	92%	8%	93%	7%
Catalogs	20%	80%	17%	83%
Ad Inserts	5%	65%	54%	46%

(Gravure Industry Statistical Survey, 2002)

Table 24. Gravure Versus Offset Publication Printing, 1993 & 2001

Overall, the trend has been towards increased use of offset and hybrid approaches for magazine and catalog production (see Table 25). Transactional documents (statements and bills) are also hybrid in that they are pre-printed with offset lithography or gravure and then imprinted with toner or inkjet printing.

Publication Category/Year	Offset	Gravure	Both
Catalogs			
1993	74%	19%	7%
1997	80%	11%	9%
2001	84%	9%	7%
Magazines			
1993	57%	40%	3%
1997	61%	31%	8%
2001	60%	27%	13%
Sunday magazines			
1993	41%	59%	0%
1997	61%	31%	8%
2001	60%	27%	13%
Inserts			
1993	29%	71%	0%
1997	37%	63%	0%
2001	45%	54%	1%
Total			
1993	48%	51%	1%
1997	60%	34%	6%
2001	63%	30%	7%

(Gravure Association of America, 2002) Note. Based on number of page units printed.

Table 25. Percentage Of Print Volume For Four Publication Categories, 1993, 1997, & 2001

Although it is helpful to see the evolution of process volumes, the use of multiple processes in a plant may make the reporting difficult. Census data attempts to provide data on plants by reproduction process in use. As more work moves to hybrid approaches it will be difficult to find such data meaningful. Future data will rely on surveys of statistically relevant groups of printers that are extrapolated to count the known universe of printers.

13. Should "in-plant" operations be considered?

Although the so-called "in-plant" market is large and robust, only commercial services in printing industry should be considered. There are two aspects to this area:

1. Corporate related: in-plant printing operation, central reproduction department, MIS/IT

2. Publishing related: periodicals, newspapers, periodicals, others.

The corporate market consists of hospitals, financial services, retailers, state and federal agencies, utilities, and other corporate entities that require paper-based reproduction. Between 6,854 (A. F. Lewis & Co., 2002) and 8,895 companies (NPES, 2000) have in-plant printing facilities. The International Publishing Management Association (2003) states 10,000 as the number. These establishments consist of at least one printing press. There have been widely reported numbers for this area, ranging up to 60,000, but no one has ever produced an unduplicated list of more than 8,000 names.

The discrepancy arises from the definition of in-plant printing facility. The accepted definition is that there is at least one press. There are a very large number of Centralized Reproduction Departments in companies with copiers and digital printers, but no press. The Graphic Arts Blue Book statistics are the most reliable because they provide employee counts, equipment in use, and an available list (see Table 26).

Business Class	1-4 employees	5-9 employees	10-19 employees	20-49 employees	50-99 employees	100-249 employees	250+ employees	Total employees
In-plant--non-profit	536	247	111	46	11	6	3	960
In-plant--schools	1,405	550	248	144	36	9	6	2,398
In-plant--government	355	256	176	114	37	6	3	947
In-plant--other business, industry	1,098	681	459	228	51	22	10	2549
Total	3,394	1,734	994	532	135	43	22	6,854

(A. F. Lewis & Co., 2002)

Table 26. In-Plant Printing Sites by Employee Size Range

The 70 largest in-plant printing operations have a total of 7,581 FTE employees and a total budget of just over $1 billion (In-plant Graphics, 2003). Of these 70, the smallest firm has 50 employees. These 70 in-plants have printing technology that rivals typical commercial printers, but most of them have an offset duplicator and technology akin to a small/quick printer.

Within the company, there may be one or more centralized services for copying, digital printing, and other support services. Lastly, there is the MIS/IT department, which may have a roll-fed digital printer for transaction documents. These areas may or may not be integrated. In some cases, the company out-sources the work, but the facility is on company property. To exacerbate the problem of definition, some in-plant operations sell printing or copying to other companies.

The most interesting aspect to the in-plant market is the assignment of a value to what they produce. Some analysts assume a value based on the commercial market. This study contends that using the department budget is a more realistic approach to developing a revenue number.

The second category is more problematic for printing industry demographics. Some greeting card companies have their own plants and they are the sole customer. Newspapers also print their own publications. Some periodicals are printed in in-plant operations, which may or may not do work for other publishers. Others could include direct mail and specialty printing. How and why these companies are counted can substantially change industry demographics; for the purposes of this study, in-plant operations are counted.

14. What about companies that do not provide data?

How should the uncountable be counted? In some cases, printers ask not to be listed; in others, list companies do not provide the requested data. During the course of this research, D&B reports on companies that did not cooperate with D&B were examined. D&B attempted to estimate the company's data. Approximately 15% of this study's database was estimated; companies would provide employee count but not revenue, or vice versa. Many commercial printers are privately owned and have no reason to share financial data.

15. What about multi-national firms?

Many of the largest printers are multi-national firms. Some are based in Canada and have a very large presence in the U.S. Some very large U.S.-based printers own companies and facilities in other countries. An increasing number of U.S. printers are establishing facilities or partnering with Asian companies. Their revenue represents a world-wide revenue, yet, they are listed with a majority of firms that are U.S. only. This skews revenue comparisons substantially. Another anomaly is the volume of Canadian printing sold in the U.S. in direct competition to U.S. printing. Separating the international revenue from the total revenue of these firms was difficult, if not impossible.

It is estimated that 11 of the top 20 firms were international in nature and that approximately 18% of their totals revenue was outside the U.S.

The Bottom Line

Each decision made in the points above changes the final total of the printing industry. Because different marketers and analysts segment the data differently, they arrive at different counts.

WHAT IS A COMMERCIAL PRINTER?

The culprit in many cases is the focus on the so-called "commercial" printing market. What is a commercial printer? According to *Webster's Third New International Dictionary* (2002):

> **com·mer·cial**, adjective: occupied with or engaged in commerce or work intended for commerce; of or relating to commerce; characteristic of commerce; suitable, adequate, or prepared for commerce; viewed with regard to profit.

> **print·er**, noun: one that prints; a person engaged in printing; a device used for printing.

Just about everything printed involves commerce. The printing industry exists because someone wants to sell something to someone else. Books are sold, but book printers are not considered commercial printers. Commercial printers could print books. Newspapers are sold, but newspaper printers are not considered commercial printers, even though many of them print material for others. A search on the web produced these two definitions for commercial printer:

1. The commercial printer is the manufacturer of a variety of custom printed products, ranging from stationery, flyers, newsletters, invitations and mailers to folders, brochures, posters, portfolios, catalogs, and annual reports.

2. [ABC Company] has been servicing local printing needs for over 50 years. While we continue to provide top quality products in printing we also offer Website development as well. We are a full service commercial printing facility ready to provide any type of printing your company may need. Letterheads, envelopes, business cards, industrial tags, full color printing, folders, manuals, multi-part business forms, embossing, continuous and flat printing.

The second list was pretty specific until "full color printing," which could be just about anything. Thus, commercial printers can print anything. But if they only print *some* things, like books, newspapers, or packaging, they are not commercial printers. The future of the printing industry may be restricted with such imprecision and vagueness. All printers are really commercial printers; there is no opposing definition.

Reconciling The Numbers

STUDY 1

Method
The initial hypothesis was that the Yellow Pages was the most authoritative source of information since every company listed was in business. A list was specified from a major supplier of compilaed Yellow Pages data and had a count of over 57,000 listings. The count received was significantly higher than most other sources of information. In order to discover why, 11 cities were visited:

- Orlando, FL
- Atlantic City, NJ
- Cincinnati, OH
- Alexandria, VA
- Winter Park, FL
- Pittsburgh, PA
- Williamsport, PA
- Portland, ME
- Miami Beach, FL
- Milwaukee, WI
- Seattle, WA.

A Yellow Pages directory for each city was acquired; those companies listed were randomly and randomly called or visited. In most cities, around 30% of the firms listed were called or visited.

Findings
It was found that:

- 12% of the listings were printing brokers with no equipment

- 7% were printers operating with different trade names from the same facility

- 4% were printers in a different city but with a local phone number

- 2% were sales offices for printing firms in other cities

- 1% were local plants of national firms.

At least one quarter of the Yellow Pages listings, and possibly one third of them, are redundant or misleading in terms of accurately representing a list of printing companies.

STUDY 2

Method
How accurate is the County Business Patterns data? It is the only source of government data because the U.S. Census Bureau does not provide a listing of establishments. In order to check the CBP data, a census was performed in selected counties. Fifteen students in the RIT on-line MS degree program performed a comprehensive inventory of all printing establishments in their local county and then compared this information with County Business Patterns.

Findings
There was a difference between the CBP count and the student census, as illustrated in Table 27. Based on this survey of 15 out of 3,173 counties, CBP data was off by 9%. Possible reasons for the difference in actual county count and CBP count include:

- Newspapers that produced commercial printing

- Packaging printers or converters

- Proprietorships that may list the wrong code on their tax form

- Proprietorships that do not pay withholding taxes.

Reconciling The Numbers

County	CBP estabs.	Actual estabs.	Difference
CA	941	899	–42
IL	551	580	+29
MA	102	122	+20
MD	131	178	+47
MO	3	4	+1
NC	125	174	+49
NC	95	123	+28
NJ	146	194	+48
NJ	107	101	–6
NY	68	82	+14
NY	152	175	+23
NY	120	122	+ 2
NY	96	124	+28
OH	168	182	+14
VA	10	22	+12
Total	2,815	3,082	+267

Table 27. Comparisons Of County Business Patterns And Actual
Establishments By Selected Counties

STUDY 3

Method

Most analysts are working from the same databases: County Business Patterns and the Graphic Arts Blue Book. Thus, most industry counts are within a range based on what and how the analyst counted. The makeup of four different approaches to industry demographics was compared. Each provides a different total, as each counts different types of firms.

Findings

Table 28 compares four demographic approaches to defining the printing industry.

Type of Firm	County Business Patterns	Blue Book	PIA (Davis)	RIT (Romano)
Commercial Printing				
General Commercial	Y	Y	Y	Y
Quick Printing	Y	Y	Y	Y
Magazine Printing	Y	Y	Y	Y
Newspaper Printing	Y**	N*	Y	Y**
Book Printing	Y	Y	Y	Y
Financial, Legal Printing	Y	Y	Y	Y
Screen Printing (non apparel)	N	Y	Y	N
Thermography	Y	Y	Y	Y
Form, Label & Tag Printing				
Business Forms Printing	Y	Y	Y	Y
Label, Wrapper Printing	Y	Y	Y	Y
Tag, Ticket, Tape Printing	Y	Y	Y	Y
Other Printing				
Copy Shops	N	N	N	Y
Greeting Card	Y	Y	Y	Y
Specialty Printing	N	Y	Y	Y
Packaging Printing	N	Y	Y	Y
Selected Converters	N	N	N	Y
Trade Services				
Prepress Services	Y	N*	Y	Y**
Trade Binding	Y	N*	Y	N
Other Post-press Services (mailing)	N	N*	Y	N
Firms or Establishments	F/E	E	F	E
In-plant operations	N	N*	N	Y
2002 Totals	34,172	38,336	45,181	55,563

Note. *Not automatically counted in printing numbers.
**Those that provide commercial printing services. PIA bases its numbers on the Graphic Arts Blue Book.
PIA counts virtually every category so one can consider selected categories as they wish.

Table 28. U.S. Printing Industry from Four Points of View: What Types of Firms are Included

THE PRINTING INDUSTRY CENTER PROJECT

Using the criteria from the 15 points discussed above, a database of just under 3,000 firms was developed. All of the following were reviewed: Graphic Arts Blue Books, selected Yellow Pages listings, State Street Consultant's listings, a selective D&B list, the complete C. Barnes & Co. database, selected supplier databases, selected trade publication lists, and trade association membership lists. The goal was to list all of the *major* printing firms in one database—to understand the demographics of the largest printers, as well as a sampling of medium- and small- printers. The scope of this project did not include the entire industry, but did define and quantify the firms that represent 65% of the industry.

Using the criteria discussed above, we can answer the questions posed:

1.	Is any person or company with a reproduction device that sells print a printer?	Yes (for pay)
2.	Should anyone who provides copying services be counted?	Yes (for pay)
3.	Should anyone who provides digital printing services be included?	Yes (for pay)
4.	Do packaging printers count?	Yes
5.	Do specialty printers count?	Yes (but not all)
6.	Do screen printers count?	No
7.	Do newspapers count?	Yes (for pay)
8.	Should we include prepress and post-press (finishing) services?	Prepress only
9.	Should we count firms or plants?	Plants
10.	What years' data are we using?	—
11.	What is the difference between a small printer and a quick printer?	—
12.	Should we categorize by reproduction processes?	—
13.	Should "in-plant" operations be considered?	Yes
14.	What about companies that do not provide data?	—
15.	What about multi-national firms?	—

Firms with $20 million or more in revenue were sought. The focus was on the largest firms and firms with more than one plant. For those under $20 million, an additional sample database for smaller plants to assist in revenue and employee analysis was developed (see Table 29, Table 30, and Table 31). For this sample, the following firms were sought:

- Larger quick printing firms

- Printers represented at industry associations

- Printers receiving awards

- Printers installing major equipment

- Printers covered in major articles.

For firms from $20 million up, it was discovered that there are 680 firms, representing $95.0 billion in total revenue. This makes up approximately 65% of the estimated revenue of the printing industry.

Range	Number of Firms	Total Revenue
All Firms		
$1B and over	19	$43,785.00
$700M-999.9M	7	5,729.40
$500M-699.9M	10	5,861.04
$300M-499.9M	15	5,609.64
$200M-299.9M	21	4,827.38
$100M-199.9M	61	8,324.18
$50M-99.9M	126	8,604.41
$30M-49.9M	182	6,777.79
$20M-29.9M	239	5,490.18
Total for All Firms	680	$95,009.02
Sample Firms		
$15M-19.9M	207	3,413.82
$10M-14.9M	417	4,859.05
$7M-9.9M	435	3,477.59
$5M-6.99M	558	3,153.84
$2M-4.99M	526	1,887.09
$1M-1.99M	109	151.85
under $1M	33	19.75
Total in Database	2,965	$111,972.02

Table 29. Database By Revenue Range

Reconciling The Numbers

Employee Range	Total Revenue in Millions	Total Employees	Number of Firms
1 to 4	$1.00	13	4
5 to 9	$105.22	191	26
10 to 19	$299.00	1,245	87
20 to 49	$2,400.59	18,996	514
50 to 99	$8,938.94	78,414	1,169
100 or more	$100,227.26	731,388	1,165

Table 30. Database By Employee Range

Plant Range	Number Of Firms	Number Of Plants	Total Revenue
Over 10 plants	56	5,458	$43,338.30
6 to 10 plants	29	208	$3,978.47
3 to 5 plants	99	353	$7,386.93
2 plants	108	216	$3,940.88
1 plant	2,673	2,673	$52,962.29

Note. 292 firms have 6,235 plants (establishments) with a total revenue of $58.6 Billion.

Table 31. Multiple Plant Firms In Database

The firms' production was a point of interest. Many classified their market as "commercial" and that was the major category. Refer to Table 32 for a breakdown of the database by what printed product is produced.

Printed Product	All Firms In Database in Millions	Firms With Multiple Plants in Millions	Percent By Multiple Plants
Commercial	$43,102.82	$14,905.75	34.58%
Packaging/Labels	17,777.85	5,906.49	33.22%
Publication	6,382.24	5,404.87	84.69%
Specialty	7,176.16	4,936.44	68.79%
Financial	5,557.19	4,905.62	88.28%
Business Forms	5,866.65	4,437.15	75.63%
Direct Mail	5,267.11	4,104.99	77.94%
Catalogs	4,723.55	3,890.58	82.37%
Books	7,133.91	3,600.12	50.46%
Advertising/Ad Inserts	2,111.14	1,864.76	88.33%
Directories	1,050.42	942.53	89.73%
Prepress/Prep	1,410.55	912.11	64.66%
Newspaper	1,021.01	155.04	15.18%
Binding/Finishing	180.81	2.00	1.11%
Other	3,236.69	3,041.28	93.96%
Total	$111,998.10	$59,009.73	52.69%

Table 32. Major Printed Products Based On Database

The various published and unpublished sources were used for Table 32. It is typical of what appears in many published references. It is interesting how printing firms characterize their own work. Most of what they placed in "commercial" category is advertising-based. Based on other work done, this study contends that the breakdown of printed products would look more like what appears in Table 33, examining the process by paper tonnage. Once again, the term "commercial" only serves to confuse the situation since it becomes more of a "miscellaneous" category than anything else.

Product	Offset	Gravure	Flexo	Digital	Other	% Of Total Volume
Advertising and Promotion	71%	4%	0%	25%	0%	16%
Packaging (no corrugated)	29	20	40	5	6	12%
Periodicals (+ newsletter)	68	20	0	11	1	11%
Newspapers	89	1	7	0	3	9%
Catalogs	60	39	0	1	0	8%
Direct Marketing	49	10	0	39	2	6%
Directories	94	0	1	5	0	6%
Books	70	1	13	16	0	6%
Technical Documentation	40	0	0	60	0	5%
Financial, Legal & Transactional	57	0	17	26	0	4%
Stationery and Labels	76	0	11	11	2	4%
Internal and Forms	28	0	1	70	1	4%
Miscellaneous Print Products	46	2	0	50	2	9%
Average	60%	7%	7%	25%	1%	100%

(RIT/Romano) Note. "Digital" includes copying volumes as well.

Table 33. Printed Products By Process Based on Paper Tonnage

REVENUE

The only published breakdown of printing industry revenue is from PIA/GATF. Three years of their reports were compiled into one table with firms, employees, and estimated revenue by sector (see Table 34). PIA begins with Graphic Arts Blue Book data for number of firms. They use County Business Patterns for employee counts, and then apply their Ratio Study results by multiplying employees and per-employee averages. For some segments, they do not have such data and use other sources of information. For printing only, their 2002 revenue figure is $145.9 Billion. In Table 35, some of the study's findings are applied. According to this data, the so-called middle market of printers is between $2 million and $20 million. They number is somewhere between 3,000 and 6,000 firms and a possible $20 billion to $30 billion in revenue. The PIA revenue estimates may be reasonable.

	2000	2001	2002	2000	2001	2002	2000	2001	2002
	Establishments			Employees			Revenue (Millions of U.S. dollars)		
Commercial Printing									
General Commercial	21,878	21,076	20,497	403,228	389,396	375,230	$53,525.09	$53,246.46	$52,211.69
Quick Printing	7,443	7,102	6,868	54,424	51,041	48,567	$5,967.18	$5,640.22	$5,096.31
Magazine Printing	258	255	264	37,910	36,048	35,808	$5,176.81	$4,991.82	$5,092.23
Newspaper Printing	5,213	5,124	5,079	210,807	198,911	195,141	$31,563.66	$30,232.06	$29,975.28
Book Printing	367	361	341	60,417	58,869	52,800	$7,926.90	$7,841.15	$7,157.71
Financial, Legal Printing	173	173	173	14,624	14,044	13,542	$2,296.74	$2,192.05	$2,005.10
Screen Printing	1,294	1,242	1,212	25,168	24,618	23,892	$3,313.94	$3,285.56	$3,097.50
Thermography	265	259	261	8,345	7,313	6,811	$1,173.57	$1,013.01	$939.26
Total	36,891	35,592	34,695	814,923	780,240	751,791	$110,943.89	$108,442.33	$105,575.08
Form, Label & Tag Printing									
Business Forms Printing	764	736	704	48,743	45,230	43,155	$6,112.02	$5,675.48	$5,134.61
Label, Wrapper Printing	822	814	798	35,985	34,424	33,541	$5,881.40	$5,466.99	$5,528.58
Tag, Ticket, Tape Printing	146	141	136	6,251	5,711	5,168	$864.70	$803.39	$744.02
Total	1,732	1,691	1,638	90,979	85,365	81,864	$12,858.12	$11,945.86	$11,407.21
Other Printing									
Greeting Card	55	51	49	3,940	3,730	3,829	$592.85	$571.32	$561.04
Specialty Printing	1,019	991	994	42,707	40,752	40,119	$6,084.41	$5,891.97	$5,638.63
Packaging Printing	1,700	1,667	1,630	151,973	141,414	135,476	$22,515.81	$22,525.37	$22,728.38
Total	2774	2709	2,673	198,620	185,896	179,424	$29,193.07	$28,988.66	$28,928.05

Table 34. Continued on page 44.

Reconciling The Numbers

U.S. Printing Firms	41,397	39,992	39,006	1,104,522	1,051,501	1,013,079	$152,995.08	$149,376.85	$145,910.34
Trade Services									
Prepress Services	4,753	4,491	4,713	69,993	65,239	63,475	$7,499.38	$7,235.34	$6,923.91
Trade Binding	706	700	683	20,453	19,477	19,274	$1,449.34	$1,466.17	$1,426.03
Other Finishing Services	811	780	779	18,713	17,381	17,292	$1,300.29	$1,294.54	$1,244.48
Total	6,270	5,971	6,175	109,159	102,097	100,041	$10,249.01	$9,996.05	$9,594.42
U.S. Printing Industry	47,667	45,963	45,181	1,213,681	1,153,598	1,113,120	$163,244.09	$159,372.90	$155,504.76
Copy shops	6,900	6,300	6,202	91,000	85,000	82,790	$9,100.00	$8,200.00	7,533.89
In-plant printers	7,900	7,100	6,854	41,000	37,000	34,000	$4,100.00	$3,200.00	2,074.00
Total copy and in-plant	14,800	13,400	13,056	132,000	122,000	116,790	$13,200.00	$11,400.00	9,607.89
Grand Total	62,467	59,363	58,237	1,345,681	1,275,598	1,229,910	$176,444.09	$170,772.90	$165,112.65

Table 34. PIA Market Segment Breakout, 2000-2002

Printer Size	Billions of dollars
Largest printers ($20 million or more)	$ 95.0
Smallest printers ($2 million or less)	$ 24.6
Total	$119.6

Table 35. Revenue For The Smallest And Largest Printers

Conclusion

The printing industry is diverse and complex. Selecting a set of criteria for quantifying and tracking the industry is equally diverse and complex. There is a fundamental need for base data to allow consistent comparison over time for the printing companies themselves. This has long been the province of the trade associations, but in recent years other research organizations have arisen to collect and present information about the industry, its technology, and its trends. Information sources tend to be large in scope but limited in detail, or limited in scope and highly detailed. There is more information than ever before, and some of it may be more confusing than clarifying. The printing industry needs a centralized data service to maintain and publish relevant information on a timely basis.

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R·I·T **Printing Industry Center**
An Alfred P. Sloan Foundation Center

Rochester Institute of Technology
College of Imaging Arts and Sciences
55 Lomb Memorial Drive
Rochester, NY 14623
Phone: (585) 475-2733
Fax: (585) 475-7279
http://print.rit.edu