New Data for Dynamic Analysis:

The Business Information Tracking Series (BITS)

Foreword

What you will find, if you read this report carefully, is a revolution in small business data. Historically, measurement of small business characteristics has been hampered by a lack of accurate, comprehensive, and widely respected data able to track businesses over time. In particular, controversy has raged over the job creation capacities of small firms. Do they create jobs at all, and if they do, why doesn't the ratio of jobs in small firms to jobs in large firms change much from one year to the next?

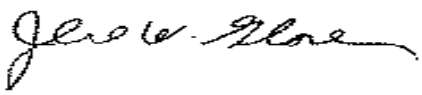
The Business Information Tracking Series, or BITS, funded and developed by the SBA's Office of Advocacy with the cooperation of the U.S. Department of Commerce, Bureau of the Census, is a powerful new data base that is already providing the answers to these questions and dozens more.

The BITS file, formerly called the Longitudinal Enterprise and Establishment Microdata, or LEEM file, has more than 10 million separate business records with more than 6 million for each year from 1989 through 1996. For each establishment, the BITS provides data on start year employment, annual payroll, state, city, county, place, industry, and owning firm. For establishments that are part of a multi-unit enterprise, the file also includes information about the enterprise's firm-wide employment, payroll, primary industry, and location. Identification numbers allow data to be linked across various data bases, so additional information on business characteristics can be developed for more detailed understandings of small businesses.

But what makes the data base revolutionary is not simply the broad scope of the data that can be accessed. The BITS is a dynamic data base that allows small and large business economic contributions to be tracked over time. Traditional static analyses take snapshots of the economy at different times and then compare the snapshots. Compared with the still snapshots of static analysis, dynamic analysis is like a motion picture that captures the wide-ranging movements in the economy. The action not seen in the static view is how small and large firms start up and close, expand and contract. The reason the small- to large-firm job ratio doesn't change much over time is in the reassignment of size classifications, as job-creating small firms bump up into the large firm categories and large firms downsize to small. An active economy requires a massive flow of transactions—measured in dynamic, longitudinal data on jobs—and associated with these, an ongoing process of firm entry and exit, labor hiring and firing. This once largely invisible process has become clearly visible in the BITS.

The Office of Advocacy's efforts to make the BITS available are no small contribution. Because of the confidentiality of the microdata used to develop the BITS, researchers must submit a detailed proposal to the Census Bureau's Center for Economic Studies, apply for sworn Census researcher status, and conduct their research at one of the Census research data centers. The Office of Advocacy has made extensive tabulations of the data available on the SBA Web site at www.sba.gov/advo/stats.

I hope you will find this revolutionary new database useful in your small business research and policy efforts. Technical questions may be addressed to the report's prinicipal researcher and author, Alicia Robb, at *alicia.robb@sba.gov*. Your comments, questions, and suggestions for improvement are always welcome: contact the Office of Advocacy, U.S. Small Business Administration, 409 Third Street, S.W., Washington, D.C. 20416, (202) 205-6533.



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Contents

Introduction

Historically, research on U.S. business activities over time has been hampered by the lack of accurate and comprehensive longitudinal data. To improve this situation, the U.S. Small Business Administration (SBA) contracted with the Bureau of the Census to develop better methods of producing firm size data beginning in 1991. The development of a new longitudinal file with data on establishments and the firms that own them has been a joint project of the Census Bureau and SBA's Office of Advocacy since 1996. This Business Information Tracking Series (BITS), formerly called the Longitudinal Establishment and Enterprise Microdata (LEEM) file, currently consists of data on almost all U.S. establishments with positive payroll for 1989 through 1996. Data for additional years will normally follow at a lag of two years.

This tremendously rich data source opens up numerous possibilities for research on businesses in the U.S. economy. It is the first nationwide high-quality longitudinal data base that covers most employer businesses from all sectors of the economy.

The Business Information Tracking Series

The Business Information Tracking Series covers 10 million separate business locations that existed at some time during the period from 1989 through 1996, with 1997 data to be added soon. It contains key data on the entire universe of private sector establishments with positive payroll, excluding farms (SIC 01-02), railroads (SIC 40), the Postal Service (SIC 43), private households (SIC 88), and large pension, health, and welfare funds (SIC 6371 with at least 100 employees).[1] Each record contains data on an establishment for all years that it was in existence between 1989 and 1996. Some records have just one year of data (if the establishment existed for just one year in that interval), while others contain data for every year from 1989 to 1996. The file is able to track an establishment over time, even through changes in ownership or legal form of organization.

The basic unit of this file is an establishment. An establishment is a physical location where a business conducts its activities. Businesses can be organized in several ways, as sole proprietorships, partnerships, or corporations. They can have just one establishment (described as single-unit firms) or they may have several establishments (multi-unit firms). Most firms are made up of just one establishment. More than two-thirds of multi-unit firms have fewer than four establishments, but some consist of thousands of establishments.

The annual information for each establishment includes its Census File Number (CFN),[2] Standard Industrial Classification (SIC),[3] state, county, metropolitan statistical area (MSA), place, firm employment, establishment employment, and annual payroll (see Table B.1 for a file description).

Separate annual files for all multi-unit firms supplement the BITS file for 1991 through 1996. These files include primary industry (at the 3-digit SIC code level) and

[1] Most large pension funds' establishments have "employment" that represents pensioners receiving payments.

[2] This is a 10-digit number that uniquely identifies each individual establishment.

[3] This variable has industry detail at the four-digit level in most cases.

state location of the firm (both determined by the greatest share of payroll), firm employment, annual firm payroll, and the number of establishments belonging to each firm (see Table B.2 for a file description).

Because identification numbers allow data to be linked across various data bases, additional information on the characteristics of the businesses in the BITS can be developed for more detailed understandings of small businesses.

Background of the BITS

The primary source of the BITS file is the Standard Statistical Establishment List (SSEL) from the U.S. Bureau of the Census. This file is the Census Bureau's business register, which has been maintained in some form since 1973. The SSEL file goes through a number of edits before reaching the next stage of BITS processing.

Administrative records form the base of the SSEL file. The Internal Revenue Service (IRS) maintains a Business Master File Entity (BMF) that contains data for all business, organizational, and agricultural taxpayers on record with the IRS. Data on the location and industry of businesses are from this file. The IRS is also the source for payroll data, but this information comes from payroll tax returns. The business' employment as of March 12 of each year also comes from these returns.

The Social Security Administration provides the Census Bureau information on new businesses from Form SS-4 (an application for an Employer Identification Number or EIN, which all new businesses must complete), which it obtains from the IRS. These businesses are assigned a 4-digit Standard Industrial Classification (SIC) code based on information on the application. Also included are geographic information, estimated employment, and other indicators.

The Bureau of Labor Statistics (BLS) independently maintains its own business register, the Business Establishment List (BEL). BLS derives this list from state unemployment insurance administration records. The Census Bureau sends BLS all SSEL records that lack industry classifications for possible matches on the BEL file in order to improve Census' industry reporting. In 1996, for example, 320,000 single-unit firms were matched to BEL establishments; enabling Census to identify their 4-digit SIC codes. Social Security records also are used as a source of industry coding.

While relying on outside sources for parts of the SSEL, the Census Bureau itself also provides data for the file. Its *Company Organization Survey* (COS) maintains information on the organizational design and employment of multi-unit firms. This survey, conducted annually except in years ending in 2 or 7 (when economic censuses are taken), targets certain multi-unit firms deemed most likely to report changes in their composition, structure, or other characteristics. All multi-unit firms with more than 250 employees are surveyed every year. [4] However, most of those with fewer than 250 employees are surveyed on a rotating basis, with annual coverage depending on the availability of funds. In census years, the COS is merged with the economic census to allow more detailed information to be collected on all but some of the tiniest multi-unit firms. The COS and the economic censuses are the main sources of information on multi-unit firms in the SSEL.

[4] All firms that were defined as multi-unit firms as of the most recent economic census.

The economic censuses, conducted every five years, provide the most comprehensive updating of the register of U.S. businesses. These censuses allow new establishments within existing multi-unit firms to be identified and other information to be added, such as more detailed industry identification. Apparent surges in conversions from single units to multi-unit firms in census years result from the inability to recognize new multi-unit firms in the years between censuses. In years with more limited funding, the sample of firms surveyed is often much smaller. Births of secondary establishments to multi-unit firms may be recognized later than their actual occurrence, while the job gains from these births may be incorrectly attributed to expansions of existing establishments. When the new secondary establishment is properly reported in the economic census, it appears as a birth, and its employment, which had been aggregated with that of another establishment, is transferred. The result is false job creation for births and matching false destruction from shrinkage. So although the employment changes are correct for firms overall, there are sometimes distortions in the details.

To supplement all of these sources, data from other Census Bureau surveys, such as the Annual Survey of Manufacturing (ASM), are used to update records in the SSEL. The Census Bureau produces annual County Business Patterns (CBP) data from the SSEL. The CBP provides aggregate data on the number of establishments, employment, and payroll for private sector non-farm establishments with positive payroll. Because employment is measured in the pay period that includes March 12 of each year, while payroll data represent annual payroll, it is possible for a business to have zero employment, but positive payroll (for example, if the business is seasonal or is formed after the March 12 pay period). The CBP tabulations exclude railroads and most government-owned establishments.[5] Each new year of data is compared with the previous year's data and edited to correct errors. Data gleaned from the COS allow analysts to correct for cases in which surveyed companies have experienced changes in their organizational structure.

The Statistics of U.S. Business (SUSB) tabulations are annual files derived from the CBP. These files cover all private sector establishments with positive payroll, excluding farms (SIC 01-02), railroads (SIC 40), the Postal Service (SIC 43), private households (SIC 88), large pension, health, and welfare funds (SIC 6371 with at least 100 employees), and other financial funds. Information about the establishment's MSA is appended to the data record, as are updated industry classifications from the following year's SSEL, and firm-level data.

Firm data are constructed for all multi-unit firms by aggregating the data from all affiliated establishments. Single-unit firms have only one location, so their establishment and firm data are identical. Firm employment, payroll, and receipts are calculated for multi-unit firms by summing that of all establishments in the firm. Primary state and primary industry are assigned to each record using the state and industry with the largest share of annual payroll.

Most of the establishments in the SUSB tabulation files never change their identification number while they remain in business. For these businesses, changes in employment levels can be measured by simply comparing their records for different years. However, when a business is sold, changes its legal form, or adds a secondary

[5] Some government organizations, for example, liquor stores and wholesalers, depository institutions and credit unions, and hospitals, are included.

location (in the case of a single-unit firm), its identification number usually changes. Census has constructed a Longitudinal Pointer File to link establishment records from the SUSB tabulation files for 1989 through 1996, so that surviving establishments can be identified even when a business changes its identification number.[6] With the Longitudinal Pointer File, establishment births and deaths can be more accurately identified and changes in surviving establishments more consistently measured. This pointer file was used to link annual data for eight years of SUSB files to create the BITS file. The annual data in the BITS file are identical to the SUSB data, except for the exclusion of some single units (generally fewer than 50,000 per year) that were double-counted in the SUSB because of mid-year reorganizations.

The final product of all this processing is the BITS. The BITS file is housed at the Center for Economic Studies (CES) in the U.S. Bureau of the Census. Because of the need for confidentiality in the microdata, researchers interested in using the BITS must submit a detailed proposal to CES, apply for sworn Census researcher status, and conduct their research at the center or one of its research data centers (RDC). However, extensive tabulations of these data (in aggregates large enough to eliminate confidentiality concerns) are available from the SBA. These tabulated data are located on the SBA Web site *(www.sba.gov/advo/stats).* Tables are available for the entire United States, as well as by state, MSA, firm size, and industry. Annual and five-year gross and net employment changes are also tabulated there.

Descriptions of Variables

Users of the BITS may find it useful to understand each BITS variable in greater detail, as well as more specific details about the definitions and processing of the variables.

Census File Number

The Census File Number (CFN)[7] uniquely identifies each establishment in the BITS file. For single-unit firms it is a zero followed by a unique nine-digit firm identification number. For establishments in multi-unit firms, the CFN consists of a 6-digit number (referred to as the alpha code) that uniquely identifies the firm, followed by a 4-digit number that uniquely identifies the establishment within that firm. The headquarters of a multi-unit firm is usually designated by '0001' for the last four digits of the CFN, although this is not always the case.

Annual Payroll

Annual establishment payroll (APAY) is made up of wages, salaries, reported tips, vacation allowances, sick-leave pay, bonuses, commissions, employee contributions to

[6] See Richard Moore and Mitch Trager, 1995, "Development of a Longitudinally-Linked Establishment Based Register: March 1993 through April 1995." Presented at the joint statistical meetings of the American Statistical Association in Lake Buena Vista, Florida.

[7] Variables including the CFN, payroll, firm and establishment totals, employment, SIC code, state, city, county, and place, may appear in the tables with the year following the abbreviation.

qualified pension plans, and compensation paid to corporate officers and executives. It does not include compensation to proprietors or partners of unincorporated businesses. The annual figure is either the sum of the four quarters of payroll or, in the cases of missing data, imputed values.

For single-unit establishments, the annual payroll is the sum of the four quarters of payroll. Quarterly payroll entries are obtained from IRS Form 941 reports. The Census Bureau imputes for missing quarters of payroll (however, less than 1 percent of payroll entries are imputed).[8] For multi-unit establishments, annual payroll generally is obtained from responses on the annual Company Organization Survey (COS). Missing annual payroll data for multi-units are imputed using the affiliated administrative record data.

For 1994 and prior years, two payroll entries from IRS Form 941—Social Security wages plus tips, and total compensation—were used to compute quarterly payroll. In general, analysts from the Census Bureau selected the larger of the two entries. The Social Security wages variable was deficient because of the wage cap; however, total compensation did not include employee compensation to qualified pension plans. Beginning in 1995, Medicare wages were used in the quarterly payroll computations. These wages are consistent with the payroll definition used above.[9]

Establishment Employment

Establishment employment (EMP) includes full- and part-time employees, salaried personnel, and persons on sick leave or vacation in the pay period of March 12. Again, this figure does not include proprietors or partners of unincorporated businesses. Also excluded are all contractors and volunteers; however, temporary employees are included.[10] While payroll and employment must be reported, the IRS does not put much emphasis on the reporting of "total employees" in the 941 reports; thus, employment data are missing for 15 to 18 percent of establishments. A higher proportion of the larger entities with EINs do not list employees, but much of these data can be obtained from the COS.[11] Other data must be imputed from payroll changes, using either the prior year's reported employment and payroll, or the ratio of employment to payroll in similar businesses. Employment data for most multi-unit establishments are collected in the COS. Other surveys and direct calls to companies provide additional information.

Firm Employment

Firm employment (FEMP) is defined similarly to establishment employment but is aggregated over all establishments under a parent firm. For single-unit firms, firm and establishment employment are identical.

[8] Imputed quarterly payroll entries are based on the average of the reported payroll entries. For example, if quarter two was missing, quarters one, three, and four are summed and the total is divided by three. This value is entered for quarter two payroll.

[9] Paul Hanczaryk of the U.S. Bureau of the Census provided this definition.

[10] However, if these temporary employees are supplied by a personnel supply agency, they may be included under that personnel supply agency establishment.

[11] Again, the Census Bureau's Paul Hanczaryk provided further clarification for this variable definition.

Standard Industrial Classification

The Standard Industrial Classification (SIC) code represents the primary industry of the establishment as classified in the 1987 Standard Industrial Classification system. The code is usually derived from the industry description listed on the business' application for an EIN. The COS and BLS subsequent matching, as well as surveys by the Social Security Administration and other organizations, often provide industry codes for establishments that have not yet been classified, or additional detail for those that have SIC industry detail only to the 2- or 3-digit level.[12] Codes are set to 9999 for unclassified establishments.

State Code

The state code (STATE) represents the Census code for the state in which the establishment is physically located. All 50 states are represented, as well as the District of Columbia. Excluded are Puerto Rico, Guam, the U.S. Virgin Islands, and the Northern Mariana Islands.

Metropolitan Statistical Area

The metropolitan statistical area (MSA) code represents the metropolitan area in which the establishment is physically located. There were 326 MSAs in the United States in 1995, but these definitions may change over time. Establishments coded 9999 are either unclassified or are in non-MSA areas. In certain locations, such as New Jersey and the District of Columbia, there are no non-MSA areas.

County Code

The county code (CTY) represents the county in which the establishment is physically located. There are more than 3,000 counties, which include Louisiana parishes, the District of Columbia, independent cities, and boroughs or census areas in Alaska.

Place Code

The place code (PLACE) represents the place in which the establishment is physically located. The Census Bureau identifies more than 7,600 places, usually locations having more than 2,500 inhabitants.

Start Year

The start year for each establishment is originally recorded as the first year the establishment appeared on the 1989 to 1996 Longitudinal Pointer File. For cases where this is equal to 1989, the source year (SYR) variable from the 1989 SSEL is substituted for the start year from the Longitudinal Pointer File. The SYR variable represents the first

[12] There are ranking factors that define rules used for coding this variable.

year the establishment appeared in the SSEL. SSEL start years prior to 1977 were assigned a value of 77 and any SSEL value of 00 or 01 was not used.

It is important to distinguish the meaning behind the numbers of establishments for two distinct time periods. For the period of the BITS file, 1989-1996, the totals for each year represent the total number of establishments with payroll that started in each of those years (Table A.1). For the years before 1989, the numbers represent the number of establishments that started in that year and that survived until at least 1989 with the same CFN. This variable is used as a proxy for age.

Obvious jumps in the numbers of new establishments in multi-unit firms in the census years of 1982, 1987, and 1992 represent delayed reporting of new multi-unit establishments. The numbers for the single units appear to be disturbed only in 1987, when the scope of the SSEL was expanded. Researchers should use caution in analyzing this variable, especially for the multi-unit establishments.

CBP and BITS Comparisons

For validation purposes, aggregate data from the BITS file are now compared with published CBP tables. The number of establishments, March 12 employment, and annual payroll from the BITS file are compared with those from the CBP tabulations for the years 1989-1996 (Table A.2).

The number of establishments in the BITS file is consistently within one percent of establishments in the CBP. The number is slightly less than that of the CBP because of the elimination of duplicate records for establishments with mid-year reorganizations in the CBP file. The employment numbers are even closer, with differences within five-tenths of one percent in every year, suggesting that many of the duplicate records had little, if any, employment. Annual payroll is within two-tenths of one percent, because mid-year reorganizations have been accounted for in the BITS file. Whereas the CBP would have duplicate records for establishments that reorganized over the year, the BITS recognizes the reorganizations and eliminates duplicate establishments and employment, but adds both of the partial year payrolls together in order to represent the establishment's annual payroll.

A comparison of the number of establishments by major industry in the BITS and CBP files shows the largest difference in the uncoded classification (Table A.3). By using additional information from the following years of SSEL data, analysts are able to go back to prior years and code previously unclassified establishments. This procedure generally results in the classification of an additional 15,000 establishments each year. Published CBP data were not updated in a similar manner in earlier years. In 1990 and 1991 there was a strikingly larger number of uncoded establishments in the CBP compared with the BITS, as well as a corresponding larger number of establishments in all of the major industries in the BITS file. However, new procedures in the SSEL processing drastically decreased the number of uncoded establishments in the following years, resulting in a smaller disparity between the CBP and BITS files. Although a number of uncoded establishments from CBP continue to be transferred into the coded industries in the BITS file, the elimination of duplicate establishments dominates, so establishment counts are lower in every industry in the BITS file compared with the CBP.

Comparisons of CBP and BITS employment data by industry resemble comparisons in establishment counts, but the employment counts differ by a smaller magnitude (Table A.4). Again, many of the duplicate records eliminated in the BITS processing had little or no employment. And, as is true with the establishment counts, there is a dropoff after 1991 and 1992 in the differences between CBP and BITS employment in uncoded establishments. In the years following, BITS employment was less in all industry categories, as well as in the uncoded class.

CFN Changes

A change in the CFN of an establishment is the result of one of three actions: 1) a change in ownership, 2) a change in the legal structure of the organization, or 3) a change from a single-establishment firm to a multi-unit firm type or vice versa. CFN changes may alternatively be classified as follows:

1. A single-unit firm can become a different single-unit firm.
2. A single-unit firm can become part of a multi-unit firm.
3. An establishment in a multi-unit firm can become a single-unit firm.
4. An establishment in a multi-unit firm can become part of a different multi-unit firm.

The BITS file allows investigation into the volume of these occurrences over the 1989-1996 period (Table A.5). On an annual basis, the percentages of surviving establishments with any type of change range from 1.9 percent in 1992-1993 to 3.1 percent in 1991-1992. The average is close to 2.5 percent, with the highest percentage centered on the year of the economic census in 1992. The percentage of employment with CFN changes is higher, ranging from 2.5 percent to 5.5 percent (Table A.6). The most common type of change was a change from one single unit to another single unit. In the census year, when all single units were asked if they had any additional locations, there was a dramatic increase in the percentage of firms that changed from a single unit to a multi-unit firm. While part of this increase reflects actual changes, another part results from delayed reporting of secondary establishments since the prior census. These delayed effects do not distort firm employment and annual payroll totals, but may introduce some distortions with respect to establishment size class, geographic location, and industry.

SIC Code Changes

In analyses of business changes, the assumption is often made that the industry of a business stays constant over time. Looking at the BITS file, it is possible to discern whether or not this is a valid assumption (Table A.7). Among surviving establishments, single units are much more likely to have an SIC code change than are establishments of multi-unit firms.[13] The incidence of change is very high during the census year, as well as

[13] This also excludes establishments with an industry code of 9999 (unclassified).

the years immediately before and after. The changes in 1992 were probably a combination of events: corrections to codes that were initially wrong, additional definition of primary industry codes, and actual changes in primary activity. The Census Bureau puts extra effort into updates of SIC codes before the census in order to send the correct industry-specific census form to each business. The annual changes in other years are probably an understatement of actual changes occurring in establishments in the natural course of business. During the 1989-1996 interval, almost 25 percent of surviving single-unit establishments experienced a change in the industry code, almost evenly distributed across the levels of SIC code changes (1-, 2-, 3-, and 4-digit). Over that same period, about 14 percent of establishments from multi-unit firms experienced a change in SIC code. The percentage of employment with SIC code changes closely mirrored the percentage of establishments experiencing such changes (Table A.8).

Firm and Establishment Size

In many instances, analysts have assumed that firm size is a rough approximation of establishment size and vice versa. Until now, little data have been available to substantiate or refute these claims. In the case of single-unit firms, the establishment and firm sizes are, of course, identical, but this is not the case for establishments of multi-unit firms. Because multi-unit firms are the source of almost one-quarter of all establishments and more than one-half of establishment employment, it is important to look at the degree to which establishment size and firm size differ.

Assuming that firm and establishment size measures may be used interchangeably as proxies for each other introduces distortions into an analysis. Taking 1996 as an example, three-fourths or more of the establishments in the smallest employment size classes (0, 1-4, and 5-9) are in the same establishment and firm size classes (Table A.9). However, in the 10-19 and 20-49 employment size classes, this percentage drops into the 60s and in the 50-99 class, it is barely over 50 percent. Just 41 percent of establishments in the 100-249 size class, 32 percent in the 250-499 class, and 31 percent in the 500-999 class are in the same firm size class as the owning firm. Thus, one-half to two-thirds of establishments with 50 or more employees are owned by firms in larger size classes.

In fact, more than 12 percent of small establishments with fewer than 500 employees are actually in the large (more than 500-employee) firm size class; that is, they are owned by large firms. When firms with fewer than five employees are not included in this count, more than 20 percent of small establishments are in large firms. Thus, using establishment size to represent firm size erroneously includes substantial segments of large firms in the small size class.

Allocating employment by establishment and firm sizes yields similar results (Table A.10). Large firms employ almost 20 percent of the employment in establishments with 10-19 employees, more than 26 percent of employment in establishments with 20-49 employees, more than 38 percent in establishments with 50-99 employees, more than 54 percent in establishments with 100-249 employees, and more than 68 percent in establishments with 250-499 employees. In fact, firms with 1,000 or more employees employ about 50 percent or more of the employment located in establishments with 100-999 employees. They even employ 6 percent and 13 percent of employment in

establishments with 1-4 and 5-9 employees, respectively. Here again, using firm size as a proxy for establishment size may be very misleading.

Establishments, Employment by Firm Size and Establishment Industry

Services, retail trade, construction, and finance, insurance, and real estate (finance) are the four industries with the largest number of establishments (Table A.11). However, their patterns of firm size distribution vary quite dramatically by industry. Retail trade has almost three times as many establishments in the largest firm size category as services. Establishments in the construction industry are concentrated in the smallest size classes, whereas manufacturing; transportation, communications, and public utilities (transportation); wholesale trade; retail trade; and finance all have a significant number of establishments in the largest size classes.

Distributing employment by size and industry results in even more striking contrasts (Table A.12). Services, retail trade, and manufacturing far and away employ the greatest numbers of people. The 20-49 employee size class has a large share of the employment in almost every industry, and the largest size class has the largest share of employment in nearly every industry except construction.

Job Generation

The BITS provides comprehensive data for the study of net and gross job flows in U.S employer establishments. With these longitudinal data, it is also possible to distinguish the births and deaths of establishments from a change of ownership in surviving establishments,[14] and thus to discern the contributions of each to net growth.

From 1995 to 1996, the net employment growth rate was 1.9 percent (Table A.13). However, the net growth rate varied across firm employment sizes as well as industries.[15] For example, establishments in firms with fewer than 20 employees had a growth rate of 7.3 percent, while firms with more than 500 employees grew just 1.0 percent. The middle size class experienced a net loss in employment of 0.1 percent. Employment in establishments in the service industry grew 2.8 percent, while that in manufacturing fell 0.7 percent. Employment in the smallest establishment size class grew the fastest in "other productive" industries and slowest in the distributive industries,

[14] Since the LEEM file measures employment on March 12 of each year, it will exclude some part time seasonal businesses. In addition, since births are recognized when they begin to have employees, they have often been existence with employment for some time before measured in March. The same occurs with deaths; the death of an establishment will be registered on the first March 12 in which they have no employees. Thus, the number of establishments and employees for each year represent businesses that had positive employment on March 12. This will differ from static tables such as CBP, which include all businesses that existed at any time during that year.

[15] The collapsed industry divisions used in Tables 13 and 14 are as follows: Services includes transportation, communications, and public utilities; finance, insurance, and real estate; and services. Distribution includes wholesale and retail trade. Other productive includes agriservices, mining, and construction. Manufacturing is defined similarly to the other industry tables.

while employment in the largest size class experienced the exact opposite pattern: it grew slowest in other productive industries and fastest in the distributive industries.

Net employment growth is the difference between gross job creation from births of new establishments and expansions of existing establishments, and gross job destruction from establishment deaths and contractions of continuing establishments. More than half of the net growth in 1995-1996 was attributable to the net difference between expansions and contractions of establishments that were active in both years. The remainder was the difference between employment changes because of births and deaths. The proportions again varied across employment size classes and industries. Most of the net change in manufacturing came from expansions minus contractions, whereas in the service industry, growth was more evenly split between births and deaths and expansions and contractions.

More than 26 percent of establishments in existence in 1995 experienced employment expansions over the next year (Table A.14). Another 23.9 percent experienced contractions and 9.2 percent closed. About 11 percent of the number of 1995 establishments were added as births over the next year. The total establishment "turnover" is generally calculated as the number of births plus the number of deaths. In this case, the turnover rate was nearly 20 percent over the one-year period.

Multi-Unit and Single-Unit Firms

In addition to the BITS file, six firm files for the years 1991-1996 contain the following information about each multi-unit firm: the primary industry of the firm, the number of establishments owned by the firm, firm employment, firm payroll, and primary state. There are about 200,000 multi-unit firms in each year. Most of the firms were in services, retail trade, and wholesale trade, but most of the employment was concentrated in services, manufacturing, and retail trade (Table A.15). Most of the firms had fewer than 250 employees, but the most of the employment was in the largest firm size class.

The single-unit firms looked somewhat similar. Most were located in services, retail trade, and construction, with employment concentrated in services, retail trade, and manufacturing. About half of the single-unit firms were in the 1-4 size class, with very few in the largest size class.

Single-unit firms had slightly smaller average employment than did multi-unit firms across the board except in the largest size class. The average employment of the largest size class, almost three times larger in the multi-unit firms, was the reason for the significant employment size gap between multi- and single-unit firms. The overall average employment of multi-units was 340, compared with 9 in single units.

Some other notable differences emerge between single- and multi-unit firms when they are further broken down into large (more than 500 employees) and small (fewer than 500 employees) size groups. Most firms in both single- and multi-unit groups are small—92.4 percent of multi-unit firms and 99.9 percent of single units. In small multi-unit firms, the average employment is 71, compared with only 8 in small single-unit firms (Tables A.15 and A.16). In large multi-unit firms the average employment is 3,635, compared with 1,063 in large single-unit firms. Even in firms classified by the Census Bureau as multi-unit firms that had only one establishment at the time of measurement,

the average employment was 51 for small multi-units and 1,403 for large multi-units (Table A.17). Small multi-unit firms commonly had just one or two establishments, whereas large firms were much more likely to have 4 or more.

Current Research Projects Using BITS

Several projects under way at the Center for Economic Studies (CES) involve the BITS file. This section briefly describes these projects to illustrate the versatility and potential of these new data.

Women- and Minority-Owned Businesses

Research on the race, ethnicity, and gender of business owners as determinants of business growth and survival is possible through linking the 1992 *Survey of Minority-Owned Business Enterprises* (SMOBE) with the BITS file. Employer businesses in the SMOBE sample are identified by their Employer Identification Number (EIN). The EIN was added to the BITS specifically so that SMOBE data on employer businesses could be merged with the BITS file.

The SMOBE is a survey of women- and minority-owned businesses carried out every five years by the U.S. Bureau of the Census. It samples more than 1 million businesses, oversampling women- and minority-owned businesses, and tags administrative records with race, ethnicity, and gender variables. It is the most comprehensive data available on women- and minority-owned businesses. The most recent survey, the 1992 SMOBE, was released in 1997. The 1997 SMOBE survey is currently under development and will be released for use in the year 2001.

After the SMOBE data were added to the BITS, it was possible to track these businesses from 1992 through 1996, comparing the growth and survival rates of women-owned businesses with those of businesses owned by men, as well as minority- with non-minority-owned businesses. Econometric models were used to test for the significance of gender, race, and ethnicity on business growth and survival.

This analysis was extended by adding variables on the owner's education and experience, the amount of capital used for startup, and many other owner and firm characteristics available from the 1992 *Characteristics of Business Owners Survey* (CBO) by the Bureau of the Census. The CBO survey collects additional information from a sub-sample of the SMOBE population. This survey contains much more detail on business and owner characteristics, such as the education and experience of the owner, the percentage of output the firm exports, types and sources of financing used, and whether the business was franchised. Unfortunately, the Census Bureau canceled the 1997 CBO because of lack of funding. This has been one of the best sources of detailed information on women- and minority-owned businesses.

Job Generation

Job flows (creation, destruction, reallocation, and net change) differ by establishment age and size, firm size, industry, and organizational structure. The BITS file provides detailed

comprehensive data for analysis of these differences. The impact of births and deaths on net job growth is also part of this analysis, as are the various methods of measuring job flows.

Another project analyzes the gross job generation of the service sector from 1989 to 1995 and compares it with that in manufacturing. Persistent patterns are compared with those that would be expected if average annual creation and destruction were distributed across the business population independently of the prior year's changes. The relationship between average wages and gross job flows in services and manufacturing is also examined to provide some basis for discussing the relative quality of new jobs in these sectors.

Mergers and Acquisitions

The BITS file was used to investigate the volume and impact of U.S. merger and acquisition activity from 1990 to1994. A subgroup of the establishments in the BITS file was identified as probable mergers and acquisitions. The characteristics of this group were compared with those of the rest of the establishments in the BITS file. Their job creation and destruction over the four-year period and the one-year period from 1994 to 1995 were also compared. A particular focus was "boundary crossers," establishments that belonged to small firms in 1990, but large firms in 1994. About half of all such boundary crossers belonged to the merger/acquisition group, and the other half belonged to rapidly growing firms. A companion study looked only at acquisitions over the period.

Information Technology and Business Location

With recent advances in information technology, many have predicted that work now performed in cities will move to more idyllic locations, with communications primarily managed over the Internet. This project seeks to identify the overall effect of recent changes in information technology on the location of economic activity. The focus is to determine the kinds of places (large metropolitan areas, suburbs, small towns, or rural areas) that are benefiting from firms' adoption of information technology. Industry-level data on the adoption of information technology are merged with local industry growth data from the BITS to determine the differential geographic impact of information technology.

Conclusion

Until now, research on U.S. business activities over time has been hindered by the lack of accurate and comprehensive longitudinal data. The new Business Information Tracking Series includes tremendously rich data that open up numerous possibilities for dynamic analysis of businesses in the U.S. economy. It is the first nationwide high-quality longitudinal data base that covers the majority of employer businesses from all sectors of the economy. Because of the confidential nature of these data, the file is located at the Center for Economic Studies in the U.S. Bureau of the Census. To access the data, researchers must submit an acceptable proposal to CES and become sworn Census

researchers. However, through the SBA's Office of Advocacy, static and dynamic tabulations of the underlying microdata are available to all on a broad, aggregated basis that eliminates confidentiality concerns.

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Tables

Table A.1 Start Year Counts for All Establishments

Year	Multi-units	Single Units	All
<=1973	20,468	844,970	865,438
1996	1,798	77,496	79,294
1996	2,310	95,460	97,770
1996	3,712	116,972	120,684
1996	325,273	111,435	436,708
1996	142,107	124,954	267,061
1996	38,655	137,811	176,466
1996	32,310	144,824	177,134
1996	34,095	102,181	136,276
1996	79,964	241,923	321,887
1996	52,064	259,606	311,670
1996	57,039	298,484	355,523
1996	52,794	315,280	368,074
1996	77,588	298,873	376,461
1996	148,221	572,178	720,399
1996	91,231	529,594	620,825
1996	99,721	532,468	632,189
1996	95,486	638,807	734,293
1996	132,031	552,823	684,854
1996	193,382	576,680	770,062
1996	83,151	607,323	690,474
1996	109,712	614,037	723,749
1996	97,270	615,732	713,002
1996	101,780	641,007	742,787
All	2,072,162	9,050,918	11,123,080

Note: For the 1989-1996 period, the totals represent the number of establishments with payroll that started each year. For 1974-1988, the totals represent establishments that started in the year shown and survived at least until 1989 with the same CFN.

Table A.2 BITS Establishments, Employment, Payroll, and Percentage Differences from CBP 1989-1996

		Establishments	Employment	Annual Payroll
1996	BITS	6,063,857	91,626,094	1,989,941,540
	Difference from CBP	Not available	Not available	Not available
1996	BITS	6,126,016	93,425,129	2,103,970,738
	Difference from CBP	-80.23%	-0.05%	-0.01%
1996	BITS	6,155,181	92,265,576	2,145,015,524
	Difference from CBP	-0.73%	-0.04%	0.00%
1996	BITS	6,275,349	92,791,525	2,272,392,323
	Difference from CBP	-0.67%	-0.01%	0.02%
1996	BITS	6,356,795	94,740,911	2,363,208,106
	Difference from CBP	-0.73%	-0.05%	-0.01%
1996	BITS	6,465,057	96,687,346	2,487,959,727
	Difference from CBP	-0.68%	-0.05%	-0.01%
1996	BITS	6,566,634	100,282,036	2,665,921,824
	Difference from CBP	-0.70%	-0.05%	-0.02%
1996	BITS	6,699,635	102,149,281	2,848,623,049
	Difference from CBP	-0.58%	-0.05%	-0.01%

Table A.3 BITS Establishments by Industry with Differences from CBP

		Agri. Services	Mining	Construction	Manufacturing	Transportation	Wholesale	Retail Trade	Finance	Services	Uncoded	All
1996	BITS	83,815	30,946	590,421	380,379	238,118	478,428	1,548,872	546,538	2,068,606	97,734	6,063,857
	Difference from CBP	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
1996	BITS	88,197	30,767	597,463	383,360	240,692	482,404	1,559,347	561,026	2,120,101	62,659	6,126,016
	Difference from CBP	3.99%	1.34%	3.30%	1.39%	2.34%	1.27%	1.94%	2.99%	2.95%	-75.77%	-0.80%
1996	BITS	92,073	30,710	583,512	379,131	248,559	485,807	1,555,463	583,064	2,169,042	27,820	6,155,181
	Difference from CBP	0.86%	0.87%	0.99%	1.37%	1.51%	1.54%	0.53%	1.03%	1.28%	-79.79%	-0.73%
1996	BITS	96,675	29,120	586,103	385,227	257,846	491,321	1,554,449	596,271	2,209,480	68,857	6,275,349
	Difference from CBP	-0.59%	-0.03%	-0.44%	-0.36%	-0.25%	-0.16%	-0.63%	-0.10%	-0.37%	-20.50%	-0.67%
1996	BITS	99,723	28,458	595,306	385,111	265,761	507,786	1,540,286	607,641	2,279,225	47,498	6,356,795
	Difference from CBP	-0.62%	-0.23%	-0.49%	-0.39%	-0.35%	-0.25%	-0.73%	-0.16%	-0.44%	-26.28%	-0.73%
1996	BITS	103,503	28,251	616,525	384,988	275,185	511,382	1,551,826	615,958	2,330,128	47,311	6,465,057
	Difference from CBP	-0.85%	-0.22%	-0.70%	-0.49%	-0.36%	-0.22%	-0.79%	-0.23%	-0.52%	-16.00%	-0.68%
1996	BITS	107,607	27,307	631,002	388,099	284,159	516,596	1,556,936	627,527	2,376,053	51,348	6,566,634
	Difference from CBP	-0.69%	-0.18%	-0.48%	-0.47%	-0.29%	-0.22%	-0.70%	-0.15%	-0.40%	-25.49%	-0.70%
1996	BITS	112,170	26,793	653,475	391,475	294,231	530,020	1,566,987	648,543	2,447,401	28,540	6,699,635
	Difference from CBP	-0.73%	-0.24%	-0.65%	-0.40%	-0.33%	-0.23%	-0.78%	-0.25%	-0.56%	-7.40%	-0.58%

Table A.4 BITS Employment with Differences from CBP

		Agri. Services	Mining	Construction	Manufacturing	Transportation	Wholesale	Retail Trade	Finance	Services	Uncoded	All
1996	BITS	498,822	713,377	5,136,654	19,534,640	5,438,537	6,193,375	19,480,453	6,819,825	27,537,437	272,974	91,626,094
	Difference from CBP	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
1996	BITS	537,741	723,181	5,253,667	19,164,717	5,593,417	6,330,712	19,849,202	6,982,165	28,861,662	128,665	93,425,129
	Difference from CBP	1.27%	0.00%	0.28%	-0.05%	0.03%	0.05%	0.17%	0.37%	0.21%	-59.58%	-0.05%
1996	BITS	544,544	716,201	4,676,228	18,386,538	5,588,962	6,224,113	19,615,932	6,860,111	29,608,401	44,546	92,265,576
	Difference from CBP	0.16%	-0.09%	0.11%	0.02%	0.08%	0.08%	0.08%	0.00%	0.11%	-69.83%	-0.04%
1996	BITS	593,167	650,121	4,498,610	18,163,522	5,519,973	6,093,861	19,671,302	6,903,550	30,653,020	44,399	92,791,525
	Difference from CBP	-0.06%	-0.07%	-0.03%	0.01%	0.05%	-0.01%	0.00%	-0.03%	0.00%	-13.23%	-0.01%
1996	BITS	587,939	608,204	4,522,450	18,181,371	5,621,050	6,256,824	19,769,302	6,890,282	32,249,712	53,777	94,740,911
	Difference from CBP	-0.07%	-0.01%	-0.04%	-0.01%	-0.01%	-0.02%	-0.04%	-0.22%	-0.03%	-16.55%	-0.05%
1996	BITS	585,568	607,686	4,706,769	18,094,553	5,712,722	6,365,306	20,313,114	6,989,737	33,244,520	67,371	96,687,346
	Difference from CBP	-0.09%	-0.01%	-0.06%	-0.02%	-0.01%	-0.01%	-0.04%	-0.18%	-0.03%	-12.27%	-0.05%
1996	BITS	629,708	627,315	5,037,180	18,608,827	5,923,321	6,605,067	21,077,311	6,983,830	34,698,301	91,176	100,282,036
	Difference from CBP	-0.07%	-0.03%	-0.03%	-0.02%	-0.02%	-0.02%	-0.03%	-0.20%	-0.03%	-13.44%	-0.05%
1996	BITS	663,289	574,277	5,203,837	18,556,287	6,056,022	6,662,913	21,476,633	7,183,838	35,733,053	39,132	102,149,281
	Difference from CBP	-0.15%	-0.01%	-0.06%	-0.01%	-0.02%	-0.03%	-0.05%	-0.15%	-0.05%	-6.75%	-0.05%

Table A.5 Distribution of Surviving Establishments, by Type of Change in Identity (CFN) and Percent of Surviving Establishments in Each Period

	1989-1990	1990-1991	1991-1992	1992-1993	1993-1994	1994-1995	1995-1996	1989-1996
Total Surviving Establishments	5,391,723	5,434,691	5,463,508	5,629,194	5,705,266	5,819,268	5,819,268	3,389,979
Beginning Year CFN is Single-Unit Type	78.3%	78.5%	78.5%	76.4%	77.0%	77.1%	77.4%	78.0%
With Ending Year CFN:								
Unchanged	76.7%	76.5%	75.9%	75.1%	75.6%	75.8%	76.0%	68.9%
Different Single Unit	1.5%	1.4%	1.3%	1.3%	1.2%	1.2%	1.3%	6.8%
Multi-Unit Type	0.1%	0.5%	1.2%	0.1%	0.1%	0.1%	0.1%	2.2%
Beginning Year CFN is Multi-Unit Type	21.7%	21.5%	21.5%	23.6%	23.0%	22.9%	22.6%	22.0%
With Ending Year CFN:								
Unchanged	21.2%	20.6%	21.0%	23.0%	22.0%	22.0%	21.2%	17.1%
Different Multi-Unit	0.5%	0.5%	0.5%	0.5%	1.1%	0.9%	1.0%	4.0%
Single-Unit Type	0.0%	0.4%	0.1%	0.0%	0.0%	0.0%	0.4%	1.0%
Total With Changes	2.2%	2.8%	3.1%	1.9%	2.4%	2.3%	2.8%	14.0%

Table A. 6 Distribution of Employment in Surviving Establishments by Type of Change in Identity and Percent of Total Employment in Surviving Establishments in Each Period

	1989-1990	1990-1991	1991-1992	1992-1993	1993-1994	1994-1995	1995-1996	1989-1996
Total Employment in Surviving Establishments	87,170,296	88,944,825	87,326,630	88,304,518	90,189,898	92,500,016	95,688,380	65,985,494
Beginning Year CFN is Single-Unit Type	45.0%	45.1%	45.2%	42.0%	42.7%	42.9%	43.4%	43.2%
With Ending Year CFN:								
Unchanged	43.8%	43.2%	41.1%	41.3%	41.7%	42.0%	42.2%	35.1%
Different Single Unit	0.6%	0.6%	0.5%	0.5%	0.5%	0.5%	0.5%	2.2%
Multi-Unit Type	0.5%	1.4%	3.6%	0.3%	0.5%	0.5%	0.7%	5.8%
Beginning Year CFN is Multi-Unit Type	55.0%	54.9%	54.8%	58.0%	57.3%	57.1%	56.6%	56.8%
With Ending Year CFN:								
Unchanged	53.5%	52.3%	53.4%	56.2%	54.4%	54.2%	53.1%	43.9%
Different Multi-Unit	1.4%	1.5%	1.3%	1.7%	2.8%	2.8%	2.8%	11.4%
Single-Unit Type	0.1%	1.1%	0.1%	0.1%	0.1%	0.0%	0.7%	1.6%
Total with Changes	2.6%	4.5%	5.5%	2.5%	3.8%	3.8%	4.7%	21.0%

Table A.7 Distribution of Surviving Establishments by SIC Code Change and Firm Type and Percentage of All Surviving Establishments in Each (Beginning Year) Firm Type

Period	Firm Type	Number of Surviving Establishments	SIC Unchanged	Different: Industry Division	2-Digit Class Same Division	3-Digit Class Same 2-Digit	4-Digit Class Same 3-Digit	Any Change
1989-1990	Single Units	4,169,450	98.20%	0.48%	0.34%	0.38%	0.60%	1.80%
	Multi-Units	1,169,359	99.42%	0.20%	0.12%	0.17%	0.08%	0.58%
1990-1991	Single Units	4,229,532	94.38%	1.16%	1.22%	1.52%	1.71%	5.62%
	Multi-Units	1,170,922	97.89%	0.43%	0.23%	0.64%	0.83%	2.11%
1991-1992	Single Units	4,279,770	91.98%	2.50%	1.57%	1.89%	2.05%	8.02%
	Multi-Units	1,176,583	98.03%	0.83%	0.47%	0.47%	0.20%	1.97%
1992-1993	Single Units	4,257,670	84.01%	2.54%	2.64%	5.49%	5.32%	15.99%
	Multi-Units	1,326,194	89.74%	1.75%	2.72%	3.16%	2.64%	10.26%
1993-1994	Single Units	4,369,561	97.80%	0.48%	0.35%	0.37%	1.00%	2.20%
	Multi-Units	1,314,115	98.51%	0.34%	0.22%	0.35%	0.58%	1.49%
1994-1995	Single Units	4,458,702	97.98%	0.75%	0.39%	0.37%	0.52%	2.02%
	Multi-Units	1,333,914	98.77%	0.35%	0.26%	0.41%	0.20%	1.23%
1995-1996	Single Units	4,549,479	94.46%	1.42%	1.74%	1.74%	2.84%	7.73%
	Multi-Units	1,337,144	98.73%	0.39%	0.31%	0.29%	0.19%	1.17%
1989-1996	Single Units	2,622,997	75.45%	6.17%	5.08%	6.91%	6.39%	24.55%
	Multi-Units	746,289	86.09%	3.17%	3.22%	4.02%	3.50%	13.91%

Table A.8 Distribution of Employment in Surviving Establishments by SIC Code Change and Firm Type (Percentage of all Surviving Employment in Each Firm Type)

Period	Firm Type	Employment in Surviving Establishments	SIC Unchanged	Different: Industry Division	2-Digit Class Same Division	3-Digit Class Same 2-Digit	4-Digit Class Same 3-Digit	Any Change
1989-1990	Single Units	46,442,978	98.01%	0.51%	0.34%	0.44%	0.71%	1.99%
	Multi-Unit Firms	52,787,205	99.09%	0.30%	0.18%	0.29%	0.15%	0.91%
1990-1991	Single Units	46,567,962	94.54%	1.16%	1.16%	1.49%	1.65%	5.46%
	Multi-Unit Firms	53,089,616	97.09%	0.60%	0.32%	1.28%	0.71%	2.91%
1991-1992	Single Units	46,191,938	93.02%	2.28%	1.37%	1.68%	1.65%	6.98%
	Multi-Unit Firms	52,889,946	97.33%	1.07%	0.67%	0.59%	0.33%	2.67%
1992-1993	Single Units	43,971,081	82.34%	2.48%	3.57%	5.15%	6.46%	17.66%
	Multi-Unit Firms	56,498,483	90.45%	1.25%	2.45%	2.75%	3.09%	9.55%
1993-1994	Single Units	45,801,600	97.68%	0.50%	0.43%	0.39%	1.00%	2.32%
	Multi-Unit Firms	56,972,750	97.93%	0.42%	0.38%	0.51%	0.76%	2.07%
1994-1995	Single Units	47,464,171	97.71%	0.74%	0.49%	0.47%	0.59%	2.29%
	Multi-Unit Firms	58,338,048	98.07%	0.35%	0.63%	0.54%	0.41%	1.93%
1995-1996	Single Units	48,884,007	94.46%	1.42%	1.04%	1.38%	1.71%	5.54%
	Multi-Unit Firms	59,674,126	98.73%	0.39%	0.39%	0.33%	0.16%	1.27%
1989-1996	Single Units	38,969,191	75.84%	5.78%	5.49%	6.33%	6.56%	24.16%
	Multi-Unit Firms	45,724,153	85.87%	2.71%	3.39%	4.45%	3.58%	14.13%

Table A.9 Distribution of Establishments by Establishment and Firm Size with Percentage Distribution by Firm Size for Each Establishment Size, 1996

	Firm Size										
Estab. Size	0	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1000+	All
0	687,960	2,363	1,097	910	1,501	1,283	2,578	3,054	3,565	25,336	729,647
1-4	.	2,611,032	23,099	26,615	34,700	23,013	27,017	17,570	17,051	151,673	2,931,770
5-9	.	.	987,870	27,521	32,869	25,346	31,380	22,030	19,785	168,671	1,315,472
10-19	.	.	.	569,003	34,421	22,580	28,647	19,601	16,170	136,742	827,164
20-49	.	.	.	.	341,700	22,840	26,341	19,279	15,950	125,259	551,369
50-99	.	.	.	.	.	95,753	13,996	8,936	8,025	62,567	189,277
100-249	.	.	.	.	.	.	44,597	6,579	5,720	53,318	110,214
250-499	.	.	.	.	.	.	.	9,013	2,166	16,849	28,028
500-999	.	.	.	.	.	.	.	.	3,310	7,344	10,654
1000+	.	.	.	.	.	.	.	.	.	6,040	6,040
All	687,960	2,613,395	1,012,066	624,049	445,191	190,815	174,556	106,062	91,742	753,799	6,699,635

	Firm Size										
Estab. Size	0	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1000+	All
0	94.3%	0.3%	0.2%	0.1%	0.2%	0.2%	0.4%	0.4%	0.5%	3.5%	729,647
1-4	.	89.1%	0.8%	0.9%	1.2%	0.8%	0.9%	0.6%	0.6%	5.2%	2,931,770
5-9	.	.	75.1%	2.1%	2.5%	1.9%	2.4%	1.7%	1.5%	12.8%	1,315,472
10-19	.	.	.	68.8%	4.2%	2.7%	3.5%	2.4%	2.0%	16.5%	827,164
20-49	.	.	.	.	62.0%	4.1%	4.8%	3.5%	2.9%	22.7%	551,369
50-99	.	.	.	.	.	50.6%	7.4%	4.7%	4.2%	33.1%	189,277
100-249	.	.	.	.	.	.	40.5%	6.0%	5.2%	48.4%	110,214
250-499	.	.	.	.	.	.	.	32.2%	7.7%	60.1%	28,028
500-999	.	.	.	.	.	.	.	.	31.1%	68.9%	10,654
1000+	.	.	.	.	.	.	.	.	.	100.0%	6,040
All	10.3%	39.0%	15.1%	9.3%	6.6%	2.8%	2.6%	1.6%	1.4%	11.3%	6,699,635

Table A.11 Establishments by Firm Size and Establishment Industry, 1996

Firm Size	Agri. Services*	Mining	Construction	Manufacturing	Transportation	Wholesale	Retail	Finance	Services	Uncoded*
0										
1-4	24,146	2,355	102,574	27,443	30,249	42,313	129,044	56,971	256,588	16,277
5-9	50,984	9,862	316,564	100,934	101,812	181,995	466,676	272,235	1,102,310	10,023
10-19	19,742	3,259	113,510	61,195	36,005	80,181	230,780	62,387	403,501	1,506
20-49	10,550	2,481	64,380	53,154	24,093	58,945	154,183	34,177	221,557	529
50-99	6,219	1,952	36,309	48,935	18,410	47,280	115,689	28,224	144,183	457
100-249	.	888	9,301	22,462	8,232	21,651	49,228	16,693	61,537	.
250-499	.	819	4,654	18,230	7,642	19,000	45,670	17,655	60,444	.
500-999	.	657	1,439	9,944	4,967	9,989	31,303	11,903	35,665	.
1000+	.	526	918	8,283	5,202	9,203	27,820	11,419	28,252	.
All	.	3,994	3,826	40,895	57,619	59,463	316,594	136,879	133,364	.
	112,170	26,793	653,475	391,475	294,231	530,020	1,566,987	648,543	2,447,401	28,540

Table A.10 Distribution of Employment by Establishment and Firm Size with Percentage Distribution by Firm Size for Each Establishment Size, 1996

Employment by Firm Size

Establishment Size	0	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1000+	All
0	0	0	0	0	0	0	0	0	0	0	0
1-4	.	5,476,708	58,121	66,684	88,888	60,194	69,052	45,262	43,721	369,529	6,278,159
5-9	.	.	6,474,790	183,690	221,641	171,194	212,831	150,016	133,120	1,145,785	8,693,067
10-19	.	.	.	7,596,813	472,483	308,725	391,551	267,684	220,427	1,861,682	11,119,365
20-49	.	.	.	.	10,123,008	728,771	822,185	604,463	501,202	3,898,878	16,678,507
50-99	.	.	.	.	.	6,458,795	983,957	616,324	558,011	4,391,556	13,008,643
100-249	.	.	.	.	.	.	6,441,829	1,037,753	874,941	8,183,012	16,537,535
250-499	.	.	.	.	.	.	.	3,003,598	760,651	5,771,538	9,535,787
500-999	.	.	.	.	.	.	.	.	2,205,712	5,067,466	7,273,178
1000+	.	.	.	.	.	.	.	.	.	13,025,040	13,025,040
All	0	5,476,708	6,532,911	7,847,187	10,906,020	7,727,679	8,921,405	5,725,100	5,297,785	43,714,486	102,149,281

Percentage Distribution of Employment by Firm Size

Establishment Size	0	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1000+	All
0	.	.	.	.	.	.	.	.	.	.	0
1-4	.	87.2%	0.9%	1.1%	1.4%	1.0%	1.1%	0.7%	0.7%	5.9%	6,278,159
5-9	.	.	74.5%	2.1%	2.5%	2.0%	2.4%	1.7%	1.5%	13.2%	8,693,067
10-19	.	.	.	68.3%	4.2%	2.8%	3.5%	2.4%	2.0%	16.7%	11,119,365
20-49	.	.	.	.	60.7%	4.4%	4.9%	3.6%	3.0%	23.4%	16,678,507
50-99	.	.	.	.	.	49.7%	7.6%	4.7%	4.3%	33.8%	13,008,643
100-249	.	.	.	.	.	.	39.0%	6.3%	5.3%	49.5%	16,537,535
250-499	.	.	.	.	.	.	.	31.5%	8.0%	60.5%	9,535,787
500-999	.	.	.	.	.	.	.	.	30.3%	69.7%	7,273,178
1000+	.	.	.	.	.	.	.	.	.	100.0%	13,025,040
All	0.0%	5.4%	6.4%	7.7%	10.7%	7.6%	8.7%	5.6%	5.2%	42.8%	102,149,281

Table A.12 Employment by Firm Size and Establishment Industry, 1996

Firm Size	Agri. Services*	Mining	Construction	Manufacturing	Transportation	Wholesale	Retail	Finance	Services	Uncoded*
0	0	0	0	0	0	0	0	0	0	0
1-4	106,218	19,821	662,725	228,838	208,541	388,356	1,036,621	522,981	2,285,915	16,692
5-9	129,451	21,219	741,469	410,302	232,536	519,708	1,486,222	389,015	2,593,263	9,726
10-19	138,415	32,007	857,727	721,892	306,919	727,840	1,891,593	391,062	2,772,847	6,885
20-49	269,042	50,124	1,054,476	1,447,331	461,427	1,035,273	2,673,427	528,369	3,539,909	20,353
50-99	.	36,171	588,754	1,327,522	335,729	677,491	1,690,652	413,937	2,609,026	.
100-249	.	41,832	521,650	1,761,403	384,630	686,510	1,434,257	497,377	3,558,283	.
250-499	.	36,163	229,032	1,243,639	250,936	357,496	787,011	323,297	2,479,459	.
500-999	.	32,700	140,426	1,254,431	247,442	265,322	656,181	315,624	2,375,109	.
1000+	.	304,240	407,578	10,160,929	3,627,862	2,004,917	9,820,669	3,802,176	13,519,242	.
ALL	663,289	574,277	5,203,837	18,556,287	6,056,022	6,662,913	21,476,633	7,183,838	35,733,053	39,132

Note: Agricultural Services and Uncoded are aggregated to size class 20+ to prevent disclosure of confidential information.

Table A. 13 Employment Changes by Establishment Change Type, Industry, and Firm Size, 1995-1996

Industry	Firm Size	Establishment Employment 1995	Births	Deaths	Expansions	Contractions	Net
			(as a percentage of base year employment in same employment size category)				
Manufacturing	<20	1,347,584	7.8%	-7.4%	16.2%	-9.6%	7.1%
	20-499	5,815,749	2.9%	-3.6%	8.3%	-8.9%	-1.3%
	500+	11,447,109	2.5%	-2.5%	6.0%	-7.3%	-1.3%
	All	18,610,442	3.0%	-3.2%	7.5%	-8.0%	-0.7%
Other Productive							
	<20	2,648,168	10.6%	-9.0%	20.9%	-13.0%	9.6%
	20-499	2,655,073	3.4%	-3.9%	13.2%	-14.6%	-1.9%
	500+	993,356	4.2%	-8.0%	10.8%	-13.0%	-6.0%
	All	6,296,597	6.6%	-6.7%	16.1%	-13.7%	2.3%
Distributive							
	<20	6,019,430	9.6%	-8.9%	13.8%	-9.8%	4.7%
	20-499	9,368,767	5.6%	-5.2%	8.5%	-9.7%	-0.8%
	500+	12,299,214	6.9%	-3.9%	8.6%	-9.1%	2.4%
	All	27,687,411	7.0%	-5.5%	9.7%	-9.4%	1.8%
Services							
	<20	9,532,205	9.3%	-7.5%	15.8%	-9.3%	8.4%
	20-499	15,232,624	4.8%	-5.1%	10.6%	-9.2%	1.0%
	500+	22,922,757	6.0%	-4.3%	9.1%	-9.1%	1.7%
	All	47,687,586	6.3%	-5.2%	10.9%	-9.2%	2.8%
All							
	<20	19,547,387	9.5%	-8.1%	15.9%	-9.9%	7.3%
	20-499	33,072,213	4.5%	-4.8%	9.8%	-9.7%	-0.1%
	500+	47,662,436	5.4%	-3.8%	8.3%	-8.8%	1.0%
	All	100,282,036	5.9%	-5.0%	10.3%	-9.3%	1.9%

Table A.14 Establishment Turnover and Establishments with Employment Changes by Establishment Change Type, Industry, and Firm Size, 1995-1996

Industry	Firm Size	Number of 1995 Establishments	Births	Deaths	Expansions	Contractions	Total with Change
			(as a percentage of base year establishments in same employment size category)				
Manufacturing	<20	230,824	11.2%	10.3%	29.5%	24.6%	75.6%
	20-499	100,476	3.5%	4.3%	41.5%	43.7%	93.0%
	500+	48,552	5.1%	5.1%	38.4%	41.3%	89.8%
	All	379,852	8.4%	8.0%	33.8%	31.8%	82.0%
Other Productive							
	<20	639,301	14.5%	12.2%	26.9%	22.8%	76.3%
	20-499	60,637	4.0%	4.4%	40.4%	46.6%	95.3%
	500+	10,470	9.3%	8.9%	33.1%	35.3%	86.6%
	All	710,408	13.5%	11.5%	28.1%	25.0%	78.1%
Distributive							
	<20	1,266,381	12.1%	11.6%	25.1%	22.5%	71.3%
	20-499	350,588	5.6%	6.1%	34.6%	38.3%	84.5%
	500+	398,036	8.4%	6.4%	33.3%	36.8%	84.8%
	All	2,015,005	10.3%	9.6%	28.4%	28.1%	76.3%
Services							
	<20	2,412,608	12.5%	10.2%	23.0%	18.8%	64.4%
	20-499	424,218	4.8%	5.4%	36.7%	34.7%	81.5%
	500+	352,225	11.6%	9.2%	29.7%	30.5%	81.0%
	All	3,189,051	11.4%	9.4%	25.6%	22.2%	68.6%
All							
	<20	4,549,114	12.6%	10.9%	24.5%	20.7%	68.6%
	20-499	935,919	4.9%	5.4%	36.7%	37.8%	84.8%
	500+	809,283	9.6%	7.6%	32.0%	34.3%	83.5%
	All	6,566,634	10.6%	9.2%	26.1%	23.9%	69.9%

Table A.15 Multi-Unit Firm Employment and Number of Firms by Firm Industry and Size, 1996

Industry	Employment	Number of Firms	Average Employment
Agricultural Services	59,219	302	196.1
Mining	383,338	862	444.7
Construction	596,781	2,595	230.0
Manufacturing	14,529,374	16,780	865.9
Transportation, Communications, & Public Utilities	4,395,691	7,066	622.1
Wholesale Trade	2,829,080	23,127	122.3
Retail Trade	12,736,907	44,881	283.8
Finance, Insurance, & Real Estate	4,928,075	17,607	279.9
Services	16,255,831	53,417	304.3
All	56,714,296	166,637	340.3
Firm Size			
0	0	1,123	0.0
1-4	22,662	8,021	2.8
5-9	103,515	14,570	7.1
10-19	403,230	28,531	14.1
20-49	1,362,311	42,551	32.0
50-99	1,824,213	25,801	70.7
100-249	3,658,004	23,338	156.7
250-499	3,533,182	10,102	349.8
500-999	3,919,843	5,632	696.0
1000+	41,887,336	6,968	6,011.4
All	56,714,296	166,637	340.3

Single-Unit Firm Employment and Number of Firms by Firm Industry and Size, 1996

Industry	Employment	Number of Firms	Average Employment
Agricultural Services	572,593	109,913	5.2
Mining	179,293	19,541	9.2
Construction	4,544,758	643,292	7.1
Manufacturing	5,490,761	310,438	17.7
Transportation, Communications, & Public Utilities	1,766,166	207,051	8.5
Wholesale Trade	3,157,107	384,287	8.2
Retail Trade	8,460,096	1,040,081	8.1
Finance, Insurance, & Real Estate	2,180,075	428,641	5.1
Services	19,045,004	2,100,785	9.1
Uncoded	39,132	28,540	1.4
All	45,434,985	5,272,569	8.6
Firm Size			
0	0	684,587	0.0
1-4	5,454,046	2,597,356	2.1
5-9	6,429,396	980,499	6.6
10-19	7,443,957	556,752	13.4
20-49	9,543,709	320,548	29.8
50-99	5,903,466	87,133	67.8
100-249	5,263,401	36,146	145.6
250-499	2,191,918	6,533	335.5
500-999	1,377,942	2,037	676.5
1000+	1,827,150	978	1,868.3
All	45,434,985	5,272,569	8.6

Table A.16 Multi-Unit Firm Employment and Number of Firms by Firm Industry and Firm Size, 1996

Employment

	Agri. Services	Mining	Construction	Manufacturing	Transportation	Wholesale	Retail	Finance	Services	All
0	0	0	0	0	0	0	0	0	0	0
1-4	84	167	282	416	713	2,493	7,518	2,993	7,996	22,662
5-9	256	437	937	1,890	3,408	14,328	33,874	11,511	36,874	103,515
10-19	602	1,528	3,507	9,617	14,008	64,296	126,074	46,153	137,445	403,230
20-49	2,327	5,762	21,025	78,111	55,352	237,419	385,181	161,617	415,517	1,362,311
50-99	3,494	9,138	34,561	210,073	90,908	281,786	463,388	203,379	527,486	1,824,213
100-249	4,511	21,435	79,034	691,367	176,137	419,668	844,076	304,728	1,117,048	3,658,004
250-499	4,665	28,746	86,107	908,735	170,051	274,707	675,117	233,080	1,151,974	3,533,182
500-999	5,445	30,217	82,423	1,129,845	212,640	223,354	623,518	261,138	1,351,263	3,919,843
1000+	37,835	285,908	288,905	11,499,320	3,672,474	1,311,029	9,578,161	3,703,476	11,510,228	41,887,336
All	59,219	383,338	596,781	14,529,374	4,395,691	2,829,080	12,736,907	4,928,075	16,255,831	56,714,296

Number of Firms

	Agri. Services	Mining	Construction	Manufacturing	Transportation	Wholesale	Retail	Finance	Services	All
0	6	3	12	48	45	100	431	114	364	1,123
1-4	36	61	103	163	266	878	2,572	1,121	2,821	8,021
5-9	36	63	133	266	469	2,011	4,777	1,629	5,186	14,570
10-19	44	102	250	660	986	4,487	8,949	3,252	9,801	28,531
20-49	72	176	636	2,264	1,693	7,403	12,217	4,986	13,104	42,551
50-99	50	131	488	2,887	1,282	4,043	6,557	2,899	7,464	25,801
100-249	27	139	505	4,270	1,138	2,744	5,462	2,001	7,052	23,338
250-499	13	79	245	2,569	485	795	1,957	676	3,283	10,102
500-999	8	44	119	1,610	307	326	900	378	1,940	5,632
1000+	10	64	104	2,043	395	340	1,059	551	2,402	6,968
All	302	862	2,595	16,780	7,066	23,127	44,881	17,607	53,417	166,637

Table A.17 Multi-Unit Firms, Average Firm Employment, and Number of Establishments, 1996

	Small Firms			Large Firms		
Establishments per Firm	Number of Firms	Average Firm Employment	Number of Establishments	Number of Firms	Average Firm Employment	Number of Establishments
1996	13,338	51	13,338	667	1,403	667
1996	70,282	42	140,564	770	1,181	1,540
1996	26,943	63	80,829	660	1,158	1,980
4-9	34,247	106	184,495	3,095	1,300	19,212
10-19	6,869	187	89,798	2,397	1,628	33,004
20-99	2,337	275	72,831	3,561	3,027	156,738
100-499	21	277	2,685	1,154	10,253	234,607
500-999	.	.	.	172	25,035	119,193
1000+	.	.	.	124	67,400	275,585
All	154,037	71	584,540	12,600	3,635	842,526

Table B.1: BITS File Contents

Variable	Type	Length	Description
APAY89	Num	1996	Annual Payroll in Thousands, 1989
APAY90	Num	1996	Annual Payroll in Thousands, 1990
APAY91	Num	1996	Annual Payroll in Thousands, 1991
APAY92	Num	1996	Annual Payroll in Thousands, 1992
APAY93	Num	1996	Annual Payroll in Thousands, 1993
APAY94	Num	1996	Annual Payroll in Thousands, 1994
APAY95	Num	1996	Annual Payroll in Thousands, 1995
APAY96	Num	1996	Annual Payroll in Thousands, 1996
CFN89	Char	1996	Census File Number, 1989
CFN90	Char	1996	Census File Number, 1990
CFN91	Char	1996	Census File Number, 1991
CFN92	Char	1996	Census File Number, 1992
CFN93	Char	1996	Census File Number, 1993
CFN94	Char	1996	Census File Number, 1994
CFN95	Char	1996	Census File Number, 1995
CFN96	Char	1996	Census File Number, 1996
CTY89	Char	1996	County Code, 1989
CTY90	Char	1996	County Code, 1990
CTY91	Char	1996	County Code, 1991
CTY92	Char	1996	County Code, 1992
CTY93	Char	1996	County Code, 1993
CTY94	Char	1996	County Code, 1994
CTY95	Char	1996	County Code, 1995
CTY96	Char	1996	County Code, 1996
EI	Char	1996	Employer Identification Number, 1992
EMP89	Num	1996	Establishment Employment, 1989
EMP90	Num	1996	Establishment Employment, 1990
EMP91	Num	1996	Establishment Employment, 1991
EMP92	Num	1996	Establishment Employment, 1992
EMP93	Num	1996	Establishment Employment, 1993
EMP94	Num	1996	Establishment Employment, 1994
EMP95	Num	1996	Establishment Employment, 1995
EMP96	Num	1996	Establishment Employment, 1996
FEMP89	Num	1996	Firm Employment, 1989
FEMP90	Num	1996	Firm Employment, 1990
FEMP91	Num	1996	Firm Employment, 1991
FEMP92	Num	1996	Firm Employment, 1992
FEMP93	Num	1996	Firm Employment, 1993
FEMP94	Num	1996	Firm Employment, 1994
FEMP95	Num	1996	Firm Employment, 1995
FEMP96	Num	1996	Firm Employment, 1996
MSA89	Char	1996	Metropolitan Statistical Area, 1989
MSA90	Char	1996	Metropolitan Statistical Area, 1990
MSA91	Char	1996	Metropolitan Statistical Area, 1991
MSA92	Char	1996	Metropolitan Statistical Area, 1992
MSA93	Char	1996	Metropolitan Statistical Area, 1993
MSA94	Char	1996	Metropolitan Statistical Area, 1994
MSA95	Char	1996	Metropolitan Statistical Area, 1995
MSA96	Char	1996	Metropolitan Statistical Area, 1996
PL89	Char	1996	Place Code, 1989
PL90	Char	1996	Place Code, 1990
PL91	Char	1996	Place Code, 1991
PL92	Char	1996	Place Code, 1992
PL93	Char	1996	Place Code, 1993
PL94	Char	1996	Place Code, 1994

Table B.1: BITS File Contents

Variable	Type	Length	Description
PL95	Char	1996	Place Code, 1995
PL96	Char	1996	Place Code, 1996
SIC89	Char	1996	Standard Industrial Classification Code, 1989
SIC90	Char	1996	Standard Industrial Classification Code, 1990
SIC91	Char	1996	Standard Industrial Classification Code, 1991
SIC92	Char	1996	Standard Industrial Classification Code, 1992
SIC93	Char	1996	Standard Industrial Classification Code, 1993
SIC94	Char	1996	Standard Industrial Classification Code, 1994
SIC95	Char	1996	Standard Industrial Classification Code, 1995
SIC96	Char	1996	Standard Industrial Classification Code, 1996
STARTYR	Num	1996	Establishment Start Year
STATE89	Char	1996	State Code, 1989
STATE90	Char	1996	State Code, 1990
STATE91	Char	1996	State Code, 1991
STATE92	Char	1996	State Code, 1992
STATE93	Char	1996	State Code, 1993
STATE94	Char	1996	State Code, 1994
STATE95	Char	1996	State Code, 1995
STATE96	Char	1996	State Code, 1996

Table B.2: Firm File Contents

Variable		Type	Length	Description
1	ALPHA	Char	1996	Firm Alpha Code
3	ENTEMPL	Num	1996	Firm Employment
5	ENTESTB	Num	1996	Number of Establishments in Firm
4	ENTPAYR	Num	1996	Firm Annual Payroll, in Thousands
6	ENTSIC	Char	1996	Firm Industry
2	ENTST	Char	1996	Firm State