Joint Center for Housing Studies

Harvard University

The Census of Construction Industries Database

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W98-1

May 1998

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I wish to thank Al Nucci, Susan Hostetter, Tamara Cole, Pat Horning, Eric Belsky and Robert Schafer for their comments on an earlier draft. The comments, views and conclusions represented in this paper do not reflect those of either the Joint Center for Housing Studies or Harvard University. This paper has been screened by the Bureau of the Census' Center for Economic Studies to ensure that it does not divulge confidential information.

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Abstract

The Census of Construction Industries (CCI) is conducted every five years as part of the quinquennial Economic Census. The Census of Construction Industries covers all establishments with payroll that are engaged primarily in contract construction or construction on their own account for sale as defined in the Standard Industrial Classification Manual. As previously administered, the CCI is a partial census including all multi-establishments and all establishments with payroll above $480,000, one out of every five establishments with payroll between $480,000 and $120,000 and one out of eight remaining establishments. The resulting database contains for each year approximately 200,000 establishments in the building construction, heavy construction and special trade construction industrial classifications. This paper compares the content, survey procedures, and sample response of the 1982, 1987 and 1992 Censuses of Construction.

Keywords: microdata, construction, economic census

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by

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Introduction

The recent availability of establishment level microdata at the Census Bureau has spawned a renewal in the study of industry dynamics. The bulk of this research has utilized the Census Bureau's Longitudinal Research Database (LRD), which is housed at the Census Bureau's Center for Economics Studies. In response to many of the insights and observations that have evolved from this analysis, the Census Bureau is currently encouraging the expansion of the LRD, which contains only manufacturing establishments, into a database containing all nonfarm business sectors. This new database, the Longitudinal Business Database (LBD) will be built from the various economic census data files. One of the first sectors outside of manufacturing to receive attention is construction.

In 1992, the construction industry had over 573,300 establishments with payroll, with over 4,674,000 workers, 3,596,000 of which were construction workers. Total value of construction work performed in 1992 was $529 billion. By comparison, the manufacturing sector in 1992 was made up of approximately 370,000 establishments, with close to 19 million workers, about 12 million of which were production workers. The manufacturing sector had a total value of shipments of over $3 trillion in 1992.

This paper documents the contents, survey procedures, and survey response of the 1982, 1987, and 1992 Censuses of Construction Industries, which currently constitute the Census of Construction Industries Database. Its primary purpose is to provide users with a comparison of

the datasets across years, outline some of the strengths and weaknesses of the data, and allow potential users to gauge the database's potential to answer relevant research questions.

Section II gives a brief introduction to the Census Bureau's Economic Census program, which includes the Census of Construction Industries (CCI). Section III offers the reader more detailed information on the CCI. Section IV discusses the differences between the 1982, 1987, and 1992 versions of the CCI. Section V briefly discusses procedures for linking establishments across the three years. Section VI highlights some of the strengths and weaknesses of the CCI. Section VII outlines how the reader may gain access to the CCI.

The Economic Census Program

Title 13 of the United States Code (sections 131, 191 and 224) directs the Census Bureau to take an economic census every 5 years, in years ending with 2 or 7. In addition to the construction sector discussed here, the economic census also covers the following areas: Retail Trade, Wholesale Trade, Services Industries, Financial, Insurance and Real Estate Industries, Transportation and Communications, Manufactures, and Mineral Industries. Special programs also cover enterprise statistics and minority and women-owned businesses.

The economic census has been conducted every five years since 1967. Information for the above sectors was also collected simultaneously in 1962, 1958, and 1954; with the exception of Transportation and Communications, and Financial, Insurance and Real Estate Industries, which first appeared in 1992. Previous economic censuses were conducted at varying intervals for various sectors of the economy. The first economic census that was conducted separately from the decennial population census was for the manufacturing sector in 1905. The first census of business was conducted in 1930, covering retail trade, wholesale trade, construction, and

manufacturing. The economic census was broadened further in 1933 to include some of the services industries. The economic census excludes agriculture and government, which are covered in other census programs.

Since 1967, administrative records have been substituted for the surveying of very small firms and nonemployer establishments. In most industry sectors, a mailed questionnaire is sent to all establishments above a chosen size (either in terms of payroll or employees), while administrative data are used for all establishments below that level. The CCI, however, samples firms below a minimum size (to be discussed) while using administrative data for a portion of the nonmail sample. In these instances, administrative data for payroll, employment and sales are taken from IRS/SSA records and used to impute the remainder of the establishment record.

The economic census collects a wealth of establishment level data used in the estimation of such macroeconomic measures as gross domestic product, input/output measures, and production and price indexes. In addition to collecting data on employment, wages and general measures of business value (e.g., value of sales, shipments, and work performed), the economic census also collects detailed data on product lines, labor costs (e.g., wages and fringe benefits), and the value of capital and depreciable assets. An example 1992 construction questionnaire is attached as appendix C. It offers some examples of information commonly collected by the economic census program, although the reader should keep in mind that questionnaires can differ greatly across industries and standard industrial classifications.

For greater detail on the Economic Census program, the reader is referred to the Census publications; *Guide to the 1992 Economic Census and Related Statistics*, and *History of the 1992 Economic Census*.

The Census Of Construction Industries Program

The Census of Construction Industries (CCI) is conducted every five years as part of the Economic Census. The CCI covers industries classified as building construction (SIC 15), heavy construction (SIC 16) and specialty trade construction (SIC 17). A brief discussion of each industry classifications follows:

SIC 15: Building construction by general contractors or by operative builders. SIC 15 establishments are engaged primarily in the construction of residential structures, and commercial buildings such as office buildings and warehouses (sometimes referred to as vertical construction). This group also includes those establishments generally referred to as "home builders" which are classified in SIC 152. Operative builders (SIC 1531) are those who build on their own account for sale and are often referred to as "speculative builders".

SIC 16: Heavy construction general contractors. SIC 16 establishments are engaged primarily in the construction of nonbuilding construction projects (sometimes referred to as horizontal construction). These include the construction of highways, bridges, pipelines, sewer and water lines, and marine construction.

SIC 17: Construction by special trade contractors. SIC 17 are engaged in both vertical and horizontal construction projects. Their numbers are, however, heavily dominated by those engaged in the specialties of plumbing, heating and air-conditioning (SIC 171); electrical work (SIC 173); and other building-related trades such as masonry and stone work (SIC 1741) and carpentry work (SIC 1751).

It is important to keep in mind, especially when comparing CCI figures to other construction statistics, that not all establishments performing 'construction' are included in the CCI. The two most important types of establishments performing some construction work that

are absent from the CCI are 1) 1,350,000 establishments without payroll, 1,100,000 of which are categorized as special trade contractors (SIC 17), largely carpentry and painting establishments, and 2) force account construction, which consists of construction performed by establishments and firms for their own use. Force account construction includes such activities as investment builders who build structures on their own account for rent (classified under Real Estate, SIC 651) and plant maintenance and repair performed by employees of a manufacturing establishment. Establishments without payroll are not required by law to fill out census forms, and hence, are not mailed census questionnaires under the economic census program.

The CCI collects information, at an establishment level, for a wide variety of variables including: value of work performed, value of work subcontracted, expenditures on wages, fringe benefits, fuels, electricity, materials, number of construction and nonconstruction employees, values of assets and capital expenditures.

The CCI is, however, a partial census. The CCI is a complete census of multi-establishment establishments (approximately 10,800 in 1992), and a census of establishments with $480,000 or more in payroll (approximately 40,657). The CCI samples all other establishments as follows: a) establishments with $120,000 to $480,000 in payroll proportionate to their size but with a base rate of 1 in 5, and b) establishments with payroll under $120,000 at a base rate of 1 in 8. The complete census of multi unit and large payroll single establishments comes to about 51,000. These amount for a little under ten percent of the establishment universe, but cover 65% of payroll employment and 63% of the value of construction work performed in 1992.

The sampling frame for the CCI is the Bureau's Standard Statistical Establishment List (SSEL). Of the 547,000 single unit establishments classified on the 1991 SSEL as construction

companies, 132,411 were included in the mail sample for the 1992 CCI, in addition to the 10,836 multi unit establishments identified on the 1991 SSEL as operating in construction. In addition to these, another 49,287 establishments were added to the database for 1992 from establishments originally unclassified or misclassified. Table 1, below, lists the universe and sample counts for the 1992 CCI. The figures in Table 1 differ from the frame described above because of establishment deaths from 1991 to 1992 (not included in 1992 sample) and births in 1992 (see Table 1).

The probability sample for smaller single unit establishments is a three strata random sample formed upon the basis of 1) four digit SIC, 2) same geography (state or MSA), and 3) size class. Some deviations from this sampling scheme were implemented to ensure that the standard error of payroll within state-MSA by SIC codes was between 1.5 and 15 percent. Due to the small number of establishments within the SICs 1622, 1795 and 1796, all establishments in these SICs were included in the mailout.

This sampling scheme results in the following breakdown of establishments in 1992: 1) approximately 89,000 establishments which constitute 19% of single-units with a payroll less than $480,000; 2) approximately 26,000 fourth quarter births; 3) approximately 44,000 establishments that were originally unclassified by SIC; and 4) approximately 14,000 establishments that were originally misclassified by SIC. In the latter three of these categories, all information except the administrative items is imputed.

In 1992, the response rates for the mailed questionnaire were: establishments with a payroll $480,000 and greater -- 86.8%, establishments with payroll between $120,000 and $480,000 -- 83.1%, establishments with a payroll under $120,000 -- 77.6%, all multi unit establishments --86.3%, all single establishments --81.5%.

Researchers wishing to use only actual mail response data must be alert to the fact that characteristics, such as survival and growth, are likely to be correlated with size and affiliation, and proper care must be taken when interpreting results based solely upon mailed response data.

As with all the economic censuses a variety of questionnaires were mailed to different establishments in different SICs, in addition to the use of both a long and short form. The 1992 CCI made use of 22 different questionnaires. These included a short and long form for the following SIC groups: 15, 16, 171, 172, 173, 174, 175, 176, 178 and 179. Establishments with 1991 administrative payroll equal to or greater than $1,080,000 all received the long form. For smaller establishments, half received the long form and half the short form. A form weight is included for the long form responses to allow for reasonable aggregates.

Differences Between The 1982, 1987 And 1992 CCI

The basic difference between the three CCIs documented here is that a variety of questions that were asked in one census year but not in all census years. In addition, establishments in SIC 6552 are excluded from the 1992 CCI [1]. The researcher should keep in mind that the reason for some questions having been dropped from the CCI was frequently based upon the low quality of responses to those questions. Some of the more important differences in the questionnaires are described below.

Questions asked on previous CCIs, but not on 1992 (and considered to be permanently dropped) are: 1) value of other land receipts, 2) number of hours worked by quarter, 3) receipts for sale of land, and 4) value of work in progress.

Fields new to the 1992 CCI include 1) construction value, 2) value of speculative work,

[1] SIC 6552 covers Land Subdividers and Developers, except cemeteries. Their inclusion in the

and 3) value of work for own use. Construction value can however be calculated for 1982 and 1987 from other variables found in the database in those years.

Data item availability across the three census years is summarized in appendix D, which lists the variable description and the corresponding variable name in each database.

Linking Establishments Across Years

Linking establishments across years requires the matching of a common identifier variable. This section describes the identifiers available on the CCI and some of their limitations. For a detailed discussion of methods for linking establishments across years the reader is referred to Trager and Moore (1995). Appendix F contains a simple SAS routine for linking establishments across years in the CCI.

The following identification codes are generally available for each establishment: CFN, PPN, EIN, and OLDID. These are described below and form the basis for all efforts to link across census years. All the linking approaches involve some false matches.

All establishments in the Economic Census program have a variety of establishment and enterprise level identifiers. The most common of these is the Census File Number (CFN). For single unit establishments, the CFN is a ten digit code that starts with a 0 and is followed by a unique nine digit Employer Identification Number (EIN) which the establishment is required to use when filing paperwork with the Social Security Administration (SSA) and/or the Internal Revenue Service (IRS). The establishment retains the same CFN until there is either a dissolution of the establishment or a change in ownership (in which case a new CFN may be assigned). For multi unit establishments the first six digits of the CFN refer to the enterprise

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CCI prior to 1992 resulted from the lack of a separate real estate (SIC 65) census prior to 1992.

(company or firm), while the last four refer to the individual location or establishment. The multi unit CFN is assigned by the Census Bureau. When linking enterprises, it is suggested that data first be aggregated to the enterprise level (sum by the first six digits of the CFN), and then linked across years by the first six digits of the CFN. Single establishments, and establishment components of multi unit establishments, can be linked across years by a matching of the CFN.

As mentioned above the CFN will generally, but not always, change in the case of a change in ownership or reorganization of the establishment. If the researcher is interested in tracking the survival of an establishment regardless of ownership change, or is interested in examining issues of ownership change, the CFN will fail to link all relevant establishments across years. In these instances linking should be accomplished by also using the establishment's permanent plant number (PPN) and/or OLDID, which is an establishment's CFN prior to merger or reorganization.

When an establishment appears in the Economic Census or Standard Statistical Establishment List (SSEL) for the first time, it is assigned both a CFN and a PPN. In theory, the PPN corresponds to the establishment's initial CFN number assigned at birth for single unit enterprises. This will not always be the case for multi-unit establishments due to a renumbering of multi-unit PPNs in 1986. Whereas the CFN is an ownership-based identifier, the PPN is a location-based identifier. However, in some cases where the establishment changes location, the PPN may also change. This is sometimes the case when an establishment moves to a new location in order to expand (or contract) the scale of its operations without any change in ownership. When an establishment undergoes both a change in ownership and location, say as a result of the consolidation of administrative operations, the prior establishment is considered to have died and both the CFN and PPN would change. An effort is made to record the expiring

CFN as the OLDID variable. In these cases the OLDID may be used to track reorganizations.

Limitations and exceptions to the above linking procedures may occur for a variety of reasons. Other researchers (see Trager and Moore) have discovered that in many instance where a single unit establishment changes to a multi unit establishment, with a resulting change in CFN, the PPN is often also changed, making a link based upon those two variables ineffective. In these cases it is suggested that the researcher attempt matching Employer Identification Numbers across the years.

Another potential method for matching establishments is a business name match. In this case establishments with the same five-digit zip code (or other geographic identifier) are matched based upon concatenated alpha string matches. Similar methods can also be used for matchings based upon industrial classification and address or zip code identifiers. However, name, address and industrial classification matching, may result in a much higher rate of false matchings when compared to the preferred CFN/PPN matching. One potential benefit from name and address matching is that it may allow the researcher to account for changes in the CFN and PPN that do not reflect a death. In certain circumstances, the integrated use of these techniques may pay dividends.

Current research efforts have found that a simple CFN and PPN match yield surprising good results for the CCI when compared with efforts to match establishments in other sectors. This result, however, is subject to differences in sampling across the CCI years. A simple CFN link by establishment from the 1987 CCI to the 1992 CCI yielded a match (or survival) rate or only 26%; whereas matching these same 1987 CCI establishments to the 1992 SSEL yielded a match rate of 73%. The tradeoff between the degree of accuracy demanded and the potential safeguards to be taken against false matching is obviously a decision individual researchers must

make for themselves.

Researchers unfamiliar with the construction industry or economic census definitions should be aware that what defines an establishment can be very different across industries and even firms within the same industry. The Census Bureau defines a construction establishment as "a relatively permanent office or other place of business where the usual business activities related to construction are conducted." Usual business activities would not include the actual performance of construction activities, but rather those administrative activities, such as the maintenance of employee records, that are conducted by the establishment. In most instances this will rarely be the same location as any particular construction project. In contrast, most manufacturing, retail and service establishments will conduct both their administrative and economic activities in the same location. These differences should be kept in mind when comparing the activities of establishments within construction to establishments in other industries.

Strengths And Weaknesses Of The CCI

The primary strength of the CCI is the wide range of questions and information contained in the database at an establishment level. On the other hand, its primary weaknesses for microdata analysis are the extent to which much of the data are imputed[2] and the sampling coverage is biased toward larger and multi unit establishments. Many of the characteristics of the database are a result of a sample design and processing strategy which places an emphasis on the amount of value covered versus the number of records collected, with the goal of providing reliable estimates at an aggregate level.

[2] For 1992, the original keyed, unedited data is also available for mail respondents. The keyed

As the reader can gather from the data dictionary and sample questionnaire included in the appendix to this paper, the CCI contains a wide variety of questions on the characteristics of individual construction establishments. In addition to detailed information on employment, payroll, geography and line of business information, the CCI contains a wealth of information on capital expenditures, depreciable assets, inventories, materials costs, and a range of other operating costs, such as electricity, fuels, labor benefits, rental/lease payments, purchased services and subcontracted work.

Another strength of establishment microdata is the ability to reclassify establishments and activities in a manner more conducive to a particular research question. Interesting questions about construction establishments are the division of their activities between residential and commercial, and the division of their activities between new construction and alterations and additions. Many questions about the variations of these divisions by firm and regional characteristics cannot be answered by referring to published aggregate information. For example, it is very difficult to determine from published tabulations how much of a particular industry group, say plumbers, are engaged in solely residential work, solely residential remodeling, or some of both. Access to establishment level microdata allows the researcher a much greater flexibility when categorizing establishments. Microdata also allows different measures of business activity. In published aggregates, all of the value of an establishment's activity is assigned to its primary SIC code, even if its secondary activities are quite substantial. Establishment microdata allows the researcher to take a greater look at establishments' other product and businesses lines.

One of the primary weaknesses of the CCI is the extent to which much of the information

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data for prior years is believed to be lost.

is imputed. Table A lists the response rates and universe estimates for the 1992 CCI by four digit SIC. The response rate in this table indicates what percentage of the data, by record, is considered actual reported data[3]. The variance across industries is striking. While much of the heavy construction sector (SIC 16) has response rates in excess of 70% (91% for SIC 1622), the response rate for the SIC 15 and SIC 17 usually range in the 50s and 60s, with a low of 39% in SIC 1751. In general, the percentage of records that are actual reported data is closely correlated with the size and affiliation of the establishment, which explains much of the variance across industries.

Appendix G displays the mailed response rates to any particular item by 2 digit SIC for the 1992 CCI[4]. These data are reported only for establishments that received and returned a questionnaire. For instance the first variable listed, 1st Qtr. Construction Workers was answered by 81.3% of establishments in the SIC 15 group in 1992 that returned a questionnaire. Fortunately, Census Bureau research in a follow-up to the 1987 Economic Census indicates that the imputation procedures for payroll, sales and employment variables are similar to what the actual values are thought to have been (see Bailey, Jansto, and Smith). Although this research does indicate that the imputes tend to be biased upwards.

Economic Census establishment imputes are generally based upon the use of administrative data reported to the IRS or SSA for sales, payroll and employment. In all cases the administrative data for these items also appear in the CCI database. It is this researcher's opinion that those items most similar and highly correlated with the administrative data can be

[3] This, of course, does not mean that none of the items on the record are imputed.
[4] The flag files containing the item impute codes for the 1987 and 1982 CCIs are believed to be lost. It can only be assumed that the 1992 flag figures are representative of the data for earlier years.

considered reliable in spite of the high rate of imputation for these variables. For instance, a value for total construction worker wages that is imputed from total administrative payroll is likely to be quite similar to the actual figure.

Access To The Census Of Construction Industries Database

The Bureau of the Census collects CCI data under Title 13 of the United States Code. Accordingly, access to the microdata is restricted in order to protect the confidentiality of census respondents. The 1982, 1987, and 1992 CCI databases are maintained at the Census Bureau's Center for Economic Studies. Raw data files are also available for 1977 and 1972. These files, however, have not undergone the more rigorous verification and testing that have been applied to the more recent years. It is anticipated that the 1997 CCI will be available to researchers in the fall of 1999.

The procedure for obtaining access to this database begins with a proposal outlining the research plan, including the model and data to be used, hypothesis tests and funding possibilities. This allows CES to ascertain the feasibility of the research and the type of data analysis required. There are two principal methods of accessing the CCI database. One involves a contract with the Manufacturing and Construction Division for tabulations. The other requires a visit to CES's research laboratory in Washington, or one of CES's other regional data centers (currently in Boston and Pittsburgh). In the latter case the research plan must include some demonstrable benefits to the Census Bureau's data programs. In the latter case interested parties should direct correspondence to Chief, Center for Economic Studies, U.S. Bureau of the Census, Washington Plaza II, Room 211, Washington, DC 20233.

For more information on special tabulations, call 301-457-4680, or direct written

inquiries to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC, 20233. Special tabulations are prepared on a cost basis.

Description of Appendices

A. RESPONSE RATES AND UNIVERSE ESTIMATES BY 4 DIGIT SIC. Appendix A lists six columns. The first of which is a 4 digit SIC code. The 2nd column presents the number of establishments in that SIC to which a questionnaire was mailed. The 3rd column presents the number of establishments which returned a questionnaire. Column 4 is simply column 3 divided by column 2. Column 5 presents the number of establishments believed to be operating in the SIC in question. Column 6 is simply column 3 divided by column 5.

B. DICTIONARY OF VARIABLES. Appendix B lists the variable names as they appear in the SAS database with a short description of each variable. Please note that although the establishment name (NAME) appears in the data dictionary and is collected on the census questionnaire, this variable will generally not be available to outside researchers.

C. SAMPLE QUESTIONNAIRE. Appendix C offers a sample long form questionnaire for the SIC 171 group. This questionnaire can be considered representative of the questionnaire for the remaining construction SIC codes. 1992 and 1997 questionnaires for the remaining construction SIC codes are on file at CES and are available upon request from Census' Construction and Manufacturing Division.

D. 1982, 1987 AND 1992 ITEM AVAILABILITY. Appendix D lists a brief description of the questionnaire items and the names under which they appear in the various years of the CCI database. If a year column is blank for any particular item, then that item is not available for the year in question.

E. SAMPLE SAS PROGRAM FOR CFN MATCHING. Appendix E offers a brief, simple SAS routine for linking establishments within the database by census file number, also known as the IDNUM. A collection of more detailed SAS routines for the database is on file at

CES and can be made available to researchers using the CCI database.

F. MAILOUT RESPONSE RATES BY 2 DIGIT SIC FOR 1992 CCI. Appendix F displays by questionnaire item the percent of those establishments that returned a questionnaire and the percentage that responded to the item in question. This percentage does not reflect item responses that were later edited. Items that were skipped (left blank) by respondents were later imputed. Appendix F allows the potential research to gain some insight into the database's coverage of the industry by number of establishments.

G. PERCENT OF MAILOUT TOTAL ACCEPTED WITHOUT EDIT OR IMPUTE BY 2 DIGIT SIC FOR 1992 CCI. Appendix G displays by questionnaire item the percent of those establishments that received a questionnaire and the percentage who responded and whose response to the item in question was accepted without change (edit or impute). The keyed data file for 1992 contains the actual responses. Appendix G allows the potential researcher to gauge how much of the data can be used after dropping imputes and/or edits.

H.UNWEIGHTED DESCRIPTIVE STATISTICS FOR 1992 CCI. Appendix H displays the mean, skewness and standard deviation for most of the numeric variables found on the 1992 Census of Construction. These statistics are presented unweighted, and hence, should not be compared to published statistics.

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Table 1

Sample and Universe Counts of 1992 CCI by Payroll

Establishment Sample Origin	1992 Universe	1992 CCI
Multi unit establishments	10,634	10,566
Single Units		
Payroll $480,000 and greater	39,977	37,345
Payroll between $120,000 and $480,000	106,807	41,779
Payroll under $120,000	415,433	128,613
Total Establishments	572,851	218,303

Source: Author's calculations from CCI database.

Note universe estimate is based upon weighted 1992 CCI.

Appendix A

Response Rates and Universe Estimates for 1992 CCI

SIC	Mailout	Response	Response Rate	Universe Estimate*
1521	17,921	14,314	79.9%	107,495
1522	1,710	1,414	82.7%	6,490
1531	5,264	4,529	86.0%	16,989
1541	2,837	2,356	83.0%	7,693
1542	10,422	8,755	84.0%	29,739
1611	4,763	3,991	83.8%	10,090
1622	811	711	87.7%	1,041
1623	4,468	3,652	81.7%	10,233
1629	5,038	4,048	80.3%	15,816
1711	17,936	14,977	83.5%	75,395
1721	6,091	4,923	80.8%	31,920
1731	13,395	11,256	84.0%	54,022
1741	4,806	3,835	79.8%	22,637
1742	5,368	4,340	80.8%	18,648
1743	1,867	1,499	80.3%	6,499
1751	7,026	5,594	79.6%	38,210
1752	2,922	2,332	79.8%	10,196
1761	6,472	5,209	80.5%	27,569
1771	5,982	4,775	79.8%	26,123
1781	1,316	1,084	82.4%	3,638
1791	1,768	1,449	82.0%	3,792
1793	1,673	1,355	81.0%	4,590
1794	3,410	2,791	81.8%	18,898
1795	565	440	77.9%	966
1796	2,706	2,320	85.7%	3,889
1799	6,442	5,098	79.1%	25,270
Total	**142,979**	**117,047**	**81.9%**	**572,848**

* The universe estimate reflects the weighted total of the CCI, which includes nonmail cases not reflected in the mailout figure.

Appendix B - Data Dictionary for the Census of Construction Industries Database

Variable Name	Description
IDNUM	Identification Number (CFN) For Single unit establishments the first digit is 0. For Multi unit establishments the first six digits are the Alpha number and the last four digits identify the individual plant establishment of the company.
EINUM	Employer Identification Number The nine digit number assigned to the employer or other tax paying entity.
OLDID	The CFN of the establishment before it merged with another and assigned a new CFN.
SERIAL	Serial Number (Microfilm Frame Number) An eight digit number assigned to form upon receipt in J'ville.
MAIL	Mail Code 0 = Non Mail 1,3,5 = Short form Cases and long form cases which did not have a chance of getting short form. 2,4,6 = Long form Cases which had a chance of getting a short form. 7 = ICT Intercensus Transfer-Long form with no chance of getting short form. 9 = Non Select large growth cases
BATCH	Batch Number The number assigned the batch of documents as they are keyed in J'ville.
SEQNUM	Sequence Number The position within the batch
FORM	Form Number The form number which was mailed to the establishment was based on the digit SIC of the establishment. (Suffix of 8 = Long form; 9 = Short form)
TYPE	Form Type 1 = Long Form, 2 = Short Form
STATE	Processing State Code - FIPSCODE

Appendix B - Data Dictionary for the Census of Construction Industries Database

DIV	Division Code: 1 = New England 2 = Middle Atlantic 3 = East North Central 4 = West North Central 5 = South Atlantic 6 = East South Central 7 = West South Central 8 = Mountain 9 = Pacific
REGION	Region Code 1 = Northeast 2 = North central 3 = South 4 = West
MOST	Mailout State Code - FIPSCODE
CMSA	Consolidated Metropolitan Statistical Area Code
MSA	Metropolitan Statistical Area Code
PLACE	FIPS Place Code
CTY	FIPS County Code
MODIV	Mailout Division Code The census subject matter in which the establishment was located at time of mailout. 1 = Mining 2 = Construction 3 = Manufactures (Non-ASM) 4 = Transportation 5 = Wholesale 6 = Retail 7 = Services 8 = CAO’s and auxiliaries 9 = Classification Card

Appendix B - Data Dictionary for the Census of Construction Industries Database

SIC	Standard Industrial Classification Four digit code denoting the industry to which the establishment has been assigned.
SUBIND	SIC Sub industry code Two digit code denoting a specific job within the industry (Subind of 95 indicates an ICT into construction. Subind of 99 indicates a base dataimpute case)
SICFLG	SIC coding flag 0 = Establishment successfully coded to 6-digit 1 = Establishment successfully coded to 4 digit
MOSIC	Mailout SIC Code (SIC code at time of mailout.)
MOSUB	Mailout SIC subindustry code
WGT	Establishment Weight (Five digits with 2 implied decimals.)
FORMWT	Form Weight Five digits with 2 implied decimals. Weight assigned to compensate for items missing on short form. All records will contain this weight but it will be 1.00 for those in which it was not required (those that received a long form).
OLDWGT	Original Weight at time of sampling Five digits with 2 implied decimals
REL	Primary Release Flag 0 =Case not released 1 =Mail case edited and released 2 =Mail case edited and released under new CFN 4 =Converted to non mail release 5 =Administrative release of classification card 6 =Control file match ICT released 7 =Released with pseudo PDIV based on form number(due to administrative record SIC update after original form was mailed) 9 =Successor or predecessor of previous release B =Successor of Complex edit ICT C =Record released as nonmail case during non mail releasing operations D =Release of delinquent establishment during closeout operations

Appendix B - Data Dictionary for the Census of Construction Industries Database

REL2	Secondary Release Flag 0 = No supplemental information. 1 = Correction to previously released case 2 = In scope complex edit ICT 3 = Out of scope complex edit ICT
CCSCOD	CCS Code (Coverage Control Source Code)
EOYCOD	End of Year Code 1 = In business at end of year 2 = Not in business at end of year
ACTCOD	Activity Code 0 = Active establishment 1 = Add - Establishment was added during current year processing 2 = Delete - Establishment is out of business, sold or duplicate of another 3 = Ghost - This id number is the predecessor of another MU ID number
MODLID	Model ID Number CFN of record imputed from if case imputed, otherwise field will be blank
IMPUTE	Impute Code 0 = Not imputed, actual reported data. 1 = Record imputed using a model 2 = Record imputed with base data procedure
IMPSIC	Impute Sic Code The Sic used to match response and non response records to pick a model
IMPDIV	Impute Division Code A pseudo division code used to group like records for model imputation
LGADMN	Large Growth Administrative Data flag This flag identifies cases whose weight changed to 1 based on the increase size of their administrative data. 0 = Not large growth 1 = Select Cases, Large growth 2 = Nonselect Cases, Large growth
LGRESP	Large Growth Response Data flag This flag identifies cases whose weight changed to 1 based on large values in response data.

Appendix B - Data Dictionary for the Census of Construction Industries Database

PROFIT	A flag indicating whether or not establishment passed the profit test ratio limits. 0 = failed initially 1 = passed initially 2 = passed initially, but data failed edit even with expanded multipliers 3 = passed initially, but failed on last re-edit 4 = failed initially and still failed on last re-edit
PRATIO	Profit Ratio The ratio of (PR+SO+CM)/TR
CYPR	Total Current Year Administrative Payroll
CYAR	Total Current Year Administrative Receipts
CYPR1Q	Current Year 1st Qtr Administrative Payroll
CBPEMP	1st Qtr Employment from County Business Patterns
LFO	Legal form of Organization 0 = Corporation 1 = Sole Proprietorship 2 = Partnership 5 = Government 7 = Unknown 8 = Tax Exempt cooperative 9 = Other
PWP	Proprietor or Working Partnership 0 = Not a PWP 1 = Sole Proprietorship 2 = Partnership
DATAFL	Data Flag 0 = No bracketed Items or Altered Stubs 1 = Bracketed Items only. 2 = Altered Stubs only. 3 = Bracketed Items and Altered Stubs.
PPN	PPN Number
RLSDAT	Release date The date establishment was released from control file match to the division .

Appendix B - Data Dictionary for the Census of Construction Industries Database

SIC*nn*	SIC Code for year 19*nn*
SIND*nn*	Subindustry Code for year 19*nn*
PR*nn*	Total Payroll for year 19*nn*
IMP*nn*	Impute Code for year 19*nn*
TR*nn*	Total Receipts for year 19*nn*
TE1*nn*	1st Qtr Employees for year 19*nn*
CW1	1st Qtr Construction Workers
CW2	2nd Qtr Construction Workers
CW3	3rd Qtr Construction Workers
CW4	4th Qtr Construction Workers
OE1	1st Qtr Other Employees
OE2	2nd Qtr Other Employees
OE3	3rd Qtr Other Employees
OE4	4th Qtr Other Employees
TE1	Total 1st Qtr Employees
TE2	Total 2nd Qtr Employees
TE3	Total 3rd Qtr Employees
TE4	Total 4th Qtr Employees
ACW	Average Construction Workers
AOE	Average Other Employees
ATE	Average Total Employees
TCW	Sum of 4 Qtrs of Construction Workers

Appendix B - Data Dictionary for the Census of Construction Industries Database

TOE	Sum of 4 Qtrs of Other Employees
TTE	Sum of 4 Qtrs of Total Employees
OES	Other Employee Salaries
CWW	Construction Worker Wages
PR	Total Payroll
PR1	1st Qtr Payroll
WTDPR	Weighted Payroll
LEGAL	Cost of Legally Required Programs
VOLUNT	Cost of Voluntary Programs
TLC	Total Labor Costs for Fringe Benefits
SO	Amount paid for work subcontracted out to other companies.
CM	Payments for components, materials and supplies.
ELEC	Electricity Costs
NATGAS	Natural Gas Costs
GASON	Gasoline and Diesel Fuel Cost for on Highway
GASOFF	Gasoline and Diesel Fuel Costs for off Highway
OTFUEL	Other Fuels Cost
TFUEL	Total Fuels Cost
RM	Payments for rental or lease of machinery
RS	Payments for rental or lease of structures
RT	Total payments for rental or lease

Appendix B - Data Dictionary for the Census of Construction Industries Database

PSCOMM	Selected Purchased Services for communications
PSRM	Selected Purchased Services for repairs to machinery and equipment
PSRS	Selected Purchased Services for repairs to structures
PSTOTL	Total Selected Purchased Services.
BR	Receipts for Business work.
CV	Total Value of Construction work done.
TR	Total Receipts.
NCR	Net Construction Value (NCR = CV-SO)
VA	Value added (VA = TR-SO-CM-TFUEL-LR)
PRIVAT	Percent of total construction value for work done on privately owned construction
FED	Percent of total construction value for work done on Federally owned construction
SL	Percent of total construction value for work done on state and locally owned construction
SUBIN	Percent of total construction value for work Subcontracted in from others.
GBS	Gross Book Value of Depreciable Assets for structures and additions
SOURCE	Source of Receipts Item.
GBM	Gross Book Value of Depreciable Assets for machinery and equipment
GBT	Total Gross Book Value of Depreciable Assets
GBS1	Gross Book Value of Depreciable Assets for structures at beginning of year
GBM1	Gross Book Value of Depreciable Assets for machinery at beginning of year
MR	Percent of Construction value for machinery and repair

Appendix B - Data Dictionary for the Census of Construction Industries Database

GBT1	Total Gross Book Value of Depreciable Assets at beginning of year
NS	Capital Expenditures for New Structures
NM	Capital Expenditures for New Machinery
NT	Capital Expenditures for New Vehicles
US	Capital Expenditures for Used Structures
UM	Capital Expenditures for Used Machinery
TCE	Total Capital Expenditures
GBSRET	Gross Book Value of depreciable structures retired during year.
GBMRET	Gross Book Value of depreciable machinery retired during year.
GBTRET	Total Gross Book Value of depreciable assets retired during year.
DCS	Depreciation charges for Structures and additions
DCM	Depreciation charges for Machinery
DCT	Total Depreciation charges.
INV*nn*	Total Inventory for year 19*nn.*
KOB1 (1)	Kind of Business code for 1st entry
KOB1 (2-24)	Kind of Business codes for 2nd to 24th entry
KOB1 (25)	Kind of Business code for 25th entry
KOBCNT	Number of Kind of business entries
KOB2 (1)	Percent of total value for the 1st entry
KOB2 (2-24)	Percent of total value for the 2nd to 24th entry
KOB2 (25)	Percent of total value for the 25th entry
CLSCNT	Number of entries for classification of construction work.

Appendix B - Data Dictionary for the Census of Construction Industries Database

CLASS(1,1)	Type of construction code for the 1st classification entry
CLASS(2,1)	Percent of total construction value for the 1st classification entry
CLASS(3,1)	Percent of total construction value for the 1st classification entry that was new construction
CLASS(4,1)	Percent of total construction value for the 1st classification entry that was additions and alterations
CLASS	Sets of type of construction codes and percents
CLASS(1,20)	Type of construction code for the 20th classification entry
CLASS(2,20)	Percent of total construction value for the 20th classification entry
CLASS(3,20)	Percent of total construction value for the 20th classification entry that was new construction
CLASS(4,20)	Percent of total construction value for the 20th classification entry that was additions and alterations
NEW	Percent of total construction value for new construction
AA	Percent of total construction value for additions and alterations
HOMEST	Percent of total construction value for work performed in the state in which the establishment is located.
SCOUNT	Number of states in which establishment did construction work.
WORKST(1)	Percent of total construction value for work done in Alabama
WORKST(2-50)	Percent of total construction value for work done for appropriate state, alphabetic order
WORKST(51)	Percent of total construction value for work done in Wyoming
CENYR	Census Year of file. 92=1992 Economic Census
NAME	Establishment Name (Alpha)

Appendix B - Data Dictionary for the Census of Construction Industries Database

CITY	City Establishment Located (Alpha)
GENMP	General Multiplier Used in editing
SAMPR	Payroll used in Sampling
OPSTAT	Operation status 1 = In operation 2 = Temporarily in seasonally inactive 3 = Ceased operation 4 = Sold or leased
NTOTAL	Total new capital expenditures
MIB	Months in Business
UTOTAL	Total used capital expenditures
ALPHST	Alpha state code in which establishment located
CR	Receipts for Construction work
SV	Value of speculative construction work
OV	Value of construction work done for own use

Appendix D - 1982, 1987, and 1992 CCI Item Availability

Questionnaire Item	Item Name By Year 1992	1987	1982
Identification Number (CFN)	IDNUM	IDNUM	IDNUM
Employer Identification Number	EINUM	EINUM	EINUM
CFN of the establishment before it merged with another and assigned a new CFN	OLDID	ODLID	OLDID
Serial Number	SERIAL	SERIAL	SERIAL
Mail Code	MAIL	MAIL	MAIL
Batch Number	BATCH	BATCH	BATCH
Sequence Number	SEQNUM	SEQNUM	SEQNUM
Form Number	FORM	FORM	FORM
Form Type	TYPE	TYPE	TYPE
State FIPS	STATE	STATE	STATE
Division Code	DIV	DIV	DIV
Region Code	REGION	REGION	REGION
Mailout State Code – FIPS	MOST	MOST	MOST
CMSA Code	CMSA	CMSA	CMSA
MSA Code	MSA	MSA	MSA
FIPS Place Code	PLACE	PLACE	PLACE
FIPS County Code	CTY	CTY	CTY
Mailout Division Code	MODIV	MODIV	MODIV
Standard Industrial Classification	SIC	SIC	SIC

Appendix D - 1982, 1987, and 1992 CCI Item Availability

Questionnaire Item	Item Name By Year 1992	1987	1982
SIC Sub industry code	SUBIND	SUBIND	SUBIND
SIC coding flag	SICFLG	SICFLG	SICFLG
Mailout SIC Code	MOSIC	MOSIC	MOSIC
Mailout SIC subindustry code	MOSUB	MOSUB	MOSUB
6 digit SIC under 1982 SIC coding rules	SICR82		
Establishment Weight	WGT	WGT	WGT
Form Weight	FORMWT	FORMWT	FORMWT
Original Weight at time of sampling	OLDWGT	OLDWGT	
Primary Release Flag	REL	REL	REL
Secondary Release Flag	REL2	REL2	REL2
Coverage Control Source Code	CCSCOD	CCSCOD	CCSCOD
End of Year Code	EOYCOD	EOYCOD	EOYCOD
Activity Code	ACTCOD	ACTCOD	ACTCOD
Model ID Number	MODLID	MODLID	MODLID
Impute Code	IMPUTE	IMPUTE	IMPUTE
Impute Sic Code	IMPSIC	IMPSIC	IMPSIC
Impute Division Code	IMPDIV	IMPDIV	IMPDIV
Large Growth Administrative Data flag	LGADMN	LGADMN	
Large Growth Response Data flag	LGRESP	LGRESP	

Appendix D - 1982, 1987, and 1992 CCI Item Availability

Questionnaire Item	Item Name By Year 1992	1987	1982
Flag indicating whether or not establishment passed the profit test ratio limits	PROFIT	PROFIT	
Profit Ratio	PRATIO	PRATIO	
Number of Items reported		PFLG1A	
MDF value on raw data check		PFLG1B	
Number of Items unchanged by Speer edit		PFLG2A	
MDF value on edited data check		PFLG2B	
Total Current Year Administrative Payroll	CYPR	CYPR	CYPR
Total Current Year Administrative Receipts	CYAR	CYAR	CYAR
Current Year 1st Qtr Administrative Payroll	CYPR1Q	CYPR1Q	CYPR1Q
Joint Venture Code		JOINT	JOINT
Remarks Flag		REMARK	REMARK
Type of Construction write-in simple edit		REF91	REF91
1st Qtr Employment from County Business Patterns			
Legal form of Organization	LFO	LFO	LFO
Proprietor or Working Partnership	PWP	PWP	PWP
Data Flag	DATAFL	DATAFL	DATAFL

Appendix D - 1982, 1987, and 1992 CCI Item Availability

Questionnaire Item	Item Name By Year 1992	1987	1982
PPN Number	PPN	PPN	PPN
Release date	RLSDAT	RLSDAT	RLSDAT
1987 SIC Code	SIC87	SIC	
1987 Subindustry Code	SIND87	SUBIND	
1987 Total Payroll	PR87	PR	
1987 Impute Code	IMP87	IMPUTE	
1987 Total Receipts	TR87	TR	
1987 1st Qtr Employees	TE187	TE1	
1st Qtr Construction Workers	CW1	CW1	CW1
2nd Qtr Construction Workers	CW2	CW2	CW2
3rd Qtr Construction Workers	CW3	CW3	CW3
4th Qtr Construction Workers	CW4	CW4	CW4
1st Qtr Other Employees	OE1	OE1	OE1
2nd Qtr Other Employees	OE2	OE2	OE2
3rd Qtr Other Employees	OE3	OE3	OE3
4th Qtr Other Employees	OE4	OE4	OE4
Total 1st Qtr Employees	TE1	TE1	TE1
Total 2nd Qtr Employees	TE2	TE2	TE2
Total 3rd Qtr Employees	TE3	TE3	TE3
Total 4th Qtr Employees	TE4	TE4	TE4

Appendix D - 1982, 1987, and 1992 CCI Item Availability

Questionnaire Item	Item Name By Year 1992	1987	1982
Average Construction Workers	ACW	ACW	ACW
Average Other Employees	AOE	AOE	AOE
Average Total Employees	ATE	ATE	ATE
Sum of 4 Qtrs of Construction Workers	TCW	TCW	TCW
Sum of 4 Qtrs of Other Employees	TOE	TOE	TOE
Sum of 4 Qtrs of Total Employees	TTE	TTE	TTE
Other Employee Salaries	OES	OES	OES
Construction Worker Wages	CWW	CWW	CWW
Total Payroll	PR	PR	PR
1st Qtr Payroll	PR1	PR1	PR1
Weighted Payroll	WTDPR	WTDPR	
Cost of Legally Required Programs	LEGAL	LEGAL	LEGAL
Cost of Voluntary Programs	VOLUNT	VOLUNT	VOLUNT
Total Labor Costs for Fringe Benefits	TLC	TLC	TLC
Other Land Receipts		LROTH	
1st Qtr. Hours Worked		HOURS1	HOURS1
2nd Qtr. Hours Worked		HOURS2	HOURS2
3rd Qtr. Hours Worked	HOURS3	HOURS3	
4th Qtr. Hours Worked	HOURS4	HOURS4	

Appendix D - 1982, 1987, and 1992 CCI Item Availability

Questionnaire Item	Item Name By Year 1992	1987	1982
Total Hours Worked	THOURS	THOURS	
Impute Inventory Flag for 1986		IMPIN6	
Impute Inventory Flag for 1987		IMPIN7	
Amount paid by establishment for work subcontracted out to other companies	SO	SO	SO
Payments for components, materials and supplies	CM	CM	CM
Electricity Costs	ELEC	ELEC	ELEC
Natural Gas Costs	NATGAS	NATGAS	NATGAS
Gasoline and Diesel Fuel Cost for on Highwa	GASON	GASON	GASON
Gasoline and Diesel Fuel Costs for off Highway	GASOFF	GASOFF	GASOFF
Other Fuels Cost	OTFUEL	OTFUEL	OTFUEL
Total Fuels Cost	TFUEL	TFUEL	TFUEL
Payments for rental or lease of machinery	RM	RM	RM
Payments for rental or lease of structures	RS	RS	RS
Total payments for rental or lease	RT	RT	RT
Selected Purchased Services for communications	PSCOMM	PSCOMM	PSCOMM
Selected Purchased Services for repairs to machinery and equipment	PSRM	PSRM	PSRM

Appendix D - 1982, 1987, and 1992 CCI Item Availability

Questionnaire Item	Item Name By Year 1992	1987	1982
Selected Purchased Services for repairs to structures	PSRS	PSRS	PSRS
Total Selected Purchased Services	PSTOTL	PSTOTL	PSTOTL
Receipts for Business work	BR	BR	BR
Receipts for Sale of Land		LR	LR
Total Value of Construction work	CV		
Receipts for Construction work	CR	CR	CR
Total Receipts	TR	TR	TR
Net Construction Value	NCR	NCR	NCR
Value added	VA	VA	VA
Percent of total construction value for work done on privately owned construction	PRIVAT	PRIVAT	PRIVAT
Percent of total construction value for work done on Federally owned construction	FED	FED	FED
Percent of total construction value for work done on state and locally owned construction	SL	SL	SL
Source of receipts item		SOURCE	
Percent of total construction value for work Subcontracted in from others	SUBIN	SUBIN	SUBIN
Gross Book Value of Depreciable Assets for structures and additions	GBS	GBS	GBS

Appendix D - 1982, 1987, and 1992 CCI Item Availability

Questionnaire Item	Item Name By Year 1992	1987	1982
Gross Book Value of Depreciable Assets for machinery and equipment	GBM	GBM	GBM
Total Gross Book Value of Depreciable Assets	GBT	GBT	GBT
Gross Book Value of Depreciable Assets for structures at beginning of year	GBS1	GBS1	GBS1
Gross Book Value of Depreciable Assets for machinery at beginning of year	GBM1	GBM1	GBM1
Percent of Construction value for machinery and repair	MR	MR	MR
Total Gross Book Value of Depreciable Assets at beginning of year	GBT1	GBT1	GBT1
Capital Expenditures for New Structures	NS	NS	NS
Capital Expenditures for New Machinery	NM	NM	NM
Capital Expenditures for New Vehicles	NT	NT	NT
Capital Expenditures for Used Structures	US	US	US
Capital Expenditures for Used Machinery	UM	UM	UM
Total Capital Expenditures	TCE	TCE	TCE
Gross Book Value of depreciable structures retired during year	GBSRET	GBSRET	GBSRET

Appendix D - 1982, 1987, and 1992 CCI Item Availability

Questionnaire Item	Item Name By Year 1992	1987	1982
Gross Book Value of depreciable machinery retired during year	GBMRET	GBMRET	GBMRET
Total Gross Book Value of depreciable assets retired during year	GBTRET	GBTRET	GBTRET
Depreciation charges for Structures and additions	DCS	DCS	DCS
Depreciation charges for Machinery	DCM	DCM	DCM
Total Depreciation charges	DCT	DCT	DCT
Total Inventory for 1991	INV91		
Total Inventory for 1992	INV92		
Total Inventory for 1986		INV86	
Total Inventory for 1987		INV87	
Total Inventory for 1981			INV81
Total Inventory for 1982			INV82
Cost of Materials 1986		MAT86	
Cost of Materials 1987		MAT87	
Work in Progress 1986		WIP86	
Work in Progress 1987		WIP87	
Kind of Business code for nth entry	KOB1n	KOB1n	KOB1n
Number of Kind of business entries	KOBCNT	KOBCNT	KOBCNT
Percent of total value for nth entry	KOB2n	KOB2n	KOB2n

Appendix D - 1982, 1987, and 1992 CCI Item Availability

Questionnaire Item	Item Name By Year 1992	1987	1982
Number of entries for classification of construction work	CLSCNT	CLSCNT	CLSCNT
Type of construction code for the nth classification entry	CLASS1N	CLASS1N	CLASS1N
Percent of total construction value for the 1st classification entry	CLASS2N	CLASS2N	CLASS2N
Percent of total construction value for the 1st classification entry that was new construction	CLASS3N	CLASS3N	CLASS3N
Percent of total construction value for the 1st classification entry that was additions and alterations	CLASS4N	CLASS4N	CLASS4N
Percent of total construction value for new construction	NEW	NEW	NEW
Percent of total construction value for additions and alterations *	AA	AA	AA
Percent of total construction value for work performed in the state in which the establishment is located	HOMEST	HOMEST	HOMEST
Number of states in which establishment did construction work	SCOUNT	SCOUNT	SCOUNT
Percent of total construction value for work done in Alabama	WORKST(1)	WORKST(1)	WORKST(1)
Percent of total construction value for work done for appropriate state, alphabetic order	WORKST(#)	WORKST(#)	WORKST(#)
Percent of total construction value for work done in Wyoming	WORKST(51)	WORKST(51)	WORKST(51)

* not available for SIC 17 in 1982 or prior years.

Appendix D - 1982, 1987, and 1992 CCI Item Availability

Questionnaire Item	Item Name By Year 1992	1987	1982
Census Year of file	CENYR	CENYR	CENYR
Establishment Name (Alpha)	NAME	NAME	
City Establishment Located (Alpha)	CITY	CITY	
General Multiplier Used in editing	GENMP	GENMP	GENMP
Payroll used in Sampling	SAMPR	SAMPR	SAMPR
Operation status	OPSTAT	OPSTAT	OPSTAT
Total new capital expenditures	NTOTAL	NTOTAL	NTOTAL
Months in Business	MIB	MIB	
Total used capital expenditures	UTOTAL	UTOTAL	UTOTAL
Alpha state code in which establishment located	ALPHST	ALPHST	
Value of speculative construction work	SV		
Value of construction work done for own use	OV		

Appendix E

```
/* This program links establishments across CCIs - written by Mark Calabria*/


libname de 'd:\userdata\sasdata';

data a;
set de.file1(keep=firmid);
run;

proc sort;
by firmid;
run;

data b;
set de.file1(keep=firmid);
run;

proc sort;
by firmid;
run;

data c;
merge a(in=x) b(in=y);
by firmid;
if x=1;
if y=1;
run;
```

Appendix F - Mailout Response Rates by 2 digit SIC for 1992 CCI

Questionnaire Item	SIC by Response Percent 1500	1600	1700
1st Qtr Construction Workers	81.3	90.7	89.0
2nd Qtr Construction Workers	81.2	90.8	88.9
3rd Qtr Construction Workers	81.1	90.9	89.0
4th Qtr Construction Workers	81.0	90.8	88.8
1st Qtr Other Employees	80.6	90.1	88.2
2nd Qtr Other Employees	80.6	90.6	88.4
3rd Qtr Other Employees	80.6	90.6	88.4
4th Qtr Other Employees	80.3	90.4	88.0
Total 1st Qtr Employees	80.5	90.2	88.3
Total 2nd Qtr Employees	80.5	90.5	88.3
Total 3rd Qtr Employees	80.5	90.6	88.4
Total 4th Qtr Employees	80.4	90.5	88.2
Average Construction Workers	80.4	90.3	88.2
Average Other Employees	79.3	89.5	86.9
Average Total Employees	79.6	89.7	87.4
Sum of 4 Qtrs of Construction Workers	41.0	60.5	48.1
Sum of 4 Qtrs of Other Employees	40.4	59.9	47.3
Sum of 4 Qtrs of Total Employees	40.6	60.1	47.6
Other Employee Salaries	75.3	86.6	80.6

Appendix F - Mailout Response Rates by 2 digit SIC for 1992 CCI

Questionnaire Item	SIC by Response Percent 1500	1600	1700
Construction Worker Wages	80.8	90.3	87.1
Total Payroll	92.3	95.0	91.6
1st Qtr Payroll	64.1	75.4	63.9
Cost of Legally Required Programs	51.8	70.9	58.6
Cost of Voluntary Programs	50.2	69.1	56.6
Total Labor Costs for Fringe Benefits	50.5	69.5	57.1
Amount paid by establishment for work subcontracted out to other companies	82.2	90.1	87.5
Payments for components, materials and supplies	80.4	87.6	85.0
Electricity Costs	77.0	85.9	82.1
Natural Gas Costs	72.8	79.9	76.7
Gasoline and Diesel Fuel Cost for on Highway	76.6	85.3	82.0
Gasoline and Diesel Fuel Costs for off Highway	71.8	83.0	75.6
Other Fuels Cost	70.9	80.1	74.7
Payments for rental or lease of machinery	49.3	68.6	55.7
Payments for rental or lease of structures	49.2	66.8	55.8
Total payments for rental or lease	100.0	100.0	100.0

Appendix F - Mailout Response Rates by 2 digit SIC for 1992 CCI

Questionnaire Item	SIC by Response Percent 1500	1600	1700
Selected Purchased Services for communications	50.7	69.4	57.6
Selected Purchased Services for repairs to machinery and equipment	50.1	69.0	56.6
Selected Purchased Services for repairs to structures	48.3	65.9	54.4
Total Selected Purchased Services	100.0	100.0	100.0
Receipts for Business work	75.3	82.4	78.8
Total Value of Construction work done	78.9	88.2	84.1
Receipts for Construction work	82.7	91.5	89.2
Total Receipts	93.4	94.3	92.5
Net Construction Value	99.9	99.9	99.8
Percent of total construction value for work done on privately owned construction	50.3	59.0	56.5
Percent of total construction value for work done on Federally owned construction	17.4	29.5	23.1
Percent of total construction value for work done on state and locally owned construction	21.5	52.2	30.8
Percent of total construction value for work Subcontracted in from others	50.4	68.7	56.9
Gross Book Value of Depreciable Assets for structures and additions	35.2	49.4	37.3

Appendix F - Mailout Response Rates by 2 digit SIC for 1992 CCI

Questionnaire Item	SIC by Response Percent 1500	1600	1700
Gross Book Value of Depreciable Assets for machinery and equipment	40.9	59.6	45.2
Total Gross Book Value of Depreciable Assets	42.0	59.7	46.1
Gross Book Value of Depreciable Assets for structures at beginning of year	38.8	53.6	41.8
Gross Book Value of Depreciable Assets for machinery at beginning of year	44.5	63.8	49.6
Total Gross Book Value of Depreciable Assets at beginning of year	44.2	62.1	48.8
Capital Expenditures for New Structures	36.3	49.2	38.8
Capital Expenditures for New Machinery	40.4	58.4	44.5
Capital Expenditures for New Vehicles	41.1	57.9	45.1
Capital Expenditures for Used Structures	34.6	46.5	36.8
Capital Expenditures for Used Machinery	38.1	56.2	42.1
Gross Book Value of depreciable structures retired during year	34.6	46.6	36.9
Gross Book Value of depreciable machinery retired during year	38.7	57.2	42.5

Appendix F - Mailout Response Rates by 2 digit SIC for 1992 CCI

Questionnaire Item	SIC by Response Percent 1500	1600	1700
Total Gross Book Value of depreciable assets retired during year	39.7	56.6	43.4
Depreciation charges for Structures and additions	33.5	47.5	35.9
Depreciation charges for Machinery	40.1	58.9	44.4
Total Depreciation charges	41.4	59.4	45.8
Total Inventory for 1991	47.6	65.6	54.2
Total Inventory for 1992	48.5	66.8	55.3
Value of speculative construction work	76.2	81.7	78.6
Value of construction work done for own use	75.2	81.3	78.4

Appendix G -Percent of Mailout Total Accepted without edit or impute by 2 digit SIC for 1992 CCI

Questionnaire Item	SIC by Response Percent 1500	1600	1700
1st Qtr Construction Workers	74.4	84.2	80.6
2nd Qtr Construction Workers	74.3	84.4	80.6
3rd Qtr Construction Workers	74.6	84.7	80.7
4th Qtr Construction Workers	74.2	84.3	80.3
1st Qtr Other Employees	73.6	83.9	79.6
2nd Qtr Other Employees	73.8	84.2	80.0
3rd Qtr Other Employees	74.0	84.5	80.2
4th Qtr Other Employees	73.5	84.0	80.0
Total 1st Qtr Employees	79.1	89.0	86.9
Total 2nd Qtr Employees	79.1	89.5	86.7
Total 3rd Qtr Employees	79.2	89.5	86.8
Total 4th Qtr Employees	79.1	89.5	86.8
Average Construction Workers	27.9	26.5	31.8
Average Other Employees	68.9	77.4	74.7
Average Total Employees	78.3	88.7	86.1
Sum of 4 Qtrs of Construction Workers	36.2	53.9	41.1
Sum of 4 Qtrs of Other Employees	35.4	53.5	40.3
Sum of 4 Qtrs of Total Employees	39.5	59.0	46.5
Other Employee Salaries	63.3	75.9	67.3

Appendix G -Percent of Mailout Total Accepted without edit or impute by 2 digit SIC for 1992 CCI

Questionnaire Item	SIC by Response Percent 1500	1600	1700
Construction Worker Wages	66.9	77.2	70.9
Total Payroll	83.5	88.4	83.1
1st Qtr Payroll	53.6	68.1	55.6
Cost of Legally Required Programs	39.7	58.0	45.1
Cost of Voluntary Programs	41.5	57.8	46.0
Total Labor Costs for Fringe Benefits	39.9	59.9	46.3
Amount paid by establishment for work subcontracted out to other companies	73.9	87.9	84.7
Payments for components, materials and supplies	70.8	76.4	72.4
Electricity Costs	74.6	83.2	79.2
Natural Gas Costs	71.9	78.6	75.4
Gasoline and Diesel Fuel Cost for on Highway	55.3	73.5	68.8
Gasoline and Diesel Fuel Costs for off Highway	66.3	68.0	69.8
Other Fuels Cost	70.0	78.2	73.3
Payments for rental or lease of machinery	48.3	66.5	54.2
Payments for rental or lease of structures	48.3	65.6	54.2
Total payments for rental or lease	81.2	84.5	84.2

Appendix G -Percent of Mailout Total Accepted without edit or impute by 2 digit SIC for 1992 CCI

Questionnaire Item	SIC by Response Percent 1500	1600	1700
Selected Purchased Services for communications	48.7	67.4	55.0
Selected Purchased Services for repairs to machinery and equipment	48.4	66.2	54.1
Selected Purchased Services for repairs to structures	47.7	65.1	53.7
Total Selected Purchased Services	78.0	82.0	81.4
Receipts for Business work	64.2	72.9	69.1
Total Value of Construction work done	62.6	73.6	67.6
Receipts for Construction work	61.3	75.9	71.6
Total Receipts	0.1	0.1	0.1
Net Construction Value	58.0	71.1	64.5
Percent of total construction value for work done on privately owned construction	49.0	57.6	55.1
Percent of total construction value for work done on Federally owned construction	16.9	28.5	22.4
Percent of total construction value for work done on state and locally owned construction	21.0	50.8	30.1
Percent of total construction value for work Subcontracted in from others	48.4	68.5	56.9
Gross Book Value of Depreciable Assets for structures and additions	31.4	44.3	33.5

Appendix G -Percent of Mailout Total Accepted without edit or impute by 2 digit SIC for 1992 CCI

Questionnaire Item	SIC by Response Percent 1500	1600	1700
Gross Book Value of Depreciable Assets for machinery and equipment	33.3	48.4	36.0
Total Gross Book Value of Depreciable Assets	33.5	47.9	36.3
Gross Book Value of Depreciable Assets for structures at beginning of year	36.8	51.6	39.8
Gross Book Value of Depreciable Assets for machinery at beginning of year	42.2	60.9	47.1
Total Gross Book Value of Depreciable Assets at beginning of year	41.6	59.2	46.1
Capital Expenditures for New Structures	35.9	48.7	38.4
Capital Expenditures for New Machinery	39.7	57.1	43.2
Capital Expenditures for New Vehicles	40.1	56.5	43.6
Capital Expenditures for Used Structures	34.3	46.1	36.5
Capital Expenditures for Used Machinery	37.5	55.2	41.1
Gross Book Value of depreciable structures retired during year	34.1	46.0	36.5
Gross Book Value of depreciable machinery retired during year	37.6	55.4	41.3

Appendix G -Percent of Mailout Total Accepted without edit or impute by 2 digit SIC for 1992 CCI

Questionnaire Item	SIC by Response Percent 1500	1600	1700
Total Gross Book Value of depreciable assets retired during year	38.3	54.3	42.0
Depreciation charges for Structures and additions	30.2	43.8	32.8
Depreciation charges for Machinery	6.7	3.5	6.0
Total Depreciation charges	32.1	49.1	35.3
Total Inventory for 1991	46.6	64.3	52.7
Total Inventory for 1992	47.7	65.3	53.7
Value of speculative construction work	63.9	79.7	75.3
Value of construction work done for own use	71.8	78.7	76.1

Appendix H - Unweighted Descriptive Statistics for Select Items for 1992 CCI
(Dollar figures in thousands)

Variable	Mean	Skewness	Standard Deviation
Profit Ratio	0.113	10.0	0.431
CY Payroll (Admin)	422.13	56.5	1,986.81
CY 1st Qtr. Payroll (Admin)	91.59	58.9	465.11
CY 1st Qtr. CBP Employment	13.71	370.8	162.86
Total Receipts in 1987	1,068.25	42.9	7,257.83
1st Qtr. Construction Workers	10.41	64.2	48.48
2nd Qtr. Construction Workers	11.50	66.6	51.17
3rd Qtr. Construction Workers	12.15	61.0	49.75
4th Qtr. Construction Workers	11.34	62.2	48.36
1st Qtr. Other Workers	3.36	70.6	15.36
2nd Qtr. Other Workers	3.34	72.7	15.10
3rd Qtr. Other Workers	3.36	69.3	14.95
4th Qtr. Other Workers	3.33	63.3	14.68
Annual Other Workers Salaries	125.49	62.5	621.15
Construction Worker Wages	290.99	56.8	1,459.17
Total Annual CY Payroll	416.49	57.7	1,967.77
CY 1st Qtr. Payroll	80.41	59.3	464.39
Legally Required Labor Benefits & Costs	59.90	48.1	328.98
Voluntary Labor Benefits & Costs	37.51	45.4	271.32
Total Labor Costs (wage/salary)	97.41	47.6	564.87
Amount of Work Subcontracted To others	512.21	43.0	4,409.40
Cost of Materials, Components And Supplies	524.69	30.2	2,357.69
Electricity Costs	4.87	133.6	75.09
Natural Gas Costs	1.66	271.6	32.99
Gas Costs (on-highway)	12.97	56.7	61.15
Gas Costs (off-highway)	6.37	78.6	73.40
Other Fuel Costs	1.73	52.7	18.55
Rental/lease for machinery	19.12	37.1	185.04
Rental/lease for structures	7.43	64.2	49.61
Total Rental/lease payments	26.54	34.3	203.66
Purchased Services – Comm.	6.43	44.6	30.65
Purchased Services – Repairs To machinery/equipment	17.19	43.0	134.75
Purchased Services – Repairs To structures	1.41	63.9	16.56
Other Business Receipts	40.78	177.0	913.91

Appendix H - Unweighted Descriptive Statistics for Select Items for 1992 CCI
(Dollar figures in thousands)

Variable	Mean	Skewness	Standard Deviation
Value of Construction Work	1,831.75	32.4	8,669.85
Total Receipts	1,872.53	34.7	9,016.02
Percent of Construction Work For Private Use	0.71	-1.0	0.41
Percent of Construction Work For Federal Use	0.02	6.7	0.10
Percent of Construction Work For State/Local govt.	0.08	3.2	0.20
Gross Book Value of Depreciable Assets – structures/adds.	33.87	417.5	1,839.15
Gross Book Value of Depreciable Assets – mach/equipment	198.74	155.2	1,991.41
Total Gross Book Value of Depreciable Assets	232.61	211.2	3,018.85
Beginning of Year Gross Book Value of Depreciable Assets – Structures & additions	33.53	409.1	1,852.50
Beginning of Year Gross Book Value of Depreciable Assets – Machinery & equipment	189.56	155.5	1,969.39
Percent of Construction Value for Maintenance and Repair	0.19	1.7	0.30
Beginning of Year Total Gross Book Value of Depreciable Assets	223.09	212.0	3,012.45
Capital Expenditures for New Structures	1.81	185.6	54.50
Capital Expenditures for New Machinery	10.64	82.0	133.66
Capital Expenditures for New Vehicles	12.45	76.9	150.28
Capital Expenditures for Used Structures	0.39	84.3	11.39
Capital Expenditures for Used Machinery	4.76	80.5	68.44
Total Capital Expenditures	22.53	52.9	194.78
Gross Book Value of Depreciable Structures Retired during year	1.86	326.7	190.81
Gross Book Value of Depreciable Machinery retired during year	11.15	148.6	195.60
Total Gross Book Value of Depreciable Assets retired during year	13.01	163.2	276.45

Appendix H - Unweighted Descriptive Statistics for Select Items for 1992 CCI
(Dollar figures in thousands)

Variable	Mean	Skewness	Standard Deviation
Depreciation charges for Structures And additions	2.19	122.0	38.31
Depreciation charges for Machinery	20.58	91.7	171.50
Total Inventory for 1991	17.80	109.0	290.15
Total Inventory for 1992	19.78	217.1	489.51
Percent of Construction that is New	0.56	-0.3	0.40
Percent of Construction Value for Alterations and Additions	0.25	1.2	0.32
Percent of Construction Value for work Performed in state in which Establishment is located	0.97	-5.2	0.14
Number of states in which establishment Did construction work	1.20	13.3	0.99
Value of Speculative Construction Work	151.07	51.8	2,745.26
Value of Construction Work done for Own use	0.53	238.7	20.82