

EVALUATION OF THE USE OF ADMINISTRATIVE RECORD DATA IN THE ECONOMIC CENSUSES

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This paper describes several of the studies conducted by the Bureau of the Census to evaluate the use of administrative records in the 1977 Economic Censuses. In order to reduce processing costs and reporting burden, census data for many small establishments were obtained from administrative data of other government agencies rather than from the mailing of census questionnaires. The administrative data consisted of business classification codes, sales, payroll, and employment obtained from the Internal Revenue Service and the Social Security Administration. Most establishments with small payroll in addition to most establishments without payroll (i.e., nonemployers) were not mailed questionnaires in the Economic Censuses.

Business Division and Construction Statistics Division of the Bureau of the Census each conducted two studies to analyze the quality of the administrative data. The studies by Business Division were referred to as the "nonemployer" and "below cutoff" studies. The nonemployer study (simply defined, a nonemployer is a single establishment firm with no paid employees in 1977) was an analysis of the sales and employment data as well as the kind of business (KB) classification as indicated on the administrative records. The below cutoff study compared the sales, payroll, employment, and KB classification from the administrative records to the corresponding response data obtained by mailing a census questionnaire to a 10 percent sample of establishments with payroll below specified cutoffs. This sample was called the Special Inquiry Sample (SIS). The SIS was used in the Economic Censuses to obtain data for merchandise lines tabulations. Construction Statistics Division conducted a nonemployer study similar to that of Business Division and a second study designed to analyze administrative data tabulated in the census for the single unit employers who were mailed questionnaires but did not respond. Each of the four studies are discussed separately.

I. Business Division's Nonemployer Study
Only administrative data were available for tabulating most nonemployers in the Retail and Selected Services Economic Censuses. Thus, a major component of Business Division's nonemployer study was obtaining response data necessary for the analysis of the corresponding administrative data. A sample of about 10,000 nonemployers was selected for mailing in the study. The response data were then edited, i.e., checked for completeness and consistency, and used in the analysis of the sales and employment data and the Principal Industrial Activity (PIA) Classification Codes on the corresponding administrative records.

The following administrative record data were used in the study: (1) The Social Security Number (SSN) Universe, consisting of extracted portions of Form 1040 Schedule C tax returns filed with the Internal Revenue Service (IRS) for 1977; and (2) the employer identification (EI) number zero universe, consisting of extracted portions of all records for partnership and corporation tax returns with positive receipts and zero (Ø) payroll

for 1977. Each record in the SSN universe and each EI in the EI zero universe (called an EIØ) with a PIA classification code within the scope of the study (i.e., Retail and Service trade areas) was defined as a sampling unit. The combined universe of (1) and (2) covered about 75 PIA classification codes. Designated as nonemployers for this study were those cases from the universe which had no indication of employment in 1977 (i.e., the cases failed to have all of the following: (1) positive wages; (2) a positive cost of labor indicator; and (3) a flag indicating that during at least one quarter of 1977, a Form 941 was filed with IRS for reporting payroll taxes withheld) and had 1977 annual receipts between these cutoffs:

| Trade Area | Minimum | Maximum |
|------------|---------|-----------|
| Retail | \$2,500 | \$500,000 |
| Service | \$1,000 | \$250,000 |

Those cases with annualized receipts below the minimum cutoff were not tabulated in the retail and service censuses and those with annual receipts above the cutoff were mailed census questionnaires.

In each of three separate components, a stratified sample was selected from the nonemployers. Each component was stratified by groups of PIA codes and annualized gross receipts within. Gross receipts were annualized by

$$GR \times \frac{12}{MIB}$$

where GR = gross receipts and MIB = number of months in business for 1977 as indicated on the administrative records. Three independent samples were drawn so that questionnaires could be mailed to respondents as soon as the administrative record files became available. The sample sizes were proportional to the product of the number of establishments and the square root of the variance of the annualized gross receipts of the establishments in the stratum. The response data were weighted by the inverse of the probability of selection for tabulation and analysis purposes.

Each selected case was mailed a special census questionnaire. Approximately 30 percent of the establishments were nonrespondents, i.e., they did not respond to the initial or follow-up mailings. The nonrespondents within each of the three samples were sorted into PIA recode by sampling stratum order. A systematic subsample for telephone follow-up was selected. The cases not selected in the three subsamples were excluded from the remainder of the nonemployer study. Selected cases that responded had their data additionally weighted by the inverse of the probability of selection in the subsample.

Response data were edited for consistency to guard against reporting and keying errors. All edit failures, partial responses, and "private household" responses were analyzed and resolved. Respondents were telephoned if the data could not be corrected by other means. Each of the response data records were then matched to the administrative records used in tabulating the retail and service censuses.

Analysis of the administrative data included an examination of those cases mailed out as nonemployers but responding as employers. In retail, 3.6 percent of the nonemployer cases responded as employers. In service 2.1 percent of the nonemployer cases responded as employers.

Another area of analysis was the kind of business (KB) classification or Standard Industrial Classification (SIC). The administrative PIA code was recorded to an SIC equivalent for this comparison. Table I.1 below shows the percentages of cases with administrative SIC equal to the reported SIC at the trade area level and at the 2 digit and 3 digit (retail only) level.

Table I.1: SIC Classification
Weighted Percent of Nonemployer Establishments

| Trade Area | Admin. SIC = Reported SIC at Trade Area Level | Admin. SIC = Reported SIC at 2 Digit Level | Admin. SIC = Reported SIC at 3 Digit Level |
|------------|---|--|--|
| | Retail | 69.8 | 58.0 |
| Service | 79.1 | 70.0 | NA ¹ |

¹ Not available

Further analysis was done to see where these cases would have been tabulated if the survey (response) data had been used. Of the 30.2 percent of all retail nonemployers reporting out of scope to retail trade, 46.4 percent reported in wholesale, 21.6 percent reported in service, and 15.5 percent reported in direct sales. One particular kind of business in the retail trade area, Building Materials, Hardware, Garden Supply, and Mobile Home dealers had approximately 58.3 percent of its cases responding out of scope to the retail trade area. 20.9 percent of the nonemployer cases with administrative SIC in selected services responded out of scope to that trade area. Of these cases, 23.9 percent responded in out of scope services, 15.3 percent responded in retail, 16.2 percent responded in construction, 11.4 percent responded in finance, insurance, and real estate and 10.6 percent responded in wholesale. It should be noted that even though many nonemployers responded out of scope, the product (or service) of the business was usually the same as that indicated by the administrative SIC. However, the cases were placed in the wrong trade area.

Other administrative data analyzed were gross receipts. In the retail census, the gross receipts of the nonemployers accounted for about 3.3 percent of the total receipts. In the service census, the nonemployer gross receipts accounted for about 8.5 percent of the total receipts. A ratio was computed for retail and for service of the total weighted receipts from the administrative data to the total weighted receipts from the survey (response) data for those nonemployers mailed and responding in the same trade area. Table I.2 shows these ratios.

The administrative receipts are approximately 7 percent higher than the survey receipts for retail and 1 percent higher for service. The coefficients of variation were computed using the method of random groups.

Table I.2: Ratios of (Weighted) Receipts

| Trade Area | Admin. Receipts of Estabs. (Millions of dollars) | Survey Receipts of Estabs. (Millions of dollars) | Ratio | CV of Ratio |
|------------|--|--|--------|-------------|
| | Retail | 16,848 | 15,734 | 1.07 |
| Service | 11,281 | 11,199 | 1.01 | .02 |

II. Business Division's Below Cutoff Study

The below cutoff study of the administrative records was designed to compare the edited responses for the basic data items of sales or receipts, payroll, employment, and business classification as tabulated in the retail and service censuses to the corresponding edited administrative data.

Each establishment tabulated in the census was assigned a six digit code. These six digit codes were based on the Standard Industrial Classification (SIC) codes found in the SIC manual. For each six digit code, a mailing cutoff based on annual payroll was set, and each single unit establishment above the cutoff was mailed a questionnaire. The SIS, a 10 percent sample, was drawn from all establishments below the cutoffs in the following manner:

1. For each six digit code, the establishments were stratified into three strata with the boundaries being (1/3)C, (2/3)C, and C, where C was the mailing cutoff in dollars.
2. The establishments were placed in EI sort in each stratum and a 1 in 10 sample was taken using systematic sampling with a random start.
3. The selected cases were assigned a sample weight of 10.

The below cutoff cases selected (of which there were 57,627 retail cases and 45,663 service cases) were also mailed census questionnaires. For the balance of the below cutoff cases, administrative data records were used.

Available for the below cutoff study was the control file used in the Census of Business processing. The control file was the master file of all establishments in the Economic Censuses. It contained the administrative data used for the nonmail cases and for mail cases that did not respond. For this study, all records with a weight of 10 (indicating an SIS case) were removed from the control file. There existed a process called the Control File Match which created a detail record for tabulation in the censuses containing the administrative and response data for each case that responded to the questionnaire. If the case did not respond to the questionnaire or was a nonmail case and was not dropped in the Control File Match, its detail record contained all administrative data taken from the control file record. The tabulated data in the detail record went through various editing and imputation procedures. Since a major requirement of the below cutoff study was to create records that only contained administrative data for the SIS response cases so that administrative data as it would have been tabulated had no response been available could be compared to actual response data, a special running of the Control File Match was made. The control file records which corresponded to the SIS cases tabulated in the census (83,912 cases) were used as input into the Control File Match. No response data were made available.

The result was the creation of edited administrative data detail records for the SIS response cases. This was the data designated as "the data that would have been tabulated had the SIS not been mailed."

The parameters used to edit the administrative data of the SIS response cases were actually based on all reported data. This means that the SIS responses affected the parameters by which their administrative data were edited. The impact of this could not be measured but it was presumed to be small.

Thus, the special running of the Control File Match created the necessary edited administrative data and also led to the identification of those cases which would have been dropped because they had no administrative data for the basic data items (sales, annual payroll, first quarter payroll, and first quarter employment). About 2.8 percent of those SIS cases tabulated in the retail census would have been dropped for this reason if the SIS had not been mailed. These cases accounted for approximately .2 percent of the total sales and approximately .2 percent of the total annual payroll in the retail trade area. In the service census, about 1.9 percent of those cases tabulated would have been dropped had the SIS not been mailed. These cases accounted for approximately .2 percent of the total sales and .1 percent of the total annual payroll in the service trade area.

The data based on responses to the questionnaire for the SIS cases were easier to obtain than the administrative data. Processing of all census cases was done by tab groups within each trade area. A tab group consisted of three or more states. Each of the tab group files was processed and the necessary data for the SIS cases were removed by matching the EI of the edited administrative data to the EI of the corresponding edited response data and placing all the data for tabulation and analysis on one record. (The wholesale tab group files were processed in order to remove data for those SIS cases that were mailed out as retail or service establishments but responded as wholesale establishments.) The data taken from the tab group files had gone through major editing and correction processes and were the actual data tabulated in the retail, wholesale, and service censuses.

Only those cases that responded in the SIS mailing were considered in the analysis. In the retail census, SIS response cases accounted for about 2.4 percent of all employers tabulated. In the service census, SIS response cases accounted for about 2.5 percent of all employers tabulated. Even though a case may have responded, a particular basic data item for the case was of importance to the study only if it was reported and had not been changed during editing and correction. Therefore the number of cases used to obtain totals for each basic data was not the same.

One area that was open to analysis was the determination of the kind of business classification errors that would occur if the administrative SIC had been used for tabulation purposes in the census. Table II.1 shows the percent cases with administrative and tab SIC identical at the trade area level and at the 2, 3, and 4 digit SIC levels.

Table II.1 SIC Classification: Percent Establishments

| Trade Area | Admin. SIC = Tab. SIC at the Trade Area Level | Admin. SIC = Tab. SIC at the Two Digit Level | Admin. SIC = Tab. SIC at the Three(3) Digit Level | Admin. SIC = Tab. SIC at the Four Digit Level |
|------------|---|--|---|---|
| Retail | 95.8 | 89.6 | 85.0 | 81.3 |
| Service | 97.4 | 96.1 | 94.1 | 91.4 |

Trade area percentages of retail and service differ by 1.6 but the service identical percentages of the 2, 3, and 4 digit level are at least 6 percentage points higher than the corresponding identical percentages of retail. As expected, the percentages decreased as the level of detail increased.

Of special interest was the detection of significant shifts from SIC's inscope to the retail and service trade areas to SIC's out-of-scope to the trade area. Approximately 2.6 percent of all cases with a service administrative SIC were tabulated outside the service trade area. Of those cases going out-of-scope, half of them went to retail (50.4 percent). Other notable shifts were to finance, insurance, and real estate (11.5 percent), to manufacturing (17.5 percent) and to construction (10.3 percent). Of all cases with a retail administrative SIC, approximately 4.2 percent were tabulated outside the retail trade area. Of these, the largest shifts were to service (46.5 percent), construction (15.4 percent) and finance, insurance, and real estate (11.2 percent).

Of equal importance in the study was the analysis of the edited administrative data for sales, payroll, and employment. An analysis of all establishments mailed and tabulated at the same trade area level (these cases are called identicals) was also made for each data item. Table II.2 (retail) and Table II.3 (service) provide ratios of the variable total of the administrative data to the variable total of the census tabulated data for these establishments.

Table II.2 Comparison of Administrative and Tab Data Items, Ratios of Weighted Totals, Trade Area = Retail

| Data Item | Total Admin. Data ^{1/} (Millions of Dollars) | Total Tab. Data ^{1/} (Millions of Dollars) | Ratio = Admin. Data / Tab. Data | % Admin. Lower than Tab. Data | CV ^{2/} of Ratio |
|------------------|---|---|---------------------------------|-------------------------------|---------------------------|
| Sales Annual | 35,811 | 41,165 | .870 | 13.0 | .005 |
| Payroll | 3,170 | 3,281 | .966 | 3.4 | .002 |
| 1st Qtr. Payroll | 583 | 648 | .900 | 10.0 | .004 |
| 1st Qtr. Employ. | 654 | 710 | .921 | 7.9 | .004 |

^{1/}The cases used in these totals were those cases that had "good" reported data for the variable in question, i.e., the data had not been corrected and/or imputed using administrative data.

^{2/}CV's were computed using the random group method.

Table II.3 Comparison of Administrative and Tab Data for the Basic Data Items, Ratios of Weighted Totals, Trade Area = Service

| Data Item | Total Admin. Data ^{1/} (Millions of Dollars) | Total Tab. Data ^{1/} (Millions of Dollars) | Ratio = Admin. Data Tab. Data | % | |
|---------------------|---|---|-------------------------------|----------------------------|---------------------------|
| | | | | Admin. Data Than Tab. Data | CV ^{2/} of Ratio |
| Sales (or Receipts) | 16,720 | 18,365 | .910 | 9.0 | .003 |
| Annual Payroll | 3,795 | 4,154 | .913 | 8.7 | .027 |
| 1st Qtr. Payroll | 770 | 857 | .898 | 10.2 | .002 |
| 1st Qtr. Employ. | 581 | 628 | .925 | 7.5 | .002 |

^{1/}The cases used in these totals were those cases that had "good" reported data for the variable in question, i.e., the data that had not been corrected and/or imputed using administrative data.
^{2/}CV's were computed using the random group method.

III. Construction Statistics Division's Nonemployer Study

For this nonemployer study, the data available from the administrative records were the same as for the study described in section I. The number of firms and their total receipts were published for Major Industrial Groups (two digit Standard Industrial Classification (SIC)), 15 (General Contractors and Operative Builders), 16 (General Contractors other than Builders) and 17 (Special Trade Contractors); and for four digit SIC's; 6552 (Land Subdividers and Developers), 1711 (Plumbing, Heating and Air Conditioning Special Trade Contractors), and 1731 (Electrical Work Special Trade Contractors).

Nonemployer cases whose administrative records showed more than \$4,000 in combined salaries and wages and cost of labor were excluded from census tabulation. A study done in connection with the 1967 Census of Construction Industries had shown that there was a high percentage of duplication between such cases and the employer cases. One of the objectives of this study was to evaluate this exclusion criterion.

Similar to Business Division's nonemployer study, the objectives of this study were to measure the accuracy of the industry classification at the two digit SIC level; the difference between total receipts as obtained from the administrative sources, and total receipts as reported directly to the Census Bureau; and the accuracy of their classification as nonemployers.

A subsample was selected from the master sample of all cases classified as nonemployers in the processing of administrative records. The master sample consisted of a 2 percent random sample of records having Employer Identification (EI) numbers and a 1 percent sample of records identified only by Social Security Number (SSN). The master sample was stratified by two digit SIC. The size of sample required in each SIC group was determined using estimated variances from the 1972 Census of Construction Industries for employers with 1-4 employees; 2,610 cases were selected. Each of the cases was mailed a special census form and one mail follow-up was sent to nonrespondents. This mailout and check-in were handled by Industry Division of the Bureau of the Census.

An SIC code was assigned based on the respondents verbal description of the business. In most cases a four digit SIC could be assigned. However, there were some cases where only two or three digits could be determined. Numerical responses were edited to the extent needed to make them legible for keying. The response file record was matched to its respective administrative record which contained the data that had been tabulated for

Table III. 1 Evaluation of Published Statistics for Nonemployers in Contract Construction

| | Number of Establishments (Thousands) | | | | Total Receipts (Millions of Dollars) | | | |
|--|--------------------------------------|--------|--------|--------|--------------------------------------|--------|--------|--------|
| | Total | SIC 15 | SIC 16 | SIC 17 | Total | SIC 15 | SIC 16 | SIC 17 |
| Published: | 708 | 130 | 24 | 554 | 17805 | 8330 | 947 | 8528 |
| Adjusted for Response: | 708 | 130 | 24 | 554 | 22432 | 10368 | 946 | 11118 |
| Changes: | | | | | | | | |
| Decreases; Duplication with Construction Employers | 42 | 9 | 1 | 32 | 4461 | 1408 | 110 | 3143 |
| Reclassified as Nonconstruction | 86 | 11 | 4 | 71 | 1529 | 403 | 94 | 1032 |
| Reclassified to other Construction | 80 | 36 | 16 | 27 | 2634 | 946 | 554 | 1134 |
| Increases; Reclassified from other Construction | 80 | 28 | 2 | 49 | 2655 | 1360 | 40 | 1255 |
| Reclassified from Nonconstruction ¹ | 41 | 14 | 1 | 26 | 1645 | 1141 | 202 | 302 |
| Total | 621 | 116 | 6 | 499 | 17887 | 10112 | 430 | 7366 |
| Net Change | -86 | -14 | -18 | -55 | +82 | +1782 | -517 | -1162 |
| Percent Change | -12 | -11 | -75 | -10 | z | +21 | -55 | -14 |

z Less than one-half of 1 percent

¹ Data is understated because only the retail and service trade areas provided cases.

Note: Detail may not add to total due to rounding.

the census publication, and the reported and tabulated data were combined into a single record.

The combined records were then tabulated by computer to produce simple unbiased estimates of the administrative and response total receipts for each two digit SIC, cross tabulated by two digit response SIC. These estimates were combined to produce estimates of the ratio of reported receipts to tabulated receipts for each of the two digit major groups in Construction. This was also done for the nonemployers in SIC's 6552, 1711, and 1731. Ratio estimates of the total receipts were then produced for each of the major groups and for the three 4-digit SIC's, and this total was then distributed according to the response SIC's with the uncontacted cases being distributed using the same proportions as the respondents. This produced a distribution matrix for total receipts that was then summed to produce the final estimates for each major group (or SIC). The estimated number of establishments omitted the ratio adjustment of the original number of establishments.

Table III.1 summarizes the results of the study for the Contract Construction Industries (Major Groups 15, 16, and 17). The net change in total receipts is plus one half of 1 percent for the total, plus 21 percent for Major Group 15, minus 14 percent for Major Group 17 and minus 55 percent for Major Group 16. The large decrease in Major Group 16 is mainly concentrated in one industry, 1629, which is Miscellaneous Heavy General Contractors, Other Than Building. Based on the administrative record data, a large number of excavating contractors were classified in 1619 while the reported data would properly code these cases in SIC 1794 (Excavation and Foundation Contractors). The decrease in the number of establishments is primarily the result of duplication with the employers in the imbalance in reclassification where cases originally classed in construction were coded to all other economic sectors, while the inflow came only from those originally classified in retail and service trade areas. Table III.2 shows the comparable results for SIC 6552, as well as SIC's 1711 and 1731.

Table III.2 Evaluation of Published Statistics for Nonemployers in Selected 4-Digit SIC's

| | 6652 | | 1711 ¹ | | 1731 ¹ | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| | Establishments 000 | Receipts \$000,000 | Establishments 000 | Receipts \$000,000 | Establishments 000 | Receipts \$000,000 |
| Published: | 12 | 2347 | 50 | 1219 | 39 | 732 |
| Adjusted for Response: | - | 3659 | - | 1466 | - | 828 |
| Changes: | | | | | | |
| Decreases; Duplication with Construction Employers | 1 | 1101 | 6 | 394 | 4 | 223 |
| Reclassified out of Construction | 2 | 120 | 2 | 235 | 3 | 33 |
| Reclassified to other Construction | - | 68 | 1 | 7 | 2 | 9 |
| Increases: Reclassified from other Construction | 1 | 46 | 11 | 113 | 3 | 160 |
| Reclassified from Business | 1 | 105 | 2 | 48 | 3 | 197 |
| Totals | 11 | 2521 | 54 | 991 | 36 | 921 |
| Net Change | -1 | +174 | +4 | -228 | -3 | +189 |
| Percent Change | -8 | +7 | +8 | -19 | -8 | +26 |

¹ Results for Industries 1711 and 1731 are included in table III.1.

The results for SIC 6552 show two characteristics:

(1) a considerable difference between the total receipts as obtained from the administrative records and as reported to the Census Bureau; and
 2) a high proportion of duplication between the employer and nonemployer universes for this SIC. The reclassifications within Construction that affected SIC 6552 were all in exchange with Major Group 15. These transfers are part of the results that are shown in Table III.1. The results for 1711 and 1731 are similar to those shown in Table III.1 for Major Group 17 as a whole.

Payrolls were reported by a number of cases in the nonemployer study. All cases in the study were asked to report their EI number regardless of whether or not they had payroll. Cases reporting payrolls represented 98,000 cases, 70,000 of whom reported EI numbers. The reported EI numbers were then checked against the Construction Employer Universe and if the number was found there, the case represented duplication between the two universes. This duplication amounted to 43,000 establishments, with some \$5,762 million in receipts. (See tables III.1 and III.2)

Table (III.3) summarizes the results for all cases reporting payrolls, by the condition that the

payroll be \$4,000 or more.

The duplication rate for the determined cases which reported \$4,000 or more is 71 percent, while for those reporting less than \$4,000 the duplication rate is 15 percent in the determined category.

IV. Construction Statistics Division's Employer Nonrespondents Study

The employer nonrespondent evaluation was limited to Major Industries 15, 16, and 17. Industry 6552 was excluded because of special problems which had been encountered in that industry. The administrative data available for the nonrespondent employers consisted of a four digit SIC code, total 941 payroll for 1977, and total receipts for 1977 (from Income Tax Records). The SIC was either that reported in the previous Economic Census or assigned by the Social Security Administration.

Census processed nonrespondent employers by matching the nonrespondent case to a respondent case in the same industry and state, and of approximately the same size. The relationship between reported and the administrative data in the respondent case was then applied to the administrative data of the nonrespondent to produce imputed data. This is a "hot-deck" procedure. Where no suitable respondent was found, industry average

Table III.3 Construction Nonemployer Cases Reporting Payrolls

| | Number of Establishments (000) | % of Determined Cases | Receipts (\$000,000) | % Receipts for Determined Cases | Payrolls (\$000,000) | % Payroll for Determined Cases |
|-------------------|--------------------------------|-----------------------|----------------------|---------------------------------|----------------------|--------------------------------|
| Payroll ≥ \$4,000 | | | | | | |
| Duplicated | 40 | 71 | 5,682 | 71 | 1,228 | 81 |
| Not Duplicated | 16 | 39 | 2,287 | 39 | 283 | 19 |
| Undetermined | 7 | | 599 | | 92 | |
| Payroll < \$4,000 | | | | | | |
| Duplicated | 2 | 15 | 80 | 6 | 38 | 23 |
| Not Duplicated | 11 | 85 | 1,198 | 94 | 10 | 47 |
| Undetermined | 21 | | 559 | | 5 | |

Table IV.1 Employer Nonrespondents in Contract Construction, Number of Establishments and Total Receipts (1977)

| | Number of Establishments (Thousands) | | | | Total Receipts (Millions of Dollars) | | | |
|---|--------------------------------------|--------|--------|--------|--------------------------------------|--------|--------|--------|
| | Total | SIC 15 | SIC 16 | SIC 17 | Total | SIC 15 | SIC 16 | SIC 17 |
| Published: | 133 | 47 | 9 | 77 | 36358 | 15955 | 5560 | 14843 |
| Adjusted for Response: | 133 | 47 | 9 | 77 | 36593 | 15859 | 5761 | 14973 |
| Changes: | | | | | | | | |
| Decreases; Reclassified as Nonconstruction | 4 | 2 | 1 | 1 | 1468 | 911 | 256 | 301 |
| Reclassified other Construction | 13 | 8 | 2 | 3 | 3314 | 1637 | 483 | 1194 |
| Increases; Reclassified from other Construction | 13 | 3 | 1 | 8 | 3314 | 1031 | 1093 | 1190 |
| Totals | 129 | 40 | 7 | 81 | 35125 | 14342 | 6115 | 14668 |
| Net Change | -4 | -7 | -2 | +4 | -1233 | -1613 | +555 | -175 |
| Published Totals Including Respondents | 475 | 156 | 31 | 288 | 221622 | 89787 | 50728 | 81108 |
| Percent Change | -1 | -4 | -6 | +1 | -1 | -2 | +1 | z |

z Less than one-half of 1 percent.

Note: Detail may not add to total due to rounding

Table IV.2 Employer Nonrespondents in Contract Construction Employment (Mid March 1977) and Payroll (1977)

| | Employment (Thousands) | | | | Payrolls (Millions of Dollars) | | | |
|---|------------------------|--------|--------|--------|--------------------------------|--------|--------|--------|
| | Total | SIC 15 | SIC 16 | SIC 17 | Total | SIC 15 | SIC 16 | SIC 17 |
| Published: | 716 | 240 | 90 | 386 | 8846 | 2698 | 1430 | 4718 |
| Adjusted for Response: | 727 | 233 | 108 | 391 | 8844 | 2661 | 1446 | 4717 |
| Changes: | | | | | | | | |
| Decreases; Reclassified as Nonconstruction | 22 | 9 | 6 | 7 | 294 | 139 | 60 | 95 |
| Reclassified to Other Construction | 69 | 35 | 12 | 22 | 792 | 345 | 133 | 274 |
| Increases; Reclassified from other Construction | 69 | 25 | 11 | 33 | 792 | 235 | 213 | 312 |
| Totals | 705 | 214 | 96 | 395 | 8550 | 2412 | 1486 | 4660 |
| Net Change | -11 | -26 | +6 | +9 | -296 | -286 | +56 | -58 |
| Published Totals Including Respondents | 4232 | 1181 | 917 | 2136 | 54566 | 13537 | 14267 | 26762 |
| Percent Change | z | -2 | +1 | z | -1 | -2 | z | z |

z Less than one-half of 1 percent.

ratios were used to produce imputed data from the administrative data. This imputed data was then tabulated for the census.

The subsample for the nonrespondent study was designed to obtain a coefficient of variation of 3 percent on the ratio of reported receipts to administrative receipts. It was taken from the list of census sample cases which had not responded to mail collection process. The census sample had included all employer establishments with 15 employees (except in large industries where the cutoff was 20 employees) and a systematic, probability proportional to size sample below the employee cutoffs; 1486 establishments were selected for the study.

Since these cases had not responded to the mail canvass, a telephone collection procedure was used, collecting essentially the same data as was

asked for on the special census form used in the nonemployer studies. A telephone number for each case was obtained from information operators and was then used to contact the company. Initially, there was a large number of cases for which a telephone number could not be obtained. Much effort researching construction's own address files helped reduce this number somewhat. (The design sample size had been increased to allow for this.) If an establishment could not be contacted in five tries, the case was marked as being "Unable to Contact." The total number of cases which could not be contacted or for which no useful information could be obtained was 712.

Tables IV.1 and IV.2 show the results of the study on number of establishments, receipts, payroll and employment.