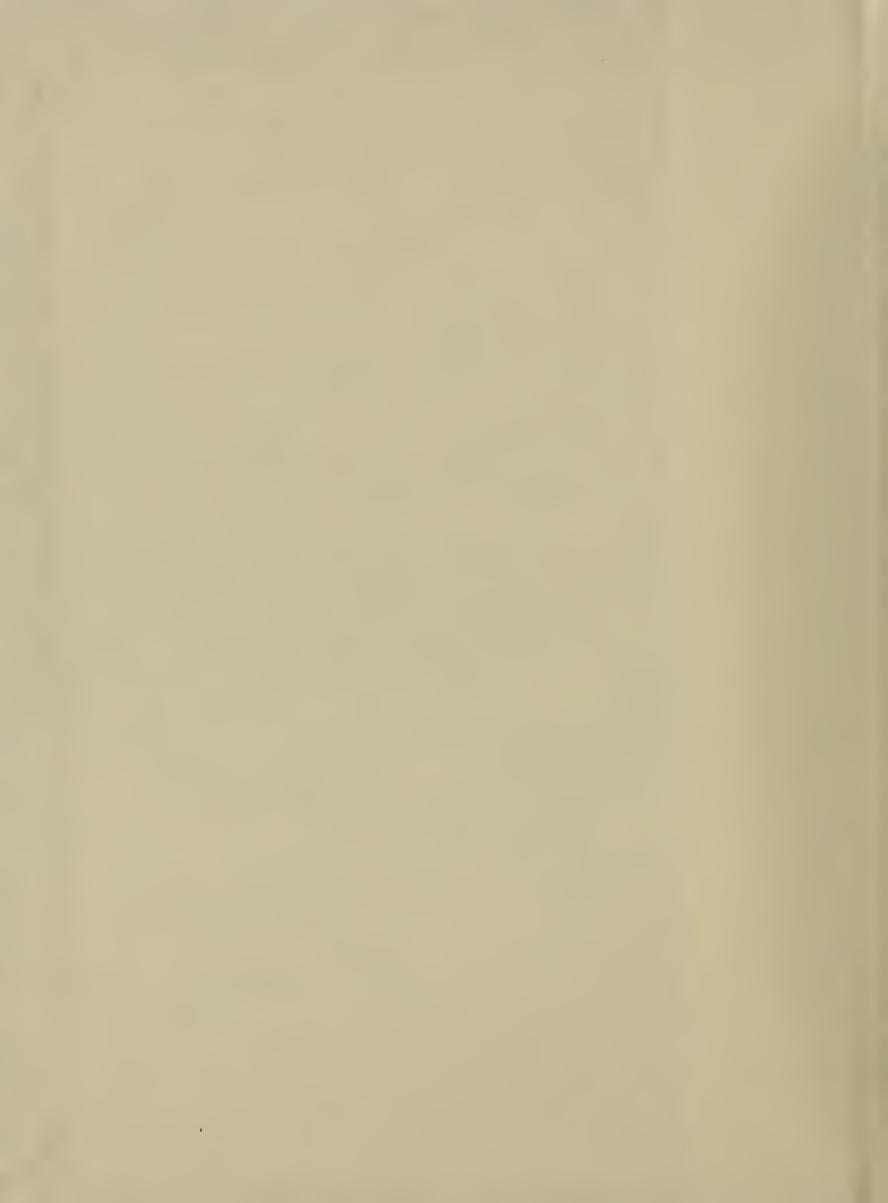
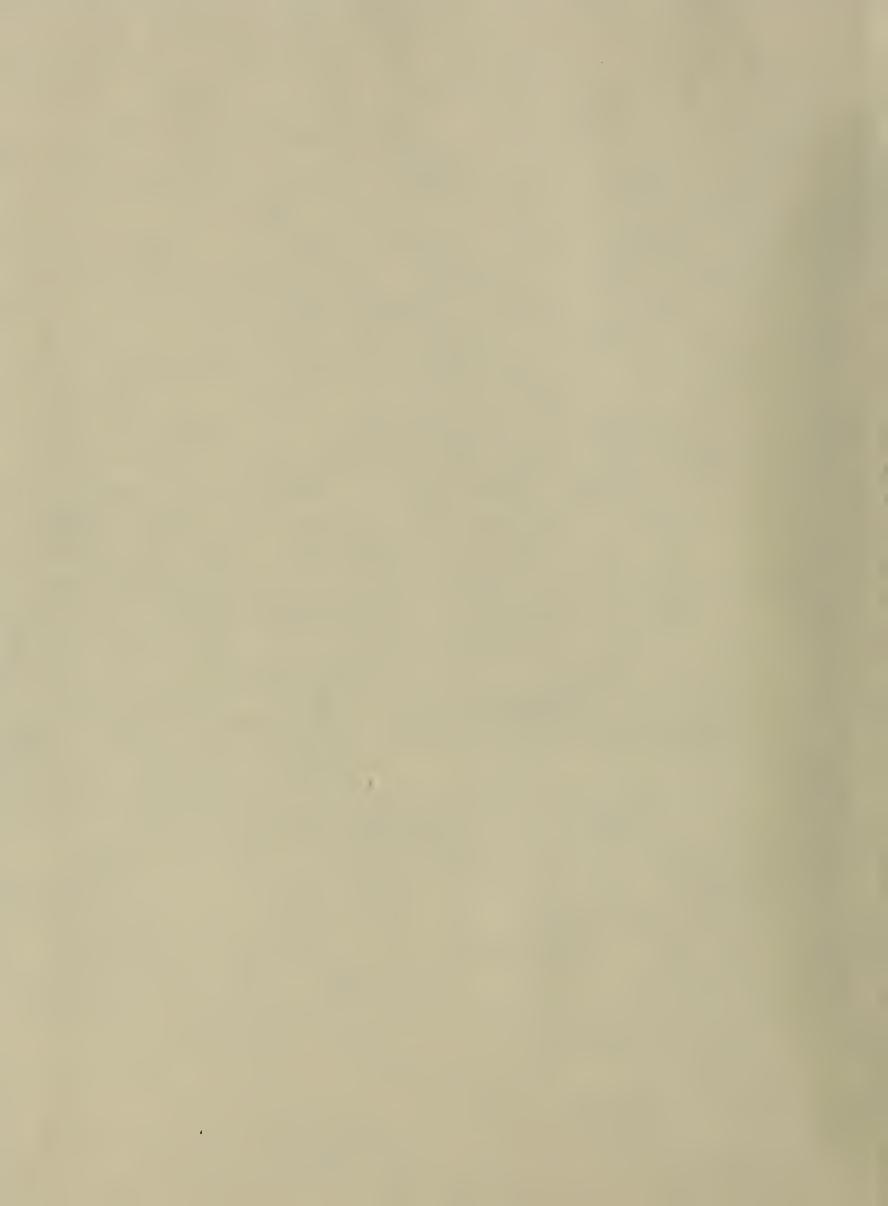
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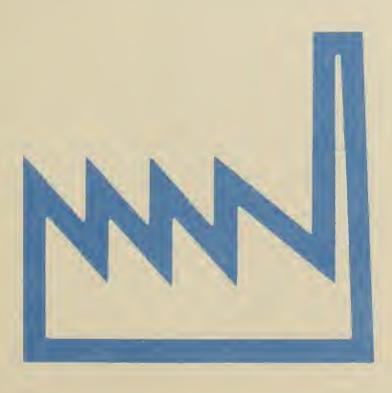
1982 Census of Manufactures

MC82-I-33A

INDUSTRY SERIES

Blast Furnaces, Steel Works, and Rolling and Finishing Mills

Industries 3312, 3313, 3315, 3316, and 3317



The publications
from the 1982 Economic and
Agriculture Censuses are dedicated
to the memory of Shirley Kallek,
Associate Director for Economic Fields.
During her career at the Bureau of the
Census (1955 to 1983), she continually
directed efforts to improve
the timeliness and accuracy of
economic statistics.

1982 Census of Manufactures

MC82-I-33A

INDUSTRY SERIES

Blast Furances, Steel Works, and Rolling and Finishing Mills

3312	Blast Furnaces and Steel Mills
3313	Electrometallurgical Products
3315	Steel Wire and Related Products
3316	Cold Finishing of Steel Shapes
3317	Steel Pipe and Tubes

Issued March 1985



U.S. Department of Commerce

Malcolm Baldrige, Secretary Clarence J. Brown, Deputy Secretary Sidney Jones, Under Secretary for Economic Affairs

> BUREAU OF THE CENSUS John G. Keane, Director



BUREAU OF THE CENSUS John G. Keane, Director C. L. Kincannon, Deputy Director

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INDUSTRY DIVISION

Gaylord E. Worden, Chief

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83-600153

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INTRODUCTION

ECONOMIC CENSUSES OVER TIME

The early beginnings of America's industrial output were first measured in the United States in the 1810 Decennial Census and again in 1820, when questions on manufacturing were included with those for population. Beginning with the 1840 Decennial Census, there were enumerations of manufactures and mineral industries at 10-year intervals up to and including the year 1900 for manufactures and 1940 for mineral industries. The latter census was again taken for 1954, 1958, 1963, and

Because of the increasing dominance of manufacturing in the early 20th century, Congress directed that quinquennial censuses of manufactures be taken beginning in 1905. However, from 1919 through 1939, these censuses were conducted every 2 years. The need for war-related current surveys in the early 1940's postponed the next census of manufactures until 1948 (for 1947). That census was again taken for 1954, 1958, 1963, and 1967.

Retail and wholesale trade data were first collected in 1930, and in 1933 information on selected service industries was added to the data-collection operation. These business censuses, as they were called, were again taken for 1935, 1939 (as part of the 1940 decennial program), 1948, 1954, 1958, 1963, and 1967.

Information on construction industries was obtained first in 1930 and again for 1935 and 1939. Data for the full spectrum of construction industries were not gathered again until 1968 (for 1967).

The need for transportation data to supplement information available from existing governmental or private sources was recognized by Congress in the late 1950's and early 1960's. The census of transportation (consisting of several surveys) was taken first for 1963 and again for 1967.

Since 1967, all of the above censuses have been taken quinquennially as part of the Census Bureau's economic census program. (For the 1977 censuses, the coverage of the service industries was broadened from "selected services" to "all services, except religious organizations and private households." A total of 41 additional four-digit standard industrial classifications1 (SIC's) in 7 SIC major groups was added to the scope of the census. While most of the industries included for the first time for 1977 were covered again for 1982, some were not, i.e., hospitals; elementary and secondary schools; colleges, universities, and professional schools; junior colleges and technical institutes; labor unions and similar labor organizations; and political organizations.)

The first manufacturing census for an outlying area was conducted in Puerto Rico for the year 1909. Thereafter, with the exception of 1929, a census was taken at 10-year intervals through 1949. The first censuses of retail trade, wholesale trade, and selected service industries in Puerto Rico were conducted for 1939. These censuses also were taken for the years 1949, 1954, 1958, 1963, and 1967. A census of construction industries was introduced first in Puerto Rico for 1967. These censuses of Puerto Rico have been taken since then for the years 1972, 1977, and 1982.

Censuses of manufactures, retail trade, wholesale trade, and selected service industries were conducted in Guam and the

Virgin Islands of the United States for 1958, 1963, 1967, 1972, 1977, and 1982. Censuses of mineral industries were taken in the Virgin Islands of the United States for the years 1958, 1963, and 1967 but not since that time. A census of construction industries was also undertaken in these areas for 1972, 1977, and 1982.

Retail trade, wholesale trade, selected service industries, manufacturing, and construction industries were canvassed for the first time in the Northern Mariana Islands in 1983 (for 1982).

For 1982, the economic censuses and agriculture censuses were conducted concurrently.

USES OF THE ECONOMIC CENSUSES

The economic censuses are the major source for facts about the structure and functioning of the Nation's economy and provide essential information for government, business, industry, and the general public. They provide an important part of the framework for such composite measures as the gross national product, input-output measures, indexes of industrial production, and indexes measuring productivity and price levels. Information from the censuses is used to establish sampling frames and as benchmarks for current surveys of business activity, which are essential for measuring short-term economic conditions.

State and local governments use census data to assess business activities within their jurisdictions. The private sector uses the data to forecast general economic conditions; analyze sales performance; lay out sales territories; allocate funds for advertising; decide on locations for new plants, warehouses, or stores; and measure potential markets in terms of size, geographic areas, kinds of business, and kinds of products made or sold.

Following every census, thousands of businesses and other users purchase reports. Likewise, census facts are disseminated widely by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. All 1982 data are available on microfiche from the U.S. Government Printing Office and most data on computer tape from the Census Bureau. Finally, the more than 50 State Data Centers also are suppliers of economic census statistics.

AUTHORITY AND SCOPE OF THE ECONOMIC **CENSUSES**

The economic censuses are required by law under title 13 of the United States Code, sections 131, 191, and 224, which directs that they be taken at 5-year intervals for the years ending in 2 and 7. The 1982 Economic Censuses covered manufacturing, mining, construction industries, retail trade, wholesale trade, service industries, and selected transportation activities. Special programs also cover minority-owned and women-owned businesses. The next economic censuses are scheduled to be taken in 1988 for the year 1987.

^{&#}x27;Standard Industrial Classification Manual: 1972. For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 041-001-00066-6. 1977 Supplement. Stock No. 003-00500176-0.

CENSUS OF MANUFACTURES

General

The 1982 Census of Manufactures is the 31st census of manufactures of the United States. For 1982, it was conducted jointly with the censuses of mineral industries, construction industries, retail and wholesale trades, service industries, selected transportation activities, and minority-owned and women-owned businesses.

This report, from the 1982 Census of Manufactures, is one of a series of 82 industry reports, each of which provides statistics for groups of related industries. Additional separate reports will be issued for each State and on special subjects, such as size of establishments, legal form of organization, and fuels and electric energy consumed.

These separate reports will subsequently be issued as portions of the final census volumes. Volume I, Subject Statistics, will show comparative statistics for industries, States, and standard metropolitan statistical areas. It also will show selected subjects, such as concentration ratios in manufacturing, selected materials consumed, manufacturing activity in government establishments, and water use in manufacturing. Volume II, Industry Statistics, will be a consolidation of reports for the 82 groups of industries showing the same information that is shown in this report. Volume III, Geographic Area Statistics, will contain establishment-based data (number of establishments, employment, payroll, value added by manufacture, and capital expenditures) for each State and its important standard metropolitan statistical areas, counties, and places, by industry groups and important individual industries. Totals for "all manufacturing" will be shown for counties and places with more than 450 manufacturing employees. The introduction to the final volumes will discuss, at greater length, many of the subjects described in this introduction. For example, the volume text will discuss the relationship of value added by manufacture to National income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

Scope of Census and Definition of Manufacturing Industries

The 1982 Census of Manufactures covers all establishments employing one person or more primarily engaged in manufacturing as defined in the 1972 Standard Industrial Classification (SIC) Manual and its 1977 Supplement. This is the system of industrial classification developed over a period of years by experts on classification in government and private industry under the guidance of the Office of Management and Budget. This system of classification is in general use among government agencies as well as organizations outside the government.

The SIC manual defines manufacturing as the mechanical or chemical transformation of inorganic or organic substances into new products. The assembly of component parts of products is also considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials handling equipment.

'Standard Industrial Classification Manual: 1972. For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 041-001-00066-6. 1977 Supplement. Stock No. 003-00500176-0.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for the trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

Relationship Between Annual Survey of Manufactures and Census of Manufactures

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is based on a scientifically selected sample of approximately 55,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply detailed information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services.

Establishment Basis of Reporting

The census of manufactures and the annual survey of manufactures are conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1982, as in earlier years, a minimum size limit was set for including establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

Manufacturing Universe and Census Report Forms

The 1982 Census of Manufactures universe includes approximately 345,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in this publication are described below.

1. Small Single-Unit Companies Not Sent a Report Form

In the 1982 Census of Manufactures, approximately 140,000 small single-establishment companies were excused from filing reports. Selection of these small

establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of other Federal agencies. The cutoffs were selected so that these administrative records cases would account for no more than 3 percent of the value of shipments for the industry. Generally, all singleestablishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed report forms.

Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material "not specified by kind" (n.s.k.) categories.

The industry classification codes included in the administrative records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes these administrative record cases were given only a two- or three-digit SIC group. For the 1982 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as "not elsewhere classified" (n.e.c.) within the given two- or three-digit industry groups.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassifications have no significant effect on the statistics other than on the number of establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments Sent a Report Form

The 205,000 establishments covered in the mail canvass were divided into three groups:

a. ASM sample establishments - This group consisted of approximately 55,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see appendix, Annual Survey of Manufactures).

In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll,

and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. Results of the ASM inquiries are included in tables 3c and 3d of this report.

The census part of the report form is one of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the approximately 450 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries, as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space was also provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

- b. Large and medium establishments (non-ASM) -Approximately 100,000 establishments were included in this group. A variable cutoff, based on administrative records payroll data and determined on an industry-byindustry basis, was used to select those establishments that were to receive one of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.
- c. Small single-unit establishments (non-ASM)-This consisted of approximately 50,000 establishments. For those industries where application of the variable cutoff for administrative records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or "short" form was used. These establishments received one of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short as well as the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the values of the n.s.k. categories.

Auxiliaries

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 10,000 separately operated auxiliaries are included in the paperbound geographic area series, the bound volumes of the census of manufactures, and in a report issued as part of the 1982 Enterprise Statistics survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two or more establishments. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include (1) program planning, including sales research and coordination of purchasing, production, and distribution; (2) company purchasing, including general contracts and purchasing methods; (3) company financial policy and accounting, tax accounting, company sales and profit reports, and personnel accounting; (4) general engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations; (5) direction of company personnel matters; and (6) legal and patent matters.

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

Industry Classification of Establishments

Each of the establishments covered in the census was classified in one of approximately 450 manufacturing industries in accordance with the industry definitions in the SIC system. Under this system of classification, an industry is generally defined as a group of establishments producing a single product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of plants must be significant in terms of its number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively became narrower with successive additions of numerical digits. There are 20 major groups (two-digit SIC), 143 industry groups (three-digit SIC), and approximately 450

industries (four-digit SIC). The product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 1,500 classes of products, identified by a five-digit code, and about 11,000 products, identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in making those products. For example, establishments engaged in blast furnace operations, refining of nonferrous metals from ore, or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be "frozen" in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or the change has occurred for two successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see appendix, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The result of these rules covering the switching of plants from one industry classification to another is that, at the aggregate level, some industries comprise different mixes of establishments between survey years, and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is true particularly for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in tables 6a through 6c represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the

composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios, which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that put only the finishing touches on an already highly fabricated item. For example, the refrigeration industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfer of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

Value of Shipments for the Industry Compared With Value of Product Shipments

This industry report shows value of shipments data for industries and products. In tables 1a through 5a, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Product shipments shown in table 6a represent the total value of shipments of products classified as primary to an industry that were shipped by all manufacturing establishments regardless of their industry classification.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this item may be given even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line has been suppressed. However, the suppressed data are included in higher level totals. Additional disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

MICROFICHE AND COMPUTER TAPES

All the data in this report are available on microfiche. Selected data are also available on computer tape.

In addition to selected published data being on computer tape, one major data series, the location of manufacturing plants, will be available only on computer tape. This series presents the number of establishments by employment size class by four-digit SIC industry codes for States, counties, and places of 2,500 inhabitants or more. These data are available for both State and county by industry, and State and place by industry.

Microfiche reports are sold by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Computer tapes are sold by the Data User Services Division, Customer Services (Tapes), Bureau of the Census, Washington, D.C. 20233.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1982 Census of Manufactures may be obtained on computer tape or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Industry Division, Bureau of the Census, Washington, D.C. 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

- Represents zero.
- (D) Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
- (NA) Not available.
- Not comparable. (NC)
- Withheld because estimate did not meet publication (S) standards on the basis of either the response rate or a consistency review.
- (X) Not applicable.
- (Z) Less than half the unit shown.
- n.e.c. Not elsewhere classified.
- n.s.k. Not specified by kind.
- pt. Part.
- Revised.
- Standard Industrial Classification. SIC

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

Users' Guide for Locating Statistics

[For explanation of terms, see appendixes]

		Four-dig	git industry sta	atistics
	Item			2
		Historical	Operating ratios	By geographic area
1	Number of companies	1a		
2	Number of manufacturing establishments	1a		2
	Employment and payroll:			
3	Number of employees	1a	1b	2
4	Payroll	1a	1b	2
5	Supplemental labor costs			
6	Production workers	1a	1b	2
7	Production-worker hours	1a	1b	2
8	Production-worker wages	1a	1b	2
	Shipments, cost of materials, and value added:			
9	Value of shipments (four-digit)	1a	1 b	2
0	Product class shipments (five-digit)			
1	Product shipments (seven-digit)			
2	Value added by manufacture	1a	1b	2
3	Cost of materials	1a	1b	2
4	Fuels and electric energy			
5	Materials consumed by kind			_
	Inventories:			
6	Total, end of year	1a		
7	By method of valuation			
8	By stage of fabrication			
	Capital expenditures, assets, rental payments, and purchased services:			
9	New capital expenditures	1a		2
0	Used plant and equipment expenditures			
1	Gross assets			
2	Depreciation			
3	Retirements of buildings and machinery			
4	Rental payments			
5	Purchased services			
	Ratios:			
6	Specialization	1a		
7	Coverage	1a		

^{*}Number of companies with shipments of over \$100 thousand.

^{**}Detailed information shown.

in This Report by Table Number

Fou	ur-digit industry	y statistics—Con.		Five-digit	product class stati		t product	
Summary and supplemental	By employ- ment size	By industry and product class specialization	Materials consumed by kind	Industry- product analysis	Product shipments	Product class by geographic area	Historical product class	
3a **3a	4	5a			*6a			1 2
3a 3a **3d **3a **3a 3a	4 4 4 4 4	5a 5a 5a 5a 5a						3 4 5 6 7 8
3a 3a **3a 3a, 3d	4 4	5a 5a 5a	7	5b, 5c 5b, 5c	6a 6a	6b	6с	9 10 11 12 13 14 15
3b, 3c 3b, 3c 3b	4		7					16 17 18
**3a, **3d **3a, **3d **3d **3d **3d **3d **3d	4	5a						19 20 21 22 23 24 25
3a 3a				5b 5b				26 27

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Blast Furnaces, Steel Works, and Rolling and Finishing Mills

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DESCRIPTION OF INDUSTRIES AND SUMMARY OF FINDINGS

BLAST FURNACES, STEEL WORKS, AND ROLLING AND FINISHING MILLS

This report shows 1982 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC Code and Title

- 3312 Blast Furnaces and Steel Mills
- 3313 Electrometallurgical Products
- 3315 Steel Wire and Related Products
- 3316 Cold Finishing of Steel Shapes
- 3317 Steel Pipe and Tubes

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1a-5a) with product statistics (table 6a-1) showing shipments by all industries of the primary products of the specified industry. The extent of the "product mix" is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Small single-unit companies with up to 20 employees (cutoff varied by industry) were excluded from the mail portion of the census. For these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated), data on payrolls and receipts were obtained from administrative records of other government agencies. The remaining statistics were developed from industry averages.

Establishment data were tabulated based on industry definitions contained in the 1972 Standard Industrial Classification (SIC) Manual and its 1977 supplement.¹

INDUSTRY 3312, BLAST FURNACES AND STEEL MILLS

This industry comprises establishments primarily engaged in the manufacture of hot metal, pig iron, silvery pig iron, and ferroalloys from iron ore and iron and steel scrap; converting pig iron, scrap iron, and scrap steel into steel; and in hot rolling iron and steel into basic shapes, such as plates, sheets, strips, rods, bars, and tubing. Merchant blast furnaces and byproduct or

¹Standard Industrial Classification Manual: 1972. For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 041-001-00066-6. 1977 Supplement. Stock No. 003-005-00176-0.

beehive coke ovens are also included in this industry. Establishments primarily engaged in the manufacture of ferro and nonferrous additive alloys by electrometallurgical processes are classified in industry 3313.

In the 1982 Census of Manufactures, Industry 3312, Blast Furnaces and Steel Mills, recorded employment of 295.8 thousand. The total value of shipments for establishments classified in this industry was \$36,824 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 33 percent below the 441.9 thousand reported in 1977. The leading States in employment in 1982 were Pennsylvania, Indiana, Ohio, and Illinois, accounting for approximately 64 percent of the industry's 1982 employment. These same States were the leaders in 1977, when they accounted for approximately 66 percent of the industry's employment, although there has been some shift in the relative importance of individual States.

Compared with 1981, employment decreased 24 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3312 shipped \$35,075 million of products primary to the industry, \$878 million of secondary products, and had \$871 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 98 percent (specialization ratio).

Establishments in this industry also accounted for 79 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). The products primary to industry 3312, no matter in what industry they were produced, appear in table 6a-1 and aggregate to \$44,123 million in current prices.

The total cost of materials and services used by establishments classified in the blast furnaces and steel mills industry amounted to \$23,569 million in current prices. Data on specific materials consumed appear in table 7.

Establishments of single-unit companies in this industry with up to 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for less than 1 percent of total value of shipments.

INDUSTRY 3313, ELECTROMETALLURGICAL PRODUCTS

This industry comprises establishments primarily engaged in the manufacture of ferro and nonferrous additive alloys by electrometallurgical or metallothermic processes, including high percentage ferroalloys and high percentage nonferrous additive alloys.

In the 1982 Census of Manufactures, Industry 3313, Electrometallurgical Products, recorded employment of 5.3 thousand. The total value of shipments for establishments classified in this industry was \$707 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 40 percent below the 8.9 thousand reported in 1977. The leading States in employment in 1982 were Ohio, West Virginia, New Jersey, and Tennessee, accounting for approximately 75 percent of the industry's 1982 employment. Data for West Virginia, New Jersey, and Tennessee have been withheld to avoid disclosing data for individual companies. This represents a shift from 1977 when Ohio, West Virginia, Oregon, and Tennessee accounted for approximately 70 percent of the industry's employment.

Compared with 1981, employment decreased 34 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3313 shipped \$653 million of products primary to the industry, \$17 million of secondary products, and had \$37 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 97 percent (specialization ratio).

Establishments in this industry also accounted for 87 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 90 percent. The products primary to industry 3313, no matter in what industry they were produced, appear in table 6a-1 and aggregate to \$750 million in current prices.

The total cost of materials and services used by establishments classified in the electrometallurgical products industry amounted to \$494 million in current prices. Data on specific materials consumed appear in table 7.

Establishments of single-unit companies in this industry with up to 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for less than 6 percent of total value of shipments.

INDUSTRY 3315, STEEL WIRE AND RELATED PRODUCTS

This industry comprises establishments primarily engaged in the drawing of wire from purchased iron or steel rods, bars, or wire, and which may be engaged in the further manufacture of products made from wire. Establishments primarily engaged in the manufacture of steel nails and spikes from purchased materials are also included in this industry. Rolling mills engaged in the production of ferrous wire from wire rods or hot rolled bars produced in the same establishment are classified in industry 3312. Establishments primarily engaged in drawing nonferrous wire are classified in industry group 335. Establishments primarily engaged in the manufacture of fabricated wire products from purchased wire are classified in industry 3496.

In the 1982 Census of Manufactures, Industry 3315, Steel Wire and Related Products, recorded employment of 22.0 thousand. The total value of shipments for establishments classified in this industry was \$2,415 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 31 percent below the 31.7 thousand reported in 1977. The leading States in employment in 1982 were Pennsylvania, Ohio, California, and Illinois, accounting for approximately 40 percent of the industry's 1982 employment. Data for Pennsylvania and Illinois have been withheld to avoid disclosing data for individual companies. This represents a shift from 1977 when Pennsylvania, Ohio, Illinois, and Massachusetts accounted for approximately 40 percent of the industry's employment.

Compared with 1981, employment increased 32 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3315 shipped \$2,279 million of products primary to the industry, \$62 million of secondary products, and had \$74 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 97 percent (specialization ratio). In 1977, this specialization ratio was 95 percent.

Establishments in this industry also accounted for 44 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 44 percent. The products primary to industry 3315, no matter in what industry they were produced, appear in table 6a-1 and aggregate to \$5,190 million in current prices.

The total cost of materials and services used by establishments classified in the steel wire and related products industry amounted to \$1,434 million in current prices. Data on specific materials consumed appear in table 7.

INDUSTRY 3316, COLD FINISHING OF STEEL SHAPES

Establishments of single-unit companies in this industry with up to 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of total value of shipments.

This industry comprises establishments primarily engaged in the cold rolling of steel sheets and strip from purchased hot rolled sheets, the cold drawing of steel bars and steel shapes from purchased hot rolled steel bars, and the producing of other cold finished steel. Establishments primarily engaged in the production of steel, including hot rolled steel sheets, and the further cold rolling of such sheets are classified in industry 3312.

In the 1982 Census of Manufactures, Industry 3316, Cold Finishing of Steel Shapes, recorded employment of 15.4 thousand. The total value of shipments for establishments classified in this industry was \$3,005 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 21 percent below the 19.4 thousand reported in 1977. The leading States in employment in 1982 were Pennsylvania, Ohio, Michigan, and Connecticut, accounting for approximately 65 percent of the industry's 1982 employment. These same States were the leaders in 1977, when they accounted for approximately 69 percent of the industry's employment, although there has been some shift in the relative importance of individual States.

Compared with 1981, employment decreased 16 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3316 shipped \$2,712 million of products primary to the industry, \$247 million of secondary products, and had \$47 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 92 percent (specialization ratio). In 1977, this specialization ratio was 95 percent.

Establishments in this industry also accounted for 32 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 25 percent. The products primary to industry 3316, no matter in what industry they were produced, appear in table 6a-1 and aggregate to \$8,325 million in current prices.

The total cost of materials and services used by establishments classified in the cold finishing of steel shapes industry amounted to \$2,348 million in current prices.

Establishments of single-unit companies in this industry with up to 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the

time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of total value of shipments.

INDUSTRY 3317, STEEL PIPE AND TUBES

This industry comprises establishments primarily engaged in the production of welded or seamless steel pipe and tubes and heavy riveted steel pipe from purchased materials. Establishments primarily engaged in the production of steel, including steel skelp or steel blanks, tube rounds, or pierced billets, are classified in industry 3312. Establishments primarily engaged in the fabrication of pipe and tube from purchased pipe and tube are classified in industry 3498.

In the 1982 Census of Manufactures, Industry 3317, Steel Pipe and Tubes, recorded employment of 27.0 thousand. The total value of shipments for establishments classified in this industry was \$3,762 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 3 percent below the 27.8 thousand reported in 1977. The leading States in employment in 1982 were Ohio, Pennsylvania, California, and Texas, accounting for approximately 52 percent of the industry's 1982 employment. This represents a shift from 1977 when Ohio, Pennsylvania, California, and Michigan accounted for approximately 54 percent of the industry's employment.

Compared with 1981, employment decreased 6 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3317 shipped \$3,420 million of products primary to the industry, \$220 million of secondary products, and had \$122 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 94 percent (specialization ratio). In 1977, this specialization ratio was 95 percent.

Establishments in this industry also accounted for 47 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 44 percent. The products primary to industry 3317, no matter in what industry they were produced, appear in table 6a-1 and aggregate to \$7,219 million in current prices.

The total cost of materials and services used by establishments classified in the steel pipe and tubes industry amounted to \$2,452 million in current prices.

Establishments of single-unit companies in this industry with up to 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of total value of shipments.

Table 1a. Historical Statistics for the Industry: 1982 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

[Excludes data for adxilla	100. 10. 1	iloui iii ig o.						,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		,					
		All establi	shments ³	All em	ployees	Pro	duction wo	rkers						Ra	tios
Year ¹	Com- panies² (no.)	Total (no.)	With 20 employ- ees or more (no.)	Number (1,000)	Payroll (million dollars)		Hours (millions)	Wages (million dollars)	Value added by manufac- ture ⁴ (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expend- itures (million dollars)	End-of- year inven- tories ⁴ (million dollars)	Spe- cial- ization (per- cent)	Cover- age (per- cent)
					√ IN	DUSTRY	3312, BL	AST FURN	ACES AND	STEEL MI	LLS				
1982 Census 1981 ASM 1980 ASM 1979 ASM 1978 ASM	5219 (NA) (NA) (NA) (NA) (NA)	301 (NA) (NA) (NA) (NA)	225 (NA) (NA) (NA) (NA)	295.8 390.3 402.9 451.2 443.5	8 677.9 11 461.8 10 493.4 10 989.5 9 842.6	215.2 301.7 312.6 361.4 353.7	375.7 572.4 577.5 700.7 699.2	6 181.6 8 621.5 7 898.2 8 530.9 7 605.6	11 763.3 20 100.2 18 632.2 21 039.0 19 085.7	23 568.7 37 788.5 31 863.3 35 143.9 30 603.2	36 824.4 57 472.9 50 303.9 55 695.8 49 055.4	2 170.2 2 808.6 2 632.5 2 320.3 2 178.0	10 043.6 10 983.8 10 381.5 10 178.3 9 081.0	98 (NA) (NA) (NA) (NA)	79 (NA) (NA) (NA) (NA)
1977 Census	395 (NA) (NA) (NA) (NA)	504 (NA) (NA) (NA) (NA)	250 (NA) (NA) (NA) (NA)	441.9 451.9 451.3 518.0 502.1	8 725.7 8 041.7 7 076.4 7 513.2 6 480.9	350.2 358.0 354.8 412.3 409.9	668.7 680.9 657.7 811.5 822.8	6 653.0 6 100.7 5 298.5 5 848.8 5 065.2	15 331.9 14 755.5 13 356.2 17 425.8 12 769.4	26 715.0 25 665.9 23 162.3 24 341.6 17 382.5	41 998.2 39 684.1 35 659.8 41 671.7 30 365.5	2 143.0 2 142.3 2 068.0 1 643.4 1 110.5	8 471.6 8 850.1 7 428.2 5 632.7 4 502.6	(NA) (NA) (NA) (NA) (NA)	(D) (NA) (NA) (NA) (NA)
1972 Census 1971 ASM 1970 ASM 1969 ASM 1968 ASM 1967 Census	241 (NA) (NA) (NA) (NA) 200	364 (NA) (NA) (NA) (NA) 329	251 (NA) (NA) (NA) (NA) 259	469.1 482.2 526.5 537.7 533.1 533.1	5 537.8 4 968.9 5 060.3 5 092.9 4 719.7 4 385.3	379.3 385.0 424.7 436.4 432.9 434.0	739.1 737.9 822.5 872.5 856.7 845.4	4 254.3 3 743.8 3 854.6 3 925.5 3 628.9 3 368.4	10 304.7 9 563.1 9 350.5 9 853.2 9 275.8 8 910.1	14 022.6 12 263.7 12 381.3 12 686.7 11 679.5 10 997.9	23 946.7 21 971.3 21 501.6 22 299.0 21 161.1 19 620.6	961.2 1 005.4 1 329.9 1 574.5 1 794.7 1 661.0	4 571.6 4 240.9 4 337.3 3 863.7 3 663.2 3 936.0	'95 (NA) (NA) (NA) (NA) '94	(D) (NA) (NA) (NA) (NA) (D)
					IND	USTRY 3	313, ELE	CTROMET	ALLURGIC	AL PRODU	CTS				
1982 Census	31	41	27	5.3	123.5	3.9	7.0	85.5	180.3	494.2	707.5	23.8	371.0	97	87
1981 ASM 1980 ASM 1979 ASM 1978 ASM	(NA) (NA) (NA) (NA)	(NA) (NA) (NA) (NA)	(NA) (NA) (NA) (NA)	8.0 8.5 9.3 8.5	168.4 169.9 172.9 141.8	6.3 6.7 7.6 6.8	13.0 13.4 15.2 13.5	124.4 128.4 135.5 108.4	375.9 412.0 428.8 248.3	856.2 854.7 916.3 767.1	1 161.9 1 249.3 1 356.6 1 078.0	119.0 34.2 24.6 52.0	411.6 311.2 345.4 334.1	(NA) (NA) (NA) (NA)	(NA) (NA) (NA) (NA)
1977 Census 1976 ASM 1975 ASM 1974 ASM 1973 ASM	28 (NA) (NA) (NA) (NA)	42 (NA) (NA) (NA) (NA)	31 (NA) (NA) (NA) (NA)	8.9 8.3 8.9 9.2 9.3	139.2 118.5 111.9 109.3 100.3	7.0 6.6 7.2 7.6 7.8	14.3 12.8 14.0 15.0 15.3	103.9 88.2 84.4 85.4 77.3	274.6 289.9 381.0 426.4 210.3	687.0 593.8 545.6 546.7 422.9	930.6 854.6 833.1 958.4 670.6	53.2 77.7 66.2 61.1 42.0	403.8 358.4 331.6 187.7 131.5	(D) (NA) (NA) (NA) (NA)	90 (NA) (NA) (NA) (NA)
1972 Census	27 (NA) (NA) (NA) (NA)	40 (NA) (NA) (NA) (NA) 34	31 (NA) (NA) (NA) (NA) (NA)	9.5 10.1 10.4 10.5 10.7 10.4	94.1 93.7 92.6 87.8 84.0 79.0	7.8 8.3 8.6 8.7 8.8 8.4	15.1 16.3 17.6 18.0 18.2 17.2	71.7 70.9 72.2 68.3 63.5 58.6	217.2 243.8 199.0 231.6 197.5 193.2	335.4 340.7 331.3 355.9 295.7 289.9	550.1 554.7 519.3 582.9 486.5 467.9	26.3 34.4 28.0 24.9 32.3 29.3	173.0 178.3 140.7 125.5 118.3 114.0	(D) (NA) (NA) (NA) (NA) (D)	87 (NA) (NA) (NA) (NA) 82
1007 001100022222222									ND RELAT			20.0			
1982 Census	251	311	185	22,0	442.9	16.3	31.0	296.7	938.3	1 434.3	2 415.4	61.1	497.0	97	44
1981 ASM 1980 ASM 1979 ASM 1978 ASM	(NA) (NA) (NA) (NA)	(NA) (NA) (NA) (NA)	(NA) (NA) (NA) (NA) (NA)	32.2 32.5 33.8 33.0	614.0 563.4 556.3 497.0	24.5 24.3 25.7 25.6	48.5 48.7 52.3 51.4	419.1 381.6 384.4 349.1	1 268.5 1 175.2 1 217.3 1 067.4	1 857.6 1 753.6 1 722.7 1 505.8	3 066.5 2 927.0 2 923.9 2 542.4	83.7 83.8 89.5 80.8	568.5 507.2 506.8 494.8	(NA) (NA) (NA) (NA)	(NA) (NA) (NA) (NA)
1977 Census 1976 ASM 1975 ASM 1974 ASM 1973 ASM	262 (NA) (NA) (NA) (NA)	335 (NA) (NA) (NA) (NA)	223 (NA) (NA) (NA) (NA)	31.7 32.9 30.0 33.8 33.5	436.6 421.6 357.0 385.1 338.8	24.3 24.2 22.8 27.2 26.8	49.0 49.2 45.5 54.0 54.7	304.9 284.0 240.8 266.0 244.4	924.4 886.2 731.7 923.5 722.0	1 341.2 1 150.2 1 062.8 1 148.9 833.5	2 258.6 2 012.5 1 800.5 1 995.0 1 556.4	79.4 53.4 56.8 48.7 43.6	422.8 416.6 377.7 436.5 291.6	95 (NA) (NA) (NA) (NA)	47 (NA) (NA) (NA) (NA)
1972 Census	235 (NA) (NA) (NA) (NA) 200	289 (NA) (NA) (NA) (NA) (NA)	199 (NA) (NA) (NA) (NA) 171	30.6 26.2 28.2 28.9 27.9 27.3	287.9 241.4 236.5 229.9 213.9 194.8	24.1 20.6 22.3 23.2 22.2	49.4 42.8 45.8 52.1 49.6 44.1	202.1 169.8 170.5 160.8 148.2 138.0	583.5 471.4 443.7 501.3 458.4 385.6	657.8 584.7 557.5 542.8 500.6 467.5	1 227.7 1 058.3 985.3 1 030.2 953.7 845.2	26.6 30.8 34.8 34.5 46.6 56.9	263.9 226.2 214.0 198.6 183.6 162.2	94 (NA) (NA) (NA) (NA)	42 (NA) (NA) (NA) (NA) 37
1307 0011303======	200	240	171			21.7 DUSTRY			IING OF ST				102.2	90	
1982 Census	145	192	106	15.4	367.9	10.9	19.7	245.6	623.3	2 348.2	3 005.1	45.2	682.8	92	32
1981 ASM 1980 ASM 1979 ASM 1978 ASM	(NA) (NA) (NA) (NA)	(NA) (NA) (NA) (NA)	(NA) (NA) (NA) (NA)	18.3 18.4 20.3 20.5	444.8 407.2 421.2 380.2	13.4 13.4 15.2 15.6	25.7 25.6 31.1 31.2	309.6 279.9 300.8 274.4	840.0 759.2 1 097.1 999.2	2 605.7 2 306.5 2 552.9 2 195.1	3 403.1 3 077.4 3 610.5 3 180.4	74.4 71.6 53.4 58.4	524.3 463.2 512.5 478.9	(NA) (NA) (NA) (NA)	(NA) (NA) (NA) (NA)
1977 Census 1976 ASM 1975 ASM 1974 ASM 1973 ASM	118 (NA) (NA) (NA) (NA)	155 (NA) (NA) (NA) (NA)	94 (NA) (NA) (NA) (NA)	19.4 17.3 16.1 22.4 21.1	334.6 265.1 219.3 292.8 252.7	14.6 12.9 11.7 17.1 16.5	28.7 25.1 21.9 34.1 34.0	238.8 184.1 146.7 210.5 185.8	799.6 627.0 410.6 291.8 597.0	1 936.8 1 649.8 1 280.7 1 750.0 1 420.9	2 713.2 2 248.5 1 703.5 2 650.3 2 028.2	49.6 42.2 48.9 61.5 30.1	436.6 378.4 322.5 374.2 266.9	95 (NA) (NA) (NA) (NA)	25 (NA) (NA) (NA) (NA)
1972 Census	86 (NA) (NA) (NA) (NA)	125 (NA) (NA) (NA) (NA)	93 (NA) (NA) (NA) (NA)	20.1 16.1 18.4 19.8 19.6	223.3 159.0 166.9 185.8 166.2	15.6 12.0 13.7 15.0 14.8	31.8 23.4 26.6 31.8 30.5	162.3 108.7 112.8 129.4	504.6 273.8 374.4 501.3 322.9	1 144.2 816.7 822.9 928.0 799.4	1 635.7 1 110.1 1 136.3 1 275.3 1 112.6	20.6 22.7 40.1 33.4 39.9	289.8 226.6 276.2 219.4 202.8	91 (NA) (NA) (NA) (NA)	29 (NA) (NA) (NA) (NA)
1967 Census	77	107	86	19.5	154.9	14.9	29.8	119.5 108.8	269.1	777.5	1 038.7	126.0	188.4	90	24
						INDU	ISTRY 33	17, STEEL	PIPE AND	TUBES					
1982 Census	169 (NA) (NA) (NA) (NA)	223 (NA) (NA) (NA) (NA)	167 (NA) (NA) (NA) (NA)	27.0 28.6 27.6 29.8 28.8	648.1 675.2 580.7 573.9 514.3	20.3 22.3 21.3 23.4 22.8	37.6 43.4 40.9 46.8 46.3	460.6 495.8 417.5 420.7 384.6	1 212.7 1 970.1 1 363.3 1 385.5 1 135.2	2 451.7 3 121.4 2 548.0 2 420.1 2 192.7	3 762.2 5 020.2 3 929.3 3 722.1 3 278.9	124.5 122.9 119.7 105.2 76.3	906.4 878.6 749.6 800.3 659.2	94 (NA) (NA) (NA) (NA)	47 (NA) (NA) (NA) (NA)
1977 Census 1976 ASM 1975 ASM 1974 ASM 1973 ASM	130 (NA) (NA) (NA) (NA)	180 (NA) (NA) (NA) (NA)	142 (NA) (NA) (NA) (NA)	27.8 21.7 25.5 27.6 25.8	449.4 319.1 341.7 340.6 294.5	21.8 16.7 19.9 21.8 20.7	43.7 32.5 39.4 45.2 43.6	330.6 226.9 247.5 253.5 221.9	987.9 715.3 903.7 993.3 636.2	1 731.9 1 171.0 1 360.4 1 412.0 999.8	2 681.4 1 887.6 2 214.8 2 373.4 1 619.6	117.5 57.0 47.8 42.6 37.7	571.6 415.0 417.4 379.8 260.0	95 (NA) (NA) (NA) (NA)	44 (NA) (NA) (NA) (NA)
See footnotes at	end of tab	ole.													

Table 1a. Historical Statistics for the Industry: 1982 and Earlier Years—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

		All establ	ishments ³	hments ³ All employees		Production workers								Ra	tios
Year¹	Com- panies² (no.)	Total (no.)	With 20 employ- ees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	(million (million		Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of- year inven- tories ⁴ (million dollars)	Spe- cial- ization (per- cent)	Cover- age (per- cent)
		(no.) (no.) (1,000) dollars) (1,000) (millions) dollars) dollars) dollars) dollars) dollars) dollars) dollars) cent) cent)													
1972 Census	115 (NA) (NA) (NA) (NA) (NA)	152 (NA) (NA) (NA) (NA) (NA)	122 (NA) (NA) (NA) (NA) 126	23.6 21.5 23.4 27.4 26.5 27.0	245.5 204.9 206.6 236.4 216.1 207.9	18.8 16.9 18.3 21.9 21.4 21.8	39.0 34.1 36.8 45.3 44.0 45.1	181.8 145.5 148.5 174.3 160.5 155.4	506.1 426.3 420.4 428.1 419.1 412.1	807.9 671.9 633.1 807.5 788.6 754.4	1 292.1 1 095.9 1 048.5 1 226.0 1 193.9 1 148.6	24.1 17.6 32.8 36.4 43.4 37.8	235.1 218.5 193.7 210.7 214.6 205.6	93 (NA) (NA) (NA) (NA) (NA)	42 (NA) (NA) (NA) (NA) (NA)

In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1967, see 1967 Census of Manufactures, vol. II, table 1 of the Industry chapter.

Industries	End-of-1981	End-of-1982	1982 value added by
	inventories	inventories	manufacture
	(million dollars)	(million dollars)	(million dollars)
Industry 3312, Blast furnaces and steel mills	10 151.9	7 929.5	11 902.9
Industry 3313, Electrometallurgical products	402.1	357.1	179.8
Industry 3315, Steel wire and related products	517.5	447.1	947.6
Industry 3316, Cold finishing of steel shapes	569.1	475.8	625.6
Industry 3317, Steel pipe and tubes	925.2	695.9	1 198.0

See Inventories in appendixes for explanation of the difference between end-of-1981 inventory figure shown in table and corresponding figure shown in footnote.

Table 1b. Selected Operating Ratios for the Industry: 1982 and Earlier Years

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
			IND	JSTRY 3312, BL	AST FURNACE	S AND STEEL N	MILLS		
1982 Census	29 337 29 367 26 045 24 356 22 193	73 77 78 80 80	1 746 1 897 1 847 1 939 1 977	16.45 15.06 13.68 12.17 10.88	64 66 63 63 62 64	88 86 84 83 82 84	39 768 51 499 46 245 46 629 43 034 34 695	74 57 56 52 52	31.31 35.12 32.26 30.03 27.30 22.93
1976 ASM	17 795 15 680 14 504 12 908	79 79 79 80 82	1 902 1 854 1 968 2 007	8.96 8.06 7.21 6.16	65 65 58 57	85 85 76 79	32 652 29 595 33 641 25 432	54 53 43 51	21.67 20.31 21.47 15.52
1972 Census	11 805 10 305 9 611 9 472 8 853 8 226	81 80 81 81 81 81	1 949 1 917 1 937 1 999 1 979 1 948	5.76 5.07 4.69 4.50 4.24 3.98	59 56 58 57 55 56	82 78 81 80 77 78	21 967 19 832 17 760 18 325 17 400 16 714	54 52 54 52 51 49	13.94 12.96 11.37 11.29 10.83 10.54
			INDU	STRY 3313, EL	ECTROMETALL	URGICAL PROD	OUCTS		
1982 Census	23 302 21 050 19 988 18 591 16 682	74 79 79 82 80	1 795 2 063 2 000 2 000 1 985	12.21 9.57 9.58 8.91 8.03	70 74 68 68 71	87 88 82 80 84	34 019 46 987 48 471 46 108 29 212	68 45 41 40 57	25.76 28.92 30.75 28.21 18.39
1977 Census	15 640 14 277 12 573 11 880 10 785	79 80 81 83 84	2 043 1 939 1 944 1 974 1 962	7.27 6.89 6.03 5.69 5.05	74 69 65 57 63	89 83 79 68 78	30 854 34 928 42 809 46 348 22 613	51 41 29 26 48	19.20 22.65 27.21 28.43 13.75
1972 Census	9 905 9 277 8 904 8 362 7 850 7 596	82 82 83 83 82 81	1 936 1 964 2 047 2 069 2 068 2 048	4.75 4.35 4.10 3.79 3.49 3.41	61 61 64 61 61 62	78 78 82 76 78 79	22 863 24 139 19 135 22 057 18 458 18 577	43 38 47 38 43 41	14.38 14.96 11.31 12.87 10.85 11.23

chapter.

2For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

3Includes establishments with payroll at any time during year.

4Effective with the 1982 Economic Censuses, uniform instructions for reporting inventories were introduced for all sector reports. Up to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown above and in historical census of manufactures and annual survey of manufactures publications. Inventories and value added data estimated on a basis comparable to the historical data, using the reported information for 1982, are shown below:

⁵Beginning in 1982, administrative-record cases have been eliminated for industry 3312.

Table 1b. Selected Operating Ratios for the Industry: 1982 and Earlier Years-Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

[For meaning of apprevia	tions and symbols,	see introductory tex	t. For explanation	or terms, see appe	nuixesi	1			
Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
			INDU	STRY 3315, ST	EL WIRE AND	RELATED PRO	DUCTS		
1982 Census	20 132	74	1 902	9.57	59	78	42 650	47	30.27
	19 068	76	1 980	8.64	61	81	39 394	48	26.15
	17 335	75	2 004	7.84	60	79	36 160	48	24.13
	16 459	76	2 035	7.35	59	78	36 015	46	23.28
	15 061	78	2 008	6.79	59	79	32 345	47	20.77
1977 Census	13 773	77	2 016	6.22	59	79	29 161	47	18.87
	12 815	74	2 033	5.77	57	78	26 936	48	18.01
	11 900	76	1 996	5.29	59	79	24 390	49	16.08
	11 393	80	1 985	4.93	58	77	27 322	42	17.10
	10 113	80	2 041	4.47	54	75	21 552	47	13.20
1972 Census	9 408	79	2 050	4.09	54	77	19 069	49	11.81
	9 214	79	2 078	3.97	55	78	17 992	51	11.01
	8 387	79	2 054	3.72	57	81	15 734	53	9.69
	7 955	80	2 246	3.09	53	75	17 346	46	9.62
	7 667	80	2 234	2.99	52	75	16 430	47	9.24
	7 136	79	2 032	3.13	55	78	14 125	51	8.74
			IND	USTRY 3316, C	OLD FINISHING	OF STEEL SH	APES		
1982 Census	23 890	71	1 807	12.47	78	90	40 474	59	31.64
	24 306	73	1 918	12.05	77	90	45 902	53	32.68
	22 130	73	1 910	10.93	75	88	41 261	54	29.66
	20 749	75	2 046	9.67	71	82	54 044	38	35.28
	18 546	76	2 000	8.79	69	81	48 741	38	32.03
1977 Census	17 247	75	1 966	8.32	71	84	41 216	42	27.86
	15 324	75	1 946	7.33	73	85	36 243	42	24.98
	13 621	73	1 872	6.70	75	88	25 503	53	18.75
	13 071	76	1 994	6.17	66	77	13 027	100	8.56
	11 976	78	2 061	5.46	70	83	28 294	42	17.56
1972 Census	11 109	78	2 038	5.10	70	84	25 104	44	15.87
	9 876	75	1 950	4.65	74	88	17 006	58	11.70
	9 071	74	1 942	4.24	72	87	20 348	45	14.08
	9 384	76	2 120	4.07	73	87	25 318	37	15.76
	8 480	76	2 061	3.92	72	87	16 474	51	10.59
	7 944	76	2 000	3.65	75	90	13 800	58	9.03
				INDUSTRY 3	317, STEEL PIP	E AND TUBES			
1982 Census	24 004 23 608 21 040 19 258 17 858	75 78 77 79 79	1 852 1 946 1 920 2 000 2 031	12.25 11.42 10.21 8.99 8.31	65 62 65 65	82 76 80 80 83	44 915 68 885 49 395 46 493 39 417	53 34 43 41 45	32.25 45.39 33.33 29.60 24.52
1977 Census	16 165	78	2 005	7.57	65	81	35 536	45	22.61
	14 705	77	1 946	6.98	62	79	32 963	45	22.01
	13 400	78	1 980	6.28	61	77	35 439	38	22.94
	12 341	79	2 073	5.61	59	74	35 989	34	21.98
	11 415	80	2 106	5.09	62	80	24 659	46	14.59
1972 Census	10 403	80	2 074	4.66	63	82	21 445	49	12.98
	9 530	79	2 018	4.27	61	80	19 828	48	12.50
	8 829	78	2 011	4.04	60	80	17 966	49	11.42
	8 628	80	2 068	3.85	66	85	15 624	55	9.45
	8 155	81	2 056	3.65	66	84	15 815	52	9.52
	7 700	81	2 069	3.45	66	84	15 263	50	9.14

Note: For qualifications of data, see footnotes on table 1a.

Table 2. Industry Statistics for Selected States: 1982 and 1977

[Excludes data for auxiliaries. Includes data for States with 150 employees or more. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

							1982						1	977
		All establi	ishments ²	All em	ployees	Pro	duction wo	rkers						
Industry and geographic area	E¹	Total (no.)	With 20 employ- ees or more (no.)	Number ³ (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufac- ture ⁴ (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employ- ees ³ (1,000)	Value added by manufac- ture (million dollars)
INDUSTRY 3312, BLAST FURNACES AND STEEL MILLS														
United States	-	301	22 5	295.8	8 677.9	215.2	375.7	6 181.6	11 763.3	23 568.7	36 824.4	2 170.2	441.9	15 331.9
Alabama Arizona California Colorado Connecticut	- - -	15 1 19 2 1	12 1 12 2 1	7.6 BB 7.7 FF CC	190.7 (D) 279.6 (D) (D)	5.3 (D) 5.7 (D) (D)	8.4 (D) 10.4 (D) (D)	133.9 (D) 198.9 (D) (D)	264.6 (D) 430.7 (D) (D)	478.3 (D) 691.9 (D) (D)	829.7 (D) 1 163.8 (D) (D)	23.7 (D) 12.3 (D) (D)	14.9 BB 13.5 FF CC	341.0 (D) 342.8 (D) (D)
Delaware		1 5 4 19 11	1 3 2 17 10	EE CC EE 22.2 53.0	(D) (D) (D) 613.8 1 545.1	(D) (D) (D) 16.3 39.2	(D) (D) (D) 27.9 66.3	(D) (D) (D) 423.1 1 115.6	(D) (D) (D) 790.7 2 122.4	(D) (D) (D) 1 914.2 4 635.2	(D) (D) (D) 2 818.8 6 925.7	(D) (D) (D) 111.9 405.1	EE CC EE 38.4 63.3	(D) (D) (D) 1 457.4 1 938.9
lowa Kentucky Louisiana Maryland Michigan		1 8 5 3 15	1 5 2 3 11	BB 5.3 CC FF 14.8	(D) 155.1 (D) (D) 490.9	(D) 4.1 (D) (D) 11.4	(D) 6.8 (D) (D) 22.0	(D) 111.6 (D) (D) 367.4	(D) 174.6 (D) (D) 639.4	(D) 379.8 (D) (D) 1 464.2	(D) 586.2 (D) (D) 2 123.3	(D) 87.0 (D) (D) (D)	BB 6.7 (NA) FF 20.7	(D) 234.8 (NA) (D) 971.2
MinnesotaMississippiMissouriNebraskaNew Jersey		3 2 4 1 6	2 1 3 1 3	CC AA FF CC CC	(D) (D) (D) (D) (D)	(D) (D) (D) (D)	(D) (D) (D) (D)	(D) (D) (D) (D)	00000	(D) (D) (D) (D)	(D) (D) (D) (D) (D)	(D) (D) (D) (D) (D)	1.1 AA FF BB BB	34.4 (D) (D) (D) (D)
New York	11111	20 3 26 5 5	15 2 20 2 3	9.9 BB 40.2 CC CC	291.6 (D) 1 167.7 (D) (D)	6.5 (D) 30.8 (D) (D)	11.3 (D) 53.0 (D) (D)	193.6 (D) 871.6 (D) (D)	296.5 (D) 1 870.7 (D) (D)	619.2 (D) 3 591.9 (D) (D)	1 014.3 (D) 5 692.7 (D) (D)	41.0 (D) 380.4 (D) (D)	19.4 AA 67.8 CC CC	466.8 (D) 3 038.8 (D) (D)
Pennsylvania South Carolina Tennessee Texas Utah	1 1 1 1	52 5 7 14 2	49 4 4 9 2	73.3 1.6 .7 12.6 FF	2 159.1 41.9 15.0 342.2 (D)	51.4 1.3 .6 8.9 (D)	88.9 2.6 1.0 16.5 (D)	1 504.5 34.9 11.2 233.4 (D)	2 461.2 79.9 21.2 840.3 (D)	5 475.9 195.6 56.2 944.2 (D)	8 612.9 272.7 72.8 1 720.9 (D)	494.5 (D) 14.6 154.0 (D)	120.7 1.7 .8 13.4 FF	3 979.9 46.1 25.1 522.2 (D)
Virginia Washington West Virginia Wisconsin	- - E3	7 5 4 4	5 4 4 3	EE EE FF AA	(D) (D) (D) (D)	(D) (D) (D) (D)	(D) (D) (D) (D)	(D) (D) (D) (D)	(D)	(D) (D) (D) (D)	(D) (D) (D) (D)	(D) (D) (D) (D)	.9 1.7 FF BB	34.1 63.9 (D) (D)
Industry 3312-11, Fully Integrated														
United States	-	3 0	30	162.4	4 871.6	119.2	204.5	3 5 12. 3	6 418.1	12 161.8	19 261.7	1 193.6	240.8	8 334.8
Alabama	-	2 1 2 4 1	2 1 2 4 1	FF FF FF 49.0 FF	(D) (D) (D) 1 433.4 (D)	(D) (D) (D) 36.5 (D)	(D) (D) (D) 61.5 (D)	(D) (D) (D) 1 040.7 (D)	(D) (D) (D) 2 002.3 (D)	(D) (D) (D) 3 942.1 (D)	(D) (D) (D) 6 090.1 (D)	(D) (D) (D) 392.1 (D)	FF FF 58.7 (NA)	(D) (D) (D) 1 823.1 (NA)
Maryland Michigan New York Ohio Pennsylvania	-	1 2 1 6 7	1 2 1 6 7	FF FF FF 23.8 23.7	(D) (D) (D) 696.4 707.6	(D) (D) (D) 18.2 17.4	(D) (D) (D) 31.3 29.6	(D) (D) (D) 517.6 523.7	(D) (D) (D) 925.1 877.1	(D) (D) (D) 2 164.5 1 614.4	(D) (D) (D) 3 289.4 2 642.4	(D) (D) (D) 262.7 144.4	FF FF FF 33.7 FF	(D) (D) (D) 1 481.7 (D)
Texas Utah West Virginia	-	1 1 1	1 1 1	FF FF FF	(D) (D) (D)	(D) (D) (D)	(D) (D) (D)	(D) (D) (D)	(D) (D) (D)	(D) (D) (D)	(D) (D) (D)	(D) (D) (D)	FF FF FF	(D) (D) (D)
Industry 3312-12, Partially Integrated With Blast Furnaces														
United States	-	6	6	19.4	571.7	13.8	24.1	401.0	548.5	1 974.1	2 752.5	117.2	57. 3	2 415.6
Illinois Ohio Pennsylvania Texas	- - - -	1 1 3 1	1 1 3 1	FF FF FF	(D) (D) (D) (D)	(D) (D) (D) (D)	(D) (D) (D)	(D) (D) (D)	(D) (D) (D) (D)	(D) (D) (D) (D)	(D) (D) (D) (D)	(D) (D) (D) (D)	FF 13.0 FF (NA)	(D) 531.1 (D) (NA)

Table 2. Industry Statistics for Selected States: 1982 and 1977—Con.

[Excludes data for auxiliaries. Includes data for States with 150 employees or more. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

[Excludes data for auxiliaries. Include	Jac	a ioi State	.5 ************************************	Chipioyees	or more. Te	л театту	1982	and syl	miodis, see in	aroductory tex		ation or ten		977
		All establ	ishments ²	All em	ployees	Pro	duction wo	rkers						
Industry and geographic area	E1	Total	With 20 employ- ees or more (no.)	Number ³ (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufac- ture ⁴ (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expend-itures (million dollars)	All employ- ees ³ (1,000)	Value added by manufac- ture (million dollars)
INDUSTRY 3312, BLAST FURNACES AND STEEL MILLS—Con.	_	(***)		(1,122)		(1,122)		,	,	,			(1,1-00)	
Industry 3312-13, Partially Integrated Without Blast Furnaces													9	
United States	-	91	90	81 .3	2 274.8	5 7.9	101.4	1 572.0	3 463.9	5 393.1	9 283.1	657.6	93.6	3 252.7
Alabama Arizona California Connecticut Delaware		2 1 3 1 1	2 1 3 1 1	CC BB EE CC EE	(D) (D) (D) (D)	(D) (D) (D) (D)	(D) (D) (D) (D)	(D) (D) (D) (D)	(D) (D) (D) (D)	(D) (D) (D) (D)	(D) (D) (D) (D)	(D) (D) (D) (D)	CC (NA) EE CC EE	(D) (NA) (D) (D) (D)
Florida Georgia Illinois Indiana Kentucky	1111	3 2 10 4 3	3 2 10 4 3	CC EE 8.9 FF EE	(D) (D) 248.3 (D) (D)	(D) (D) 6.7 (D) (D)	(D) (D) 12.3 (D) (D)	(D) (D) 182.0 (D) (D)	(D) (D) 363.8 (D) (D)	(D) (D) 482.0 (D) (D)	(D) (D) 876.8 (D) (D)	(C)	CC (NA) 12.4 EE 1.8	(D) (NA) 420.8 (D) 66.5
Maryland Michigan Minnesota Missouri Nebraska	1111	2 3 1 1 1	2 3 1 1	EE EE CC FF CC	(D) (D) (D) (D)	(D) (D) (D) (D)	(D) (D) (D) (D)	(D) (D) (D) (D)	(D) (D) (D) (D)	(D) (D) (D) (D)	(D) (D) (D) (D)	(D) (D) (D) (D)	EE CC CC FF BB	(D) (D) (D) (D) (D)
New York	1111	3 2 5 2 22	3 2 4 2 22	EE AA FF CC 33.0	(D) (D) (D) (D) 9 60.2	(D) (D) (D) (D) 22.1	(D) (D) (D) (D) 37.8	(D) (D) (D) (D) 634.1	(D) (D) (D) (D) 1 253.4	(D) (D) (D) (D) 2 030.9	(D) (D) (D) (D) 3 534.4	(D) (D) (D) (D) 238.5	EE (NA) 16.9 CC 31.5	(D) (NA) 918.5 (D) 905.4
South Carolina	- - - E9	3 2 6 1 2 2 1	3 2 6 1 2 2 1	EE CC 5.0 BB CC CC CC	(D) (D) 131.7 (D) (D) (D)	(D) (D) 3.8 (D) (D) (D)	(D) (D) 7,4 (D) (D) (D) (D)	(D) (D) 94.0 (D) (D) (D)	(D) (D) 210.3 (D) (D) (D) (D)	(D) (D) 524.0 (D) (D) (D) (D)	(D) (D) 753.4 (D) (D) (D)	(D) (D) (60.4 (D) (D) (D)	EE BB 5.1 (NA) CC EE CC	(D) (D) 113.8 (NA) (D) (D) (D)
Industry 3312-14, Nonintegrated														
United States	-	174	99	3 2.6	959.9	24.3	45.6	6 9 6.3	1 332.9	4 039.8	5 527.1	201.8	50. 2	1 328.9
Alabama California Illinois Indiana Iowa	11111	11 16 6 3 1	8 9 4 2 1	EE FF EE EE BB	(D) (D) (D) (D)	(D) (D) (D) (D)	(D) (D) (D) (D)	(D) (D) (D) (D)	(D) (D) (D) (D)	(D) (D) (D) (D)	(D) (D) (D) (D)	(D) (D) (D) (D)	1.6 3.4 4.5 EE (NA)	74.7 -18.9 153.9 (D) (NA)
Louisiana Michigan Mississippi Missouri New Jersey	E2 - -	5 10 2 3 6	2 6 1 2 3	CC 2.2 AA BB CC	(D) 62.6 (D) (D) (D)	(D) 1.8 (D) (D) (D)	(D) 4.7 (D) (D) (D)	(D) 48.5 (D) (D) (D)	(D) 65.2 (D) (D) (D)	(D) 253.6 (D) (D) (D)	(D) 325.9 (D) (D) (D)	0000	(NA) 1.1 (NA) CC BB	(NA) 30.2 (NA) (D) (D)
New YorkOhioOklahomaPennsylvaniaTennessee	1111	16 14 5 20 5	11 9 2 17 2	FF 2. 9 CC FF AA	(D) 80.6 (D) (D) (D)	(D) 2.3 (D) (D) (D)	(D) 4.1 (D) (D) (D)	(D) 64. 9 (D) (D) (D)	(D) 129.3 (D) (D) (D)	(D) 415.8 (D) (D) (D)	(D) 545.4 (D) (D) (D)	(D) 7.4 (D) (D) (D)	4.3 4.2 (NA) 22.3 CC	153.2 107.6 (NA) 588.4 (D)
Texas Virginia Washington West Virginia Wisconsin	E1 - - E3	6 5 3 2 4	1 3 2 2 3	AA AA BB CC AA	(D) (D) (D) (D)	(D) (D) (D) (D)	(D) (D) (D) (D)	(D) (D) (D) (D) (D)	(D) (D) (D) (D) (D)	(D) (D) (D) (D) (D)	(D) (D) (D) (D) (D)	000000000000000000000000000000000000000	.2 AA (NA) CC BB	6.5 (D) (NA) (D) (D)
INDUSTRY 3313, ELECTROMETALLURGICAL PRODUCTS														
United States	-	41	27	5.3	123.5	3.9	7.0	85.5	180.3	494.2	707.5	2 3. 8	8.9	274.6
lowa Kentucky New Jersey Ohio Oregon	1 1 1 1	1 1 3 8 2	1 1 3 6 1	AA AA CC 2.3 AA	(D) (D) (D) 50.2 (D)	(D) (D) (D) 1.7 (D)	(D) (D) (D) 2.6 (D)	(D) (D) (D) 33.4 (D)	(D) (D) (D) 7 9 .4 (D)	(D) (D) (D) 176.5 (D)	(D) (D) (D) 250.5 (D)	(D) (D) (D) 6.8 (D)	AA CC BB 3.4 CC	(D) (D) (D) 106.5 (D)
Pennsylvania South Carolina Tennessee West Virginia	E9 - -	1 2 4 4	1 1 3 3	AA AA .3 CC	(D) (D) 7.7 (D)	(D) (D) .2 (D)	(D) (D) .5 (D)	(D) (D) 5.8 (D)	(D) (D) 10.0 (D)	(D) (D) 41.4 (D)	(D) (D) 61.0 (D)	(D) (D) 3.8 (D)	(NA) BB .7 EE	(NA) (D) 19.2 (D)

Table 2. Industry Statistics for Selected States: 1982 and 1977—Con.

[Excludes data for auxiliaries. Includes data for States with 150 employees or more. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

							1982						1	977
		All establ	iohmonto?	Allom	-levees	Dro	duction wo	rkara						977
Industry and geographic area	E¹	Total (no.)	With 20 employ- ees or more (no.)	Number ³ (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufac- ture ⁴ (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expend- itures (million dollars)	AII employ- ees ³ (1,000)	Value added by manufac- ture (million dollars)
INDUSTRY 3315, STEEL WIRE AND RELATED PRODUCTS														
United States	-	311	185	22.0	442.9	16.3	31.0	296.7	938.3	1 434.3	2 415.4	61.1	31.7	924.4
Alabama	- - E2 -	6 2 34 15 2	4 2 16 8 2	.4 AA 1.5 EE AA	7.4 (D) 30.4 (D) (D)	.3 (D) 1.2 (D) (D)	.7 (D) 2.3 (D) (D)	6.0 (D) 22.1 (D) (D)	11.6 (D) 95.3 (D) (D)	33.8 (D) 139.3 (D) (D)	47.6 (D) 226.9 (D) (D)	(D) (D) 2.0 (D) (D)	1.0 (NA) 1.7 EE AA	13.2 (NA) 55.8 (D) (D)
Florida Georgia Illinois Indiana Kentucky	E1 -	13 6 30 10 4	10 2 16 6 3	CC CC EE .8 CC	(D) (D) (D) 17.9 (D)	(D) (D) (D) .6 (D)	(D) (D) (D) 1.2 (D)	(D) (D) (D) 12.1 (D)	(D) (D) (D) 30.4 (D)	(D) (D) (D) 49.7 (D)	(D) (D) (D) 83.4 (D)	(D) (D) (D) 1.7 (D)	CC CC 3.5 1.4 .7	(D) (D) 125.2 44.5 11.1
Louisiana Maryland Massachusetts Michigan Minnesota	- E2 -	3 4 19 12 2	2 3 13 5 2	AA CC 1.1 EE BB	(D) (D) 20.5 (D) (D)	(D) (D) .8 (D) (D)	(D) (D) 1.6 (D) (D)	(D) (D) 14.7 (D) (D)	(D) (D) 32.8 (D) (D)	(D) (D) 50.2 (D)	(D) (D) 86.2 (D) (D)	(D) (D) 1.2 (D) (D)	(NA) CC 2.0 EE BB	(NA) (D) 54.1 (D) (D)
Mississippi Missouri New Jersey New York	- E1 E2 E1	4 7 16 15 5	4 6 8 4 2	.4 .8 CC BB AA	5.4 18.2 (D) (D) (D)	.3 .6 (D) (D)	.6 1.1 (D) (D)	3.2 11.9 (D) (D) (D)	6.9 49.6 (D) (D) (D)	27.3 54.2 (D) (D) (D)	37.6 111.9 (D) (D) (D)	(D) 5.6 (D) (D)	(NA) 1.3 .7 .9 (NA)	(NA) 42.4 16.9 19.9 (NA)
OhioOklahomaSouth CarolinaTennessee	1111	21 3 25 6 5	13 3 17 3 4	1.8 AA FF BB AA	36.4 (D) (D) (D) (D)	1.4 (D) (D) (D) (D)	2.5 (D) (D) (D)	25.4 (D) (D) (D) (D)	75.9 (D) (D) (D) (D)	126.8 (D) (D) (D) (D)	207.6 (D) (D) (D) (D)	3.4 (D) (D) (D) (D)	3.6 AA FF .4 CC	109.4 (D) (D) 9.4 (D)
Texas Virginia Wisconsin	E2 E2	22 2 4	15 2 3	1.1 AA CC	20.7 (D) (D)	.9 (D) (D)	1.7 (D) (D)	13.6 (D) (D)	52.3 (D) (D)	105.7 (D) (D)	161.4 (D) (D)	2.6 (D) (D)	1.2 BB .9	23.9 (D) 28.3
INDUSTRY 3316, COLD FINISHING OF STEEL SHAPES														
United States	-	192	106	15.4	367.9	10.9	19.7	245. 6	623.3	2 348.2	3 005.1	45.2	19.4	799.6
California Connecticut Illinois Indiana Maryland	11111	12 10 18 7 2	6 8 8 6 2	BB 1.5 .9 1.0 AA	(D) 37.5 18.4 28.6 (D)	(D) 1.2 .6 .6 (D)	(D) 2.2 1.1 1.2 (D)	(D) 24.8 11.8 17.0 (D)	(D) 77.7 25.7 44.9 (D)	(D) 136.2 136.9 162.5 (D)	(D) 218.0 171.1 196.4 (D)	(D) 3.8 3.4 1.1 (D)	.5 2.1 EE EE AA	29.7 105.9 (D) (D) (D)
Massachusetts Michigan Mississippi New Jersey New York	E2 E4 -	4 22 6 9 8	2 11 4 4 3	CC 1.7 AA .4 .5	(D) 43.7 (D) 7.9 9.7	(D) 1.2 (D) .3 .3	(D) 2.1 (D) .5 .6	(D) 31.4 (D) 5.6 6.8	(D) 69.1 (D) 24.2 23.4	(D) 312.1 (D) 27.0 69.7	(D) 392.5 (D) 51.5 92.6	(D) 2.1 (D) .7 (D)	.5 1.8 .2 .5	19.3 33.1 5.3 16.8 28.6
Ohio Pennsylvania Texas Wisconsin	1111	24 23 10 5	16 15 5 3	3.2 3.6 AA BB	84.7 83.6 (D) (D)	2.2 2.5 (D) (D)	3.9 4.5 (D) (D)	54.4 59.4 (D) (D)	136.7 136.8 (D) (D)	558.7 624.0 (D) (D)	695.3 769.0 (D) (D)	15.0 11.6 (D) (D)	4.2 5.2 (NA) (NA)	224.4 181.5 (NA) (NA)
INDUSTRY 3317, STEEL PIPE AND TUBES														
United States	-	223	167	27.0	6 48 .1	20.3	37.6	460.6	1 212.7	2 451.7	3 762.2	124.5	27 .8	987.9
Alabama	E9 E1 -	2 26 3 3	2 13 3	AA AA 2.0 .3 AA	(D) (D) 56.9 5.7 (D)	(D) (D) 1.6 .2 (D)	(D) (D) 3.2 .4 (D)	(D) (D) 44.8 3.8 (D)	(D) (D) 126.3 20.2 (D)	(D) (D) 236.0 31.2 (D)	(D) (D) 369.5 54.7 (D)	(D) (D) 9.7 .3 (D)	.4 BB 2.1 BB .4	6.4 (D) 84.2 (D) 11.4
Illinois Indiana lowa Kentucky Louisiana	1111	19 13 1 3 3	14 9 1 2 3	1.7 1.6 BB BB CC	38.0 39.1 (D) (D)	1.2 1.2 (D) (D)	2.0 2.2 (D) (D) (D)	23.1 27.0 (D) (D) (D)	60.1 44.8 (D) (D) (D)	171.0 165.8 (D) (D)	251.9 247.0 (D) (D) (D)	6.0 (D) (D) (D) (D)	1.8 EE AA AA	97.5 (D) (D) (D) 8.0
Maryland Michigan Minnesota Missouri New Jersey	E1 E1 -	2 25 3 4 8	1 15 2 3 8	AA 1.4 BB CC 1.1	(D) 34.8 (D) (D) 23.1	(D) 1.0 (D) (D) .7	(D) 2.0 (D) (D) 1.3	(D) 23.8 (D) (D) 13.6	(D) 59.8 (D) (D) 44.6	(D) 102.1 (D) (D) 88.7	(D) 165.8 (D) (D) 135.0	(D) (D) (D) (D) 2.0	(NA) 2.1 BB AA 1.3	(NA) 78.0 (D) (D) 38.7
New York	E1	7 26 5 27 6	6 24 5 23	.6 5.6 CC 4.6	12.9 151.6 (D) 121.9 14.1	.7 .5 4.4 (D) 3.5 .5	1.0 7.4 (D) 6.9 1.0	9.3 114.9 (D) 90.0 9.6	25.1 251.6 (D) 296.1 32.3	26.5 524.0 (D) 440.0 62.0	51.0 789.8 (D) 715.3 94.0	1.5 34.3 (D) 22.0 2.6	CC 5.4 BB 5.4 BB	(D) 184.9 (D) 208.2 (D)
TexasWashingtonWest VirginiaWisconsin		12 1 2 7	9 1 1 4	1.8 AA BB 1.2	35.4 (D) (D) 28.3	1.3 (D) (D) .9	2.5 (D) (D) 1.6	20.8 (D) (D) 20.5	44.0 (D) (D) 44.0	156.9 (D) (D) 82.1	205.4 (D) (D) 140.1	5.3 (D) (D) 1.6	1.2 (NA) CC 1.5	35.9 (NA) (D) 47.2

Table 2. Industry Statistics for Selected States: 1982 and 1977—Con.

Note: For qualifications of data, see footnotes on table 1a.

Payroll and sales data for some small single-unit companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at time data were tabulated. The following symbols are shown for those States where estimated data based on administrative records data account for 10 percent or more of figures shown: E1-10 to 19 percent; E2-20 to 29 percent; E3-30 to 39 percent; E4-40 to 49 percent; E5-50 to 59 percent; E6-60 to 69 percent; E7-70 to 79 percent; E8-80 to 89 percent; E9-90 percent or more.

2Includes establishments with payroll at any time during year.

3Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 150 employees or more, number of establishments is shown and employment size range is indicated by one of the following symbols: AA-150 to 249 employees; BB-250 to 499 employees; CC-500 to 999 employees; EE-1,000 to 2,499 employees; FF-2,500 employees or more.

4Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years in which respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, data for inventories and value added by manufacture are not comparable to prior-year data.

Table 3a. Summary Statistics for the Industry: 1982

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

		Blas	t furnaces and st (SIC 3312)	eel mills					
ltem	Total	Fully integrated (SIC 3312-11)	Partially integrated with blast furnaces (SIC 3312-12)	Partially integrated without blast furnaces (SIC 3312-13)	Nonintegrated (SIC 3312-14)	Electro- metal- lurgical products (SIC 3313)	Steel wire and related products (SIC 3315)	Cold finishing of steel shapes (SIC 3316)	Steel pipe and tubes (SIC 3317)
Companies ¹ number_	219	(NA)	(NA)	(NA)	(NA)	31	251	145	169
All establishments ² dodo	301	30	6	91	174	41	311	192	223
	76	-	-	1	75	14	126	86	56
	45	-	-	8	37	11	118	67	82
	180	30	6	82	62	16	67	39	85
All employees: Average for year1,000 Annual payroll ³ mil. dol	295.8	162.4	19.4	81.3	32.6	5.3	22.0	15.4	27.0
	8 677.9	4 871.6	571.7	2 274.8	959.9	123.5	442.9	367.9	648.1
Production workers: 1,000_ Average for year	215.2	119.2	13.8	57.9	24.3	3.9	16.3	10.9	20.3
	250.4	137.0	19.3	66.6	27.5	4.6	16.7	11.5	24.4
	228.2	125.1	15.6	61.3	26.1	4.3	16.4	11.2	22.0
	206.7	115.5	11.1	56.8	23.4	3.6	16.3	10.8	18.7
	175.4	99.0	9.1	46.9	20.4	2.9	15.7	10.0	16.2
Hours	375.7	204.5	24.1	101.4	45.6	7.0	31.0	19.7	37.6
	116.6	63.7	8.9	31.3	12.7	2.2	8.1	5.4	11.7
	98.2	53.2	6.3	26.6	12.1	1.9	8.0	5.1	10.0
	84.5	46.2	4.7	22.8	10.8	1.6	7.5	4.6	8.3
	76.3	41.4	4.3	20.6	10.1	1.2	7.5	4.5	7.6
Wagesmil. dol	6 181.6	3 512.3	401.0	1 572.0	696.3	85.5	296.7	245.6	460.6
Value added by manufacture4do	11 763.3	6 418.1	548.5	3 463.9	1 332.9	180.3	938.3	623.3	1 212.7
Cost of materials, etc.5	23 568.7	12 161.8	1 974.1	5 393.1	4 039.8	494.2	1 434.3	2 348.2	2 451.7
	18 238.5	9 513.4	1 353.2	3 880.2	3 491.6	335.2	1 275.1	2 195.7	2 234.0
	320.5	46.8	43.2	215.6	15.0	7.2	52.8	10.1	50.8
	2 869.3	1 715.0	433.3	508.9	212.2	27.6	41.1	51.2	56.6
	1 720.3	672.0	124.9	648.8	274.6	121.4	49.3	52.5	53.8
	420.2	214.7	19.4	139.6	46.4	2.7	16.0	38.8	56.4
Value of shipments, including resalesdo	36 824.4	19 261.7	2 752.5	9 283.1	5 527.1	707.5	2 415.4	3 005.1	3 762.2
Value of resalesdo	334.7	52.5	43.2	222.5	16.4	7.3	65.9	12.4	60.0
Manufacturers' inventories (see tables 3b and 3c)									
Capital expenditures for plant and equipment ⁸ do_ New capital expendituresdo_ New buildings and other structuresdo_ New machinery and equipmentdo_ Used capital expendituresdo_	2 252.5	1 257.1	117.2	665.2	212.9	24.0	69.1	49.3	128.9
	2 170.2	1 193.6	117.2	657.6	201.8	23.8	61.1	45.2	124.5
	149.8	79.7	2.8	48.2	19.1	3.3	10.0	5.2	12.6
	2 020.4	1 113.9	114.3	609.5	182.7	20.5	51.1	40.0	112.0
	82.4	63.5	.1	7.6	11.2	.2	8.0	4.2	4.4
Primary product specialization ratio ⁹ percent_Coverage ratio ¹⁰ do_	98	(NA)	(NA)	(NA)	(NA)	97	97	92	94
	79	(NA)	(NA)	(NA)	(NA)	87	44	32	47

For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

2Includes establishments with payroll at any time during year.

3Data on supplemental labor costs are not included in annual payroll, but are shown in table 3d.

4Value added by manufacture is computed using inventory data reported on a cost or market basis prior to any adjustment to LIFO cost. See table 3b, footnote 1 for further explanation.

5Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3d.

5Data on purchased fuels by type were not collected for 1982. See MC82-S-4, Fuels and Electric Energy Consumed, for 1981 data on purchased fuels by type.

7Data on quantity of electric energy used for heat and power are included in table 3d.

8Data on capital expenditures for new machinery and equipment by type, depreciable assets, retirements, rental payments, and depreciation are included in table 3d.

9Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in industry.

10Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 3b. Value of Inventories for the Industry: End of 1981 and 1982

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Blast furnace mi (SIC 3	lls	Electrome prod (SIC :	ucts	Steel wire a prod (SIC 3	ucts	sha	ing of steel pes 3316)		and tubes 3317)
	End of 1981	End of 1982	End of 1981	End of 1982	End of 1981	End of 1982	End of 1981	End of 1982	End of 1981	End of 1982
Total inventories ¹	12 555.6	10 043.6	416.8	371.0	580.5	497.0	795.1	682.8	1 139.8	906.4
Detail by method of valuation: Subject to LIFO costing ² LIFO reserve LIFO value Not subject to LIFO costing Valuation method not reported ³ Amount subject to LIFO reported without associated reserve and value ⁴	5 571.1 2 91 0 .8 2 660.3 6 717.3 247.9	4 506.2 2 555.0 1 951.2 5 317.6 205.4	168.2 51.5 116.7 235.6 13.0	148.9 52.0 96.9 211.2 10.9	229.5 67.7 161.8 268.7 79.0	190.3 54.1 136.2 240.6 62.7	528.1 242.9 285.3 202.1 64.7	477.8 224.9 252.9 157.2 47.7	628.1 258.1 370.0 432.8 67.1	569.7 229.7 340.0 273.6 61.4
Detail by stage of fabrication: Finished goods	3 253. 0 4 031.5 5 271.0	2 7 0 1.7 3 090.5 4 251.4	225.7 27.8 163.3	194.5 25.9 150.5	239.9 127.6 213. 0	215.8 108.8 172.3	194.9 3 0 5.6 294.5	189,2 277,6 216,0	294.9 361.2 483.7	334.3 224. 0 348.1

¹Effective with the 1982 Economic Censuses, uniform instructions for reporting inventories were introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (LIFO, FIFO, market, to name a few). In 1982, all respondents were requested to report inventories at cost or market. LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve. For further explanation, see inventories in appendixes

Table 3c. Inventories by Specific Method of Valuation for the Industry: End of 1982

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

	Blast furnace mi (SIC :	lls		etallurgical lucts 3313)	prod	and related lucts 3315)	sha	ing of steel pes 3316)	Steel pipe and tubes (SIC 3317)	
Item	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)
Total inventories	100.0	(X)	100.0	(X)	100.0	(X)	100.0	(X)	100.0	(X)
Last-In, First-Out (LIFO) methods	44.9	(X)	40.1	(X)	38.3	(X)	70.0	(X)	62.9	(X)
Non-LIFO methodsCost basis:	52.9	(X)	56.9	(X)	48.4	(X)	23.0	(X)	30.2	(X)
First-In, First-Out (FIFO)	2.4 14.3	(Z)	.3 20.4	(Z) 1.7	22.0 3.6	1.3	4.6 4.0	.8	4.9 8.2	.5
Average costSpecific or actual cost	14.3	(Z)	5.5	.5	5.7	2,0	4.8	.4	7.6	.3
Standard cost	21.0 14.6	.í (Z)	16.2 7.6	3.4	5.4 11.7	.7 1.1	9.2	.7 (Z)	7.7 1.6	.4
Market basis: Market lower than cost	.1	•	6.9	.6	(7)	(7)	1	(Z)	1	(7)
Market always used	(Ż)	(Z) (Z)	(Z)	(ž)	(Z) (Z)	(Z) (Z)	(Z)	(z)	(Ż)	(Z) (Z)
Valuation method not reportedAmount subject to LIFO reported without associated reserve	2.0	(X)	2.9	(X)	12.6	(X)	7.0	(X)	6.8	(X)
and value	.1	(X)	(Z)	(X)	.7	(X)	(Z)	(X)	.2	(X)

Note: The percentages shown for the LIFO and non-LIFO totals and the categories "valuation method not reported" and "amount subject to LIFO reported..." are based on the census universe estimates included in table 3b. The percentages shown for the specific non-LIFO methods of valuation (e.g., FIFO, etc.) are based on a representative sample of establishments included in the annual survey of manufactures (ASM) panel for 1982 (see appendixes for description of ASM). The absolute standard error of each of the ASM estimates is shown above.

Table 3d. Supplemental Industry Statistics Based on Sample Estimates: 1982

	Blast furnace mil (SIC 3	Is	Electrome prod (SIC 3	ucts	Steel wire a prod (SIC 3	ucts	Cold finishi sha (SIC 3	pes	Steel pipe and tubes (SIC 3317)	
Item	Amount (million dollars)	Relative standard error of estimate ¹ (percent)	Amount (million dollars)	Relative standard error of estimate ¹ (percent)	Amount (million dollars)	Relative standard error of estimate ¹ (percent)	Amount (million dollars)	Relative standard error of estimate ¹ (percent)	Amount (million dollars)	Relative standard error of estimate ¹ (percent)
Supplemental labor costs: Total Legal costs Voluntary costs	3 389.5 8 0 6.3 2 583.2	1 1 1	44.8 12.4 32.4	2 1 2	125.0 46.4 78.6	2 2 2	122.5 35.4 87.1	2 3 2	208.1 6 0 .4 147.7	1
Purchased services: Cost of purchased services for the repair of— Buildings and other structures Response coverage ratio (percent)² Machinery Response coverage ratio (percent)² Cost of purchased communication services Response coverage ratio (percent)²	74.5 569.4 80.2 47.1	1 (X) 1 (X) 1 (X)	.9 80.4 4.7 77.0 1.1 87.4	9 (X) 16 (X) 3 (X)	3.3 75.2 29.2 77.3 4.9 83.5	9 (X) 7 (X) 9 (X)	1.4 60.4 11.7 65.6 4.3 69.3	4 (X) 6 (X) 5 (X)	11.7 70.9 55.2 73.6 70.1 74.8	22 (X) 20 (X) 32 (X)

in appendixes.

2 Only includes data reported by respondents who (a) indicated amount of inventories subject to LIFO cost, and (b) provided sufficient information to determine associated LIFO reserve and value figures.

3 Includes data estimated for nonresponse and nonmail administrative records and data reported by respondents who provided total inventory figures without other information.

4 Includes data reported by respondents who indicated their inventories were subject to LIFO cost, but did not provide associated LIFO reserve and value figures.

Table 3d. Supplemental Industry Statistics Based on Sample Estimates: 1982—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

	Blast furnac mi (SIC :	lls	Electrome prod (SIC	lucts	proc	and related lucts 3315)	Cold finishi sha (SIC :			and tubes 3317)
Item	Amount (million dollars)	Relative standard error of estimate ¹ (percent)	Amount (million dollars)	Relative standard error of estimate ¹ (percent)	Amount (million dollars)	Relative standard error of estimate ¹ (percent)	Amount (million dollars)	Relative standard error of estimate ¹ (percent)	Amount (million dollars)	Relative standard error of estimate ¹ (percent)
Electric energy used for heat and power: Purchased:										
Quantity (million kWh) Cost Generated less sold (million kWh)	35 740.6 1 720.3 5 607.9	(X) 1	3 440.9 121.4 621.6	(X) 1	977.8 49.3 7.1	1 (X) 60	1 070.2 52.5 13.2	(X)	939.6 53.8 .1	1 (X) 178
Gross book value of depreciable assets: Total:										
Beginning of year New capital expenditures Used capital expenditures Retirements End of year	39 675.8 2 113.6 83.8 1 296.4 40 576.7	1 1 3 2 1	479.6 23.3 .1 15.2 487.8	3 8 26 2 3	900.1 45.0 5.7 25.9 925.0	3 10 17 17 3	912.3 43.3 2.9 34.9 923.6	2 5 14 5 2	1 364.5 114.0 3.6 73.3 1 408.8	2 6 22 5 2
Buildings and other structures: Beginning of year New capital expenditures Used capital expenditures Retirements End of year	5 788.5 140.5 1.8 92.2 5 838.6	1 1 5 2	63.2 3.3 - 2.3 64.3	2 4 - 1	222.2 6.6 .1 6.8 222.0	5 16 50 25	178.1 5.2 .3 12.1 171.4	3 3 27 2 3	279.4 10.9 .3 8.9 281.7	3 13 1 15
Machinery and equipment: Beginning of year New capital expenditures Automobiles, trucks, etc., for highway use	33 887.3 1 973.1 30.7	1 1 1	416.4 20.0	3 10 -	678.0 38.4 .7	3 10 11	734.2 38.1 .4	3 5 1	1 085.1 103.2 1.2	2 6 24
Computers and peripheral data processing equipment All other New machinery and equipment, n.s.k.3 Used capital expenditures Retirements End of year	66.6 1 708.6 167.2 82.0 1 204.3 34 738.2	1 (S) 2 2 1	(Z) 16.4 3.5 .1 12.9 423.5	1 12 (S) 26 3 3	1.0 29.6 7.1 5.7 19.1 702.9	33 11 (S) 17 15 3	.2 35.7 1.9 2.7 22.8 752.1	1 5 (S) 13 7 3	1.8 89.5 10.7 3.3 64.4 1 127.1	27 6 (S) 24 4 2
Rental payments: Total Buildings and other structures Machinery and equipment	138.8 9.3 129.5	1 4 1	2.2 .1 2.1	2 11 3	13.0 6.0 7.0	13 17 16	11.1 3.6 7.5	5 13 4	13.3 4.3 9.0	12 19 9
Depreciation charges during 1982: Total Buildings and other structures Machinery and equipment	1 535.4 170.9 1 364.5	1 1 1	24.5 2.2 22.4	3 4 3	59.9 8.8 51.1	4 4 4	47.0 5.4 41.6	3 4 3	71.8 9.3 62.4	5 4 5

Note: Data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used expenditures are also shown in table 3a. Data in table 3a are census universe totals and may differ from annual survey of manufactures (ASM) sample estimates shown in this table. Data in this table represent best estimates of year-to-year change as measured by the continuing ASM sample. However, they are subject to sampling error and, hence, as estimates of level, are not as reliable as universe figures shown in table 3a.

¹For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

²Measure of extent to which respondents reported each item. Derived for each item by calculating the ratio of weighted employment for those sample establishments that reported the specific inquiry to weighted total employment for all sample establishments classified in industry. (See appendixes for explanation of sample weight.)

³Represents total machinery and equipment expenditures for establishments that did not break down their expenditures by specific type.

Table 4. Industry Statistics by Employment Size of Establishment: 1982

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

			All em	ployees	Pro	duction wor	kers	Value			New	End-of-
Industry and employment size class	E¹	All estab- lish- ments (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	added by manufac- ture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	capital expend- itures (million dollars)	year inven- tories (million dollars)
INDUSTRY 3312, BLAST FURNACES AND STEEL MILLS	1	301	295.8	8 677.9	215.2	375.7	6 181. 6	11 763.3	23 568.7	36 824.4	2 170.2	10 043.6
Establishments with an average of— 1 to 4 employees	E7 E9 E2 E4 - -	44 15 18 24 21 41 38 33 27 40	.1 .3 .8 1.7 6.7 13.5 22.6 43.7 206.4	1.3 1.9 4.9 15.1 42.6 163.4 359.1 622.9 1 273.8 6 193.0	.1 .2 .6 1.2 5.1 10.0 16.7 32.0 149.2	.1 .4 1.1 2.3 9.8 18.7 29.7 57.5 256.0	1.2 1.4 3.6 10.5 29.9 120.7 262.1 444.1 921.3 4 386.7	3.4 3.4 8.7 30.9 82.4 299.7 748.2 843.6 1 607.8 8 135.2	5.4 5.5 17.0 60.9 163.4 643.0 1 290.4 2 187.4 4 079.1 15 116.7	9.0 9.0 30.1 93.7 216.4 954.2 2 085.7 3 135.5 5 985.4 24 305.4	55.0 (D) (D) (D) 7.1 44.2 138.6 171.2 281.7 1 472.4	1.8 1.9 4.1 12.5 77.8 242.0 373.5 803.2 1 367.4 7 159.5
Industry 3312-11, Fully Integrated	_	30	162.4	4 871.6	119.2	204.5	3 512.3	6 418.1	12 161.8	19 261.7	1 193.6	5 977.3
Establishments with an average of— 250 to 499 employees 1,000 to 2,499 employees 2,500 employees or more	-	2 4 24	162.4 (D) (D)	4 871.6 (D) (D)	119.2 (D) (D)	204.5 (D) (D)	3 512.3 (D) (D)	6 418.1 (D) (D)	12 161.8 (D) (D)	19 261.7 (D) (D)	1 193.6 (D) (D)	5 977.3 (D) (D)
Industry 3312-12, Partially Integrated With Blast Furnaces												
Total	-	6	19.4	571.7	13.8	24.1	401.0	548. 5	1 974.1	2 752.5	117.2	598.3
Establishments with an average of— 2,500 employees or more	-	6	19.4	571.7	13.8	24.1	401.0	548.5	1 974.1	2 752.5	117.2	598.3

Table 4. Industry Statistics by Employment Size of Establishment: 1982—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

			All em	ployees	Pro	duction wor	kers	Value			New	End-of-
Industry and employment size class	E1	All estab- lish- ments (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	added by manufac- ture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	capital expend- itures (million dollars)	year inven- tories (million dollars)
INDUSTRY 3312, BLAST FURNACES AND STEEL MILLS—Con.												
Industry 3312-13, Partially Integrated Without Blast Furnaces			24.0									
Establishments with an average of— 10 to 19 employees 20 to 49 employees 50 to 99 employees 100 to 249 employees 250 to 499 employees 500 to 999 employees 1,000 to 2,499 employees 2,500 employees or more		91 1 1 7 12 22 22 17 9	81.3 10.7 (D) (D) (D) (D) 15.2 26.4 29.1	2 274.8 271.5 (D) (D) (D) 416.0 778.2 809.2	7.7 (D) (D) (D) (D) 11.2 18.9 19.9	101.4 14.3 (D) (D) (D) (D) 20.3 34.2 32.6	1 572.0 192.3 (D) (D) (D) (D) 297.4 547.7 534.6	3 463.9 570.3 (D) (D) (D) (D) 575.8 970.4 1 347.4	5 393.1 1 009.5 (D) (D) (D) (D) 1 193.0 1 670.4 1 520.1	9 283.1 1 587.0 (D) (D) (D) (D) 1 844.5 2 835.2 3 016.3	657.6 130.8 (D) (D) (D) (D) 131.7 134.6 260.6	2 165.7 327.6 (D) (D) (D) (D) 458.2 674.4 705.5
Industry 3312-14, Nonintegrated		174	3 2 .6	959.9	24.3	45.6	696.3	1 332.9	4 039.8	5 527.1	201 .8	1 302.3
Establishments with an average of— 1 to 4 employees 5 to 9 employees 10 to 19 employees 20 to 49 employees 100 to 249 employees 250 to 499 employees 500 to 999 employees 1,000 to 2,499 employees 2,500 employees 2,500 employees or more	E4 -	44 15 17 23 14 29 14 11 6	.1 .1 .11.4 (D) (D) (D) (D) 7.5 13.5 (D)	1.3 1.9 294.6 (D) (D) (D) 206.9 455.2 (D)	.1 .1 <u>8.8</u> (D) (D) (D) (D) 5.4 10.0	11.1 17.0 (D) (D) (D) (D) 9.3 19.1 (D)	1.2 1.4 220.1 (D) (D) (D) 146.7 327.0 (D)	3.4 3.4 561.6 (D) (D) (D) 267.9 496.6 (D)	5.4 5.5 1 125.8 (D) (D) (D) (D) 994.4 1 908.8 (D)	9.0 9.0 1 712.9 (D) (D) (D) 1 291.0 2 505.4 (D)	111.9 (D) (D) (D) (D) (D) 39.5 50.4 (D)	1.8 1.9 361.3 (D) (D) (D) (D) 345.0 592.4 (D)
INDUSTRY 3313, ELECTROMETALLURGICAL PRODUCTS Total	•	41	5.3	123.5	3.9	7.0	85.5	180.3	494.2	707.5	23.8	371.0
Establishments with an average of— 1 to 4 employees 5 to 9 employees 10 to 19 employees 20 to 49 employees 50 to 99 employees 100 to 249 employees 250 to 499 employees 500 to 999 employees	E6	6 3 5 2 9 12 1 3	(Z) (D) 1D) 6 4.5 (D)	. <u>6</u> (D) 2.6 (D) 17.9 102.4 (D)	(Z) (D) .1 (D) .5 3.2 (D) (D)	(Z) (D) :1 (D) 1.1 5.7 (D) (D)	(D) 1.9 (D) 14.5 68.6 (D) (D)	(D) 11.0 (D) 48.6 120.0 (D)	1.7 (D) 7.8 (D) 74.6 410.1 (D) (D)	2.4 (D) 19.3 (D) 122.6 563.3 (D) (D)	(Z) (D) .8 (D) 2.5 20.5 (D) (D)	.7 (D) 3.4 (D) 78.7 288.2 (D) (D)
Covered by administrative records ² INDUSTRY 3315, STEEL WIRE AND RELATED PRODUCTS	E9	4	(Z)	.2	(Z)	(Z)	.1	.3	.8	1.1	(Z)	.4
Total Establishments with an average of—	-	311	22.0	442.9	16.3	31.0	296.7	938.3	1 434.3	2 415.4	61.1	497.0
1 to 4 employees 5 to 9 employees 10 to 19 employees 20 to 49 employees 50 to 99 employees 100 to 249 employees 250 to 499 employees 500 to 999 employees	E5 E5 E5 E1	47 30 49 66 52 50 10 7	.1 .2 .7 2.2 3.7 7.3 3.4 4.5	1.6 3.3 11.7 37.0 67.4 142.3 77.2 102.4	.1 .5 1.7 2.9 5.6 2.4 3.0	.2 .3 1.0 3.1 5.7 10.7 4.6 5.5	1.2 2.1 8.0 24.7 47.8 98.1 51.3 63.4	2.7 6.6 27.2 96.7 177.8 289.2 156.6 181.4	4.1 10.9 46.2 172.0 336.6 521.5 159.4 183.6	11.6 18.1 74.4 273.7 526.2 817.3 318.0 376.2	.2 .8 1.1 4.2 12.0 20.0 11.5 11.4	1.6 3.4 14.2 47.8 85.0 161.4 68.5 115.1
INDUSTRY 3316, COLD FINISHING OF STEEL SHAPES	E9	70	.5	6.6	.4	.8	4.8	12.8	19.2	32.9	.8	7.1
Total	-	192	15.4	36 7.9	10.9	19.7	245.6	6 2 3.3	2 348.2	3 005.1	45.2	68 2 .8
Establishments with an average of— 1 to 4 employees———————————————————————————————————	E9 E6 E3	24 26 36 32 35	.1 .2 .5 1.0 2.4	.8 3.0 8.6 17.9 53.4	(Z) .1 .4 .7 1.7	.1 .2 .7 1.3 3.2	.6 1.9 5.6 11.7 33.8	1.3 4.6 33.6 49.1 95.9	3.9 17.8 103.8 148.9 380.7	5.3 23.7 141.2 205.3 483.2	.1 .3 1.4 2.5 8.4	1.0 4.7 24.8 43.8 98.3 160.4
250 to 499 employees 500 to 999 employees 1,000 to 2,499 employees Covered by administrative records ²	- - E9	13 2 1 45	7.5 (D) (D)	194.5 (D) (D) 4.8	5.1 (D) (D) .3	9.3 (D) (D) .5	128.5 (D) (D) 3.4	345.1 (D) (D) 7.8	1 255.4 (D) (D) 24.6	1 600.7 (D) (D) 33.0	22.6 (D) (D) .5	349.8 (D) (D) 6.9
INDUSTRY 3317, STEEL PIPE AND TUBES	-	22 3	27.0	648.1	20.3	37.6	460.6	1 212.7	2 451.7	3 762.2	124.5	906.4
Establishments with an average of— 1 to 4 employees 5 to 9 employees 20 to 49 employees 50 to 99 employees 100 to 249 employees 250 to 499 employees 500 to 999 employees 1,000 to 2,499 employees	E9 E8 E7 E1 E1	25 15 16 47 35 55 22 7	.1 .2 1.5 2.5 8.2 7.5 6.8 (D)	.8 1.7 3.9 29.6 53.8 177.8 179.4 201.2 (D)	(Z) .1 .2 1.1 1.9 6.2 5.4 <u>5.4</u> (D)	.1 .2 .3 2.3 3.5 11.8 9.6 9.7 (D)	.6 1.1 2.6 20.6 36.1 119.3 121.2 159.0 (D)	1.8 3.4 16.7 61.6 136.2 340.8 294.9 357.3 (D)	3.3 7.4 15.7 135.3 239.7 619.9 702.2 <u>728.1</u> (D)	5.1 10.9 33.6 196.9 380.2 977.2 1 047.5 1 110.7 (D)	.1 .5 .3 5.8 12.5 30.6 30.0 44.8 (D)	.9 3.1 4.8 38.0 79.9 220.3 263.2 296.1 (D)

Note: For qualifications of data, see footnotes on table 1a. Data shown as a (D) are included in underscored figures above.

Payroll and sales data for some small single-unit companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at time data were tabulated. The following symbols are shown for those States where estimated data based on administrative records data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

2Report forms were not mailed to small single-unit companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1982 were obtained from administrative records supplied by other agencies of the Federal, Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective size classes shown.

Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1982

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. Statistics for establishments with specialization ratios of less than 75 percent are included in total lines but are not shown as a separate class. In addition, data may not be shown for various reasons; e.g., to avoid disclosing data for individual companies. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes.]

	reasons; e.g., to avoid disclosing data for individual compan	ies. For me			·				of terms, see ap	opendixes.]	
Indus- try or		All estab-	All em	ployees	Pr	oduction worl	kers	Value added by	Coat of	Value of	New capital
prod- uct class	Industry or product class by percent of specialization	lish- ments	Number	Payroll (million	Number	Hours	Wages (million	manufac- ture (million	Cost of materials (million	Value of shipments (million	expend- itures (million
code		(number)	(1,000)	dollars)	(1,000)	(millions)	dollars)	dollars)	dollars)	dollars)	dollars)
3312	Blast furnaces and steel mills: Entire industry Establishments with 75 percent specialization or more	301 277	295.8 284.1	8 677.9 8 365.4	215.2 206.6	375.7 359.2	6 181.6 5 967.2	11 763.3 11 357.7	23 568.7 22 931.2	36 824.4 35 729.1	2 170.2 2 137.5
33121	Coke oven and blast furnace products:		9.7	278.5							
	Establishments with this product class primary Establishments with 75 percent specialization or more in class	32 31	9.7 (D)	(D)	7.3 (D)	13.4 (D)	208.2 (D)	281.1 (D)	1 069.0 (D)	1 354.0 (D)	77.8 (D)
33122	Steel ingot and semifinished shapes and forms: Establishments with this product class primary	20	18.3	508.0	13.5	21.8	358.6	739.9	1 632.7	2 462.7	124.5
	Establishments with 75 percent specialization or more in class	12	7.2	218.5	5.7	9.9	159.9	419.2	761.3	1 194.7	66.7
33123	Hot rolled sheet and strip: Establishments with this product class primary	32	132.0	4 027.9	97.5	169.7	2 895.5	5 309.2	11 934.9	17 772.0	849.5
	Establishments with 75 percent specialization or more in class	9	20.3	637.9	14.4	27.5	436.6	884.3	2 436.8	3 353.8	(D)
33124	Hot rolled bars and bar shapes: Establishments with this product class primary	85	78.1	2 198.4	55.8	98.5	1 536.4	2 831.1	5 034.3	8 261.8	641.1
	Establishments with 75 percent specialization or more in class	58	25.9	720.0	18.5	34.7	492.9	1 013.3	2 195.7	3 321.1	237.2
33125	Steel wire, produced in steel mills (also see code 33155): Establishments with this product class primary Establishments with 75 percent specialization or more in	4	3.5	89.0	2.6	4.6	66.9	108.6	179.8	289.6	6.7
	class	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
33126	Steel pipe and tubes, produced in steel mills (also see code 33176): Establishments with this product class primary	14	31.2	907.0	22.4	39.3	657.2	1 599.4	2 199.0	4 008.6	298,7
	Establishments with 75 percent specialization or more in class	9	11.9	342.1	7.9	14.8	231.7	879.3	822.1	1 728.1	98.2
33127	Cold rolled steel sheet and strip, produced in steel mills (also see code 33167):										
	Establishments with this product class primary Establishments with 75 percent specialization or more in	4	9.9	320.2	7.4	13.2	241.4	459.1	831.0	1 453.2	(D)
33128	class Cold finished steel bars and bar shapes, produced in steel	_	-	-	-	-	-	~	-	-	-
	mills (also see code 33168): Establishments with this product class primary	6	6.1	171.4	3.7	6.1	100.1	234.0	422.6	701.2	66.5
	Establishments with 75 percent specialization or more in class	-	-	-	-	-	-	-	-	-	-
3312A	Seamless rolled ring ferrous forgings, produced in steel mills (also see code 34627): Establishments with this product class primary	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Establishments with 75 percent specialization or more in class	-	-	(5)	(D)	(6)	(5)	(6)	(5)	(D) -	-
3312B	Open die or smith ferrous forgings, hammer or press, produced in steel mills (also see code 34628):										
	Establishments with this product class primary Establishments with 75 percent specialization or more in	6	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
3312C	Class Other steel mill products, except wire products:	5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Establishments with this product class primary Establishments with 75 percent specialization or more in	5 5	.5	11.3	.3	.7 .7	7.3	19.2	27.3	41.8	(D)
3313	classElectrometallurgical products:		.5	11.3	.3		7.3	19.2	27.3	41.8	(D)
	Entire industry Establishments with 75 percent specialization or more	41 38	5.3 (D)	123.5 (D)	3.9 (D)	7.0 (D)	85.5 (D)	180.3 (D)	494.2 (D)	707.5 (D)	23.8 (D)
33131	Ferromanganese: Establishments with this product class primary	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Establishments with 75 percent specialization or more in class	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
33132	Ferrochromium: Establishments with this product class primary Establishments with 75 percent specialization or more in	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
00400	class	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
33133	Ferrosilicon: Establishments with this product class primary Establishments with 75 percent specialization or more in	8	2.3	49.7	1.8	2.8	36.0	90.6	184.4	280.9	6.3
33134	class	4	1.3	22.8	1.1	1.4	17.7	42.5	84.1	129.0	1.6
33134	Other ferroalloy products produced in electric furnaces: Establishments with this product class primary Establishments with 75 percent specialization or more in	10	1.1	26.8	.7	1.4	17.5	39.0	135.1	188.9	6.7
3315	classSteel wire and related products:	10	1.1	26.8	.7	1.4	17.5	39.0	135.1	188.9	6.7
5515	Entire industry Establishments with 75 percent specialization or more	311 295	22.0 20.5	442.9 409.3	16.3 15.4	31.0 29.4	296.7 279.8	938.3 879.8	1 434.3 1 370.1	2 415.4 2 285.3	61.1 57.1
33151	Noninsulated ferrous wire rope, cable, and strand, produced in wiredrawing plants (also see code 34961):										
	Establishments with this product class primary Establishments with 75 percent specialization or more in	27	4.4	97.1	3.3	5.9	65.5	197.9	236.0	448.4	15.9
33152	class Steel nails and spikes, produced in wiredrawing plants	23	3.5	78.2	2.7	4.8	54.4	162.2	188.0	365.7	13.5
	(also see code 34967): Establishments with this product class primary	17	1.4	24.4	1.1	2.1	18.4	39.4	71.5	119.0	3.9
	Establishments with 75 percent specialization or more in class	16	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)

Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1982—Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. Statistics for establishments with specialization ratios of less than 75 percent are included in total lines but are not shown as a separate class. In addition, data may not be shown for various reasons; e.g., to avoid disclosing data for individual companies. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes.]

Indus- try or		All	All em	ployees	Pr	oduction work	kers	Value added by	-		New capital
prod- uct class code	Industry or product class by percent of specialization	estab- lish- ments (number)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	manufac- ture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	expend- itures (million dollars)
3315 33155	Steel wire and related products—Con. Steel wire, not produced in steel mills (also see code 33125)										
	Establishments with this product class primary Establishments with 75 percent specialization or more in class	92 72	8.0 6.0	172.3 128.9	5.9 4.4	11.8 8.7	118.5 88.8	367.7 275.9	662.6 489.5	1 030.0 763.1	21.1 17.0
33156	Fencing and fence gates, produced in wiredrawing plants (also see code 34966):										
	Establishments with this product class primary Establishments with 75 percent specialization or more in	16 12	1.8	35.1 19.1	1.3	2.5 1.6	22.9	76.5 41.0	108.3 76.3	186.7 118.3	4.8
33157	Ferrous wire cloth and other ferrous woven wire products,	12	1.1	19.1	.0	1.0	11.4	41.0	76.3	116.3	(D)
	produced in wiredrawing plants (also see code 34964): Establishments with this product class primary Establishments with 75 percent specialization or more in	4	.3	5.8	.2	.5	4.0	12.0	11.4	24.8	.3
33159	class Other fabricated ferrous wire products, except springs,	4	.3	5.8	.2	.5	4.0	12.0	11.4	24.8	.3
00.00	produced in wiredrawing plants (also see code 34968): Establishments with this product class primary Establishments with 75 percent specialization or more in	48	4.8	90.2	3.4	6.2	54.7	209.8	291.9	516.6	13.1
	class	39	3.3	62.0	2.5	4.5	40.5	146.1	189.3	345.9	7.1
331 6	Cold finIshing of steel shapes: Entire industry Establishments with 75 percent specialization or more	192 176	15.4 13.3	367.9 317.6	10.9 9.3	19.7 17.0	245.6 214.7	623.3 526.4	2 348.2 2 004.0	3 005.1 2 560.5	45.2 39.4
33167	Cold rolled steel sheet and strip, not produced in steel mills (also see code 33127): Establishments with this product class primary	54	9.7	239.1	6.8	12.4	162.9	398.8	1 539.9	1 975.9	34.1
	Establishments with 75 percent specialization or more in class	46	8.0	196.2	5.6	10.2	135.9	320.3	1 217.7	1 566.9	29.1
33168	Cold finished steel bars and bar shapes, not produced in steel mills (also see code 33128): Establishments with this product class primary	66	4.9	116.6	3.5	6.1	74.4	198.6	744.4	938.4	9.9
	Establishments with 75 percent specialization or more in class	63	4.4	106.2	3.1	5.5	67.7	183.8	698.0	877.0	9.3
3317	Steel pipe and tubes: Entire industry Establishments with 75 percent specialization or more	223 209	27.0 24.1	648.1 575.9	20.3 18.0	37.6 33.1	460.6 402.4	1 212.7 1 054.9	2 451.7 2 213.7	3 762.2 3 359.7	124.5 115.6

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry-Product Analysis—Value of Shipments and Primary Product Shipments, Specialization and Coverage Ratios for the Industry: 1982 and Earlier Census Years

[An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work. Columns A-D show this product pattern for an industry, and column E shows primary product specialization ratio. The extent to which an industry's primary products are shipped by establishments classified in and out of an industry is shown in columns F-H and coverage ratio is shown in column I. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

				Valu	ue of shipmer	nts		Value	of primary p	product ship	ments
Industry and product group code	Industry and census year		Total (million dollars)	Primary products (million dollars)	Secondary products (million dollars)	Miscel- laneous receipts (million dollars)	Primary product special- ization ratio Col. B÷ Col. B+C (percent)	Total made in all indus- tries (million dollars)	Made in this industry (million dollars)	Made in other indus- tries (million dollars)	Coverage ratio Col. B÷ Col. F (percent)
			А	В	С	D	E	F	G	Н	1
3312	Blast furnaces and steel mills	1982 1977 1972	36 824.4 41 998.2 23 946.7	35 075.4 39 288.2 21 870.5	877.7 1 365.2 1 272.8	871.3 1 344.8 803.4	98 '97 '95	44 122.8 46 065.7 25 806.7	35 075.4 39 288.7 21 870.5	9 047.4 6 777.0 3 936.2	79 (D) (D)
3313	Electrometallurgical products	1982 1977 1972	707.5 930.6 550.1	653.1 850.2 517.7	17.5 80.5 32.4	37.0 - -	97 195-100 190-100	749.5 944.1 594.4	653.1 850.2 517.7	96.4 93.9 76.7	87 90 87
3315	Steel wire and related products	1982_ 1977_ 1972_	2 415.4 2 258.6 1 227.2	2 279.3 2 036.7 1 095.3	62.0 99.1 52.9	74.2 122.9 79.5	97 95 94	5 190.5 4 369.2 2 599.8	2 279.3 2 036.7 1 095.3	2 911.2 2 332.5 1 504.5	44 47 42
3316	Cold finishing of steel shapes	1982 1977 1972	3 005.1 2 713.2 1 635.7	2 711.6 2 523.0 1 440.8	246.5 143.2 147.5	47.0 47.1 47.4	92 95 91	8 324.5 9 938.6 4 889.9	2 711.6 2 523.0 1 440.8	5 612.9 7 415.6 3 449.1	32 25 29
3317	Steel pipe and tubes	1982 1977 1972	3 762.2 2 681.4 1 292.1	3 419.9 2 454.5 1 161.7	220.3 129.5 86.1	122.0 97.4 44.3	94 95 93	7 218.6 5 620.7 2 765.5	3 419.9 2 454.5 1 161.7	3 798.7 3 166.2 1 603.8	47 44 42

¹Minimum percentage; exact percentage withheld to avoid disclosing data for individual companies.

Table 5c-1. Industry-Product Analysis—Shipments by Product Class and Industry: 1982

[Million dollars. Table shows where products of an industry (referred to as primary and listed in table 6a) are made and what products are made by establishments classified in an industry. Read down an industry column to find what products are produced in an industry. Only those product groups that have at least \$2 million in shipments from establishments classified in one of industries included in this chapter are shown. Read across to determine where products of industries in this chapter are produced. To extent that some of primary products are made in industries not included in this chapter, value of such shipments is shown in "Other industries" column. Specified "Other industries" are listed in table 5c-2 if they account for more than \$5 million of products primary to this chapter. For meaning of abbreviations and symbols, see explanatory text. For explanation of terms, see appendixes]

printery to						7.4		
1982 product code	Product group, product class, and miscellaneous receipts	All industries	Blast furnaces and steel mills (SIC 3312)	Electro- metallurgical products (SIC 3313)	Steel wire and related products (SIC 3315)	Cold finishing of steel shapes (SIC 3316)	Steel pipe and tubes (SIC 3317)	Other industries
	Total Primary products Secondary products Miscellaneous receipts	(X) (X) (X) (X)	36 824.4 35 075.4 877.7 871.3	707.5 653.1 17.5 37.0	2 415.4 2 279.3 62.0 74.2	3 005.1 2 711.6 246.5 47.0	3 762.2 3 419.9 220.3 122.0	(X) (X) (X) (X)
33 12- 33121 33122 33123 33124	Blast furnaces and steel mills Coke oven and blast furnace products Steel ingot and semifinished shapes and forms Hot rolled sheet and strip Hot rolled bars and bar shapes Steel wire, produced in steel mills (also see code 33155)	35 456.8 1 873.1 3 082.0 11 913.5 8 199.2	35 075.4 1 826.5 3 050.7 11 765.4 8 111.0	(D) (D) - -	11.1 (D) (D)	178.3 (D) 107.1 (D)	(D) (D) (D) 7.3 (D)	148.9 18.6 28.4 33.7 (D) (Z)
33125 33126	Steel wire, produced in steel rillis (also see code 33135)	392.4 3 561.5	392.4 3 561.5	_	_	_	_	(2)
33127	Cold rolled steel sheet and strip, produced in steel mills (also see code 33167)	5 162.6	5 162.6	-	-	-	-	-
33128 3312A	Cold finished steel bars and bar shapes, produced in steel mills (also see code 33168)	358.5	(D)	-	-	-		(D)
3312B	mills (also see code 34627) Open die or smith ferrous forgings, hammer or press, produced in steel mills (also see code 34628)	(D)	(D) (D)	-	-	-	(D)	-
3312C 33120	Other steel mill products, except wire products Blast furnace and steel mill products, n.s.k.	395.6 108.5	383.9 (D)	=	(D)	=	(D) (D)	(D) (D)
3313- 33131	Electrometallurgical products Ferromanganese	728.0 (D)	(D)	6 5 3. 1 (D)	-	-	-	(D) (D)
33132 33133	Ferrochromium	75.1 243.0	-	75.1 231.6	-	=	=	11.4
33134 33130	Other ferroalloy products produced in electric furnaces Electrometallurgical products, n.s.k	(D) 43.3	(D) -	(D) (D)	_	=	_	(D) (D)
33 15- 33151	Steel wire and related products	2 761.1	371.6	-	2 279.3	(D)	-	(D)
33152	produced in wiredrawing plants (also see code 34961) Steel nails and spikes, produced in wiredrawing plants (also see code 34967)	522.0 227.8	79.3 87.8	_	427.3 134.2	_	_	15.4 5.8
33155	Steel wire, not produced in steel mills (also see code 33125)	1 000.6	-	-	947.4	(D)	-	(D)
33156 33157	Fencing and fence gates, produced in wiredrawing plants (also see code 34966) Ferrous wire cloth and other ferrous woven wire products,	301.6	106.1	-	176.0	-	-	19.5
33159	produced in wiredrawing plants (also see code 34964) Other fabricated ferrous wire products, except springs	68.0	(D)	-	(D)	-	-	(D)
33150	produced in wiredrawing plants (also see code 34968) Steel wire and related products, n.s.k	547.2 93.9	(D) -	=	454.5 (D)	-	- -	(D) (D)
33 16- 33167	Cold finishing of steel shapes Cold rolled steel sheet and strip, not produced in steel	2 803.4	-	-	4.2	2 711.6	(D)	(D)
33168	mills (also see code 33127) Cold finished steel bars and bar shapes, not produced in steel mills (also see code 33128)	1 815.3 905.8		_	(D)	1 742.0 (D)	(D) (D)	59.5
33160 33 17-	Cold finishing of steel shapes, n.s.k Steel pipe and tubes	82.4 3 6 57.1	(D)	_	`	(D) (D)	3 419.9	(D) 201.7
33170	Steel pipe and tubes	3 657.1	(D)	=	-	(D)	3 419.9	201.7
	OTHER SHIPMENTS BY FOUR-DIGIT PRODUCT GROUP							
3079- 3321-	Miscellaneous plastics products Gray iron castings	(X) (X)	- 127.6	_	-	-	(D) (D)	(X) (X)
3325- 3339- 3341-	Steel castings, n.e.c. Primary nonferrous metals, n.e.c. Secondary nonferrous metals	8888	(D) - (D)	(D)	Ξ.	-	(D)	(X) (X) (X) (X) (X)
3351-	Copper rolling and drawing	16	_	_	(D) (D)	(D)	(D)	
3356- 3357- 3399-	Nonferrous rolling and drawing, n.e.c	× × × × × × × × × × × × × × × × × × ×	(D) - -	- (D)	9.7 -	(D) -	=	(X) (X) (X) (X)
3429- 3441-	Hardware, n.e.c. Fabricated structural metal	1.1	-	<u>'-'</u>	(D) -	-	(D)	
3443- 3444-	Fabricated plate work (boiler shops)Sheet metal work	8888	(D) (D)	=	-	(D)	(D) (D) (D)	(X) (X) (X) (X) (X)
3449- 3452-	Miscellaneous metal work Bolts, nuts, rivets, and washers	(X) (X)	65.6 (D)	Ξ	Ξ	-	(D) -	(X) (X)
3462- 3469-	Iron and steel forgings	(X) (X)	117.4 (D)	-	(D) (D)	-	_ (<u>D</u>)	(X) (X)
3499- 3523- 3536-	Fabricated metal products, n.e.c	888888	(D) (D)	=	- (D)	(D) -	(D) (D)	(X) (X) (X) (X) (X) (X) (X) (X) (X) (X)
3644- 3679-	Noncurrent-carrying wiring devicesElectronic components, n.e.c	(X) (X)	-	-	- - -	-	(D) (D)	(X) (X)
	MISCELLANEOUS RECEIPTS							
93000 00 93000 86	Receipts for work done for others on their materials Receipts for conversion of steel for other companies, including fees received from both steel-producing and	(X)	35.6	(D)	.7	7.0	5.5	(X)
93000 87	nonsteel companies Receipts for processing (rolling, drawing, extruding, etc.) of materials owned by others on a toll basis for nonferrous	(X)	70.9	_	4.0	8.4	(D)	(X)
99980 13 99980 41	metal mill shapesSales of scrap and refuse	(X) (X) (X) (X)	(D) 168.2 (D)	(D)	(D) 2.2 (D)	(D) 6.1 (D)	(D) 10.8	(X) (X) (X) (X)
99980 61 99980 98	Receipts for repair work Other miscellaneous receipts, including receipts for repair		-	-	· <u>-</u>	-	(D)	
99989 00	work, etcSales of products bought and resold without further manufacture, processing, or assembly at establishment	(X) (X)	246.8 334.7	(D) 7.3	65.9	1.3	(D) 60.0	(X) (X)
99980 00	Miscellaneous receipts, n.s.k.	(X)	(D)	(D)	(D)	(D)	3.2	(X) (X)

Table 5c-2. Industry-Product Analysis—Other Industries With Shipments of Primary Products: 1982

[Million dollars. Table is a continuation of table 5c-1 and shows where products of industries in this chapter (referred to as primary products and listed in table 6a) are made. To extent that some of primary products are made in industries not included in this chapter, value of such shipments is shown in "Other industries" column of table 5c-1. Specified "Other industries" are listed in this table if they account for more than \$5 million of products primary to this chapter. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

1982 product code	Other industries	Value	1982 product code	Other industries	Value
3312-	BLAST FURNACES AND STEEL MILLS 3325 Steel foundries, n.e.c. 3361 Aluminum foundries 3441 Fabricated structural metal 3449 Miscellaneous metal work 3452 Bolts, nuts, rivets, and washers 3531 Construction machinery 3533 Oil field machinery 3539 Machinery, except electrical, n.e.c.	13.9 (D) (D)	3315- 3316-	STEEL WIRE AND RELATED PRODUCTS 3321 Gray iron foundries	(D) 41.5 (D) (D) (D) (C) (D) (D)
3313-	ELECTROMETALLURGICAL PRODUCTS 2816 Inorganic pigments	(D) (D) (D)	3317-	STEEL PIPE AND TUBES 3321 Gray iron foundries	(D) (D) (D) (D)

Table 6a-1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

						Quantity					
1982 product	Product		Number of companies with		Total, in interplant		Comm	nercial	Interplant	transfers	and consumed in the same
code		Year	shipments of \$100,000 or more	Quantity of total production	Quantity ²	Value (million dollars)	Quantity	Value (million dollars)	Quantity	Value (million dollars)	plant in manufacture of other products
	BLAST FURNACES AND STEEL MILLS										
3312 33131 33132 33133 33134 15 33155 3316 3317 34627	Total	-1982 1977	(NA) (NA)	(X) (X)	(X) (X)	44 122.8 (D)	(X) (X)	(X) (X)	(X)	(X) (X)	(X) (X)
34628	Made in steel mills Made in other industries	1982 1977 1982 1977	(NA) (NA) (NA) (NA)	(X) (X) (X) (X)	XXX XXX XXX	35 456.8 46 065.7 8 666.0 (D)	88 88 88 88	8888 8888	(X) (X) (X) (X)	(X) (X) (X) (X)	(X) (X) (X) (X)
33121 — 33131 — 33132 — 33133 — 33134 15 33134 89	Coke oven and blast furnace products, and selected electrometallurgical products (see table 6a-2 for separate industry data)	1982 1977	(NA) (NA)	(×) (×) (×)	(X) (X)	2 486.0 3 850.3	(X) (X)	(C) (X)	(X) (X) (X)	(D) (X)	(D) (X)
	Made in coke ovens and blast furnaces Made in electric and other furnaces	1982 1977 1982 1977	(NA) (NA) (NA) (NA)	(X) (X) (X) (X)	(X) (X) (X) (X)	1 873.1 3 032.2 612.9 818.1	(X) (X) (D) (X)	(D) (NA) (D) (NA)	(X) (X) (D) (X)	(D) (NA) (D) (NA)	(X) (X) (D) (X)
33121 11 33121 12	Coke, except screenings and breeze1,000 s tons Screenings and breeze do	1982 1977 1982	31 32 21 23	26 992.9 51 000.8 2 620.9	9 787.2 18 767.4 1 402.1	1 062.6 1 651.7 56.1	4 614.4 6 739.7 1 339.3	504.5 692.7 53.7	5 172.8 12 027.7 62.8	558.1 959.0 2.4	18 016.9 33 950.1 1 025.0
33121 31	Coke oven gas mil cu	1977	23	3 526.4 25 474.1	1 927.6 (D)	70.3 (D)	(D)	(D)	(D) (D)	(D) (D)	1 954.7 23 836.0
33121 41	Ammonia (sulfate and liquor) do	1977 1982	12 11	750.8 (X)	80.2 (X) (X)	43.7 20.2	(D) (D) (X) (X) (D)	(D) (D) 20.2	(D)	(D)	636.3 (X)
33121 51	Crude tarmil gal_	1977 1982	15 21 30	(X) 295.3	189.1	16.0 137.5	(X) (D)	(D) (D) 96.4	(X) (X) (D)	(D) (D) 8.5	(X) 105.7 213.3
33121 71	Crude light oil do	1977 1982 1977	16 23	518.6 94.7 163.1	302.2 45.6 98.2	104.9 41.4 43.1	275.9 (D) (D)	96.4 (D)	26.3 (D) (D) (D) (D)	6.0 (D)	36.5
33121 81	Light oil derivativesdo	1982 1977	5 7	34.1 80.3	34.6 55.6	31.6 27.6	(D) (D)	(D) (D) (D) (D)	(D) (D)	(D) (D)	(D) (D) (D)
33121 86	Other coke oven products, including tar derivatives	1982 1977	7 5	(×)	(D) (X)	(D) (D)	(D) (X)	(D) (D)	(D) (X)	(D) (D)	(X) (X)

Table 6a-1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Snipments	in appendixes. For meaning of appreviations and symbols, see	, madda	Clory text;			Quantity					
1982			Number of companies		Total, in interplant	cluding transfers	Comm	nercial	Interplant	transfers	produced and consumed
product code	Product		with shipments of	Quantity of		Value		Value		Value	in the same plant in manufacture
		Year	\$100,000 or more	total production	Quantity ²	(million dollars)	Quantity	(million dollars)	Quantity	(million dollars)	of other products
	BLAST FURNACES AND STEEL MILLS— Con.										
33121 —	1										
33131 33132 33133											
33134 15 33134 89	Coke oven and blast furnace products, and slected electrometallurgical products (see table 6a-2 for separate industry data) — Con.										
33121 91	Blast furnace products: Pig iron, including pig iron with silicon content up to and including 6 percent										
	content up to and including 6 percent silicon1,000 s tons	1982	9	33 836.8	317.9	63.7	(D)	(D)	(D)	(D)	33 652.0
33121 92	Slagdo_	1977 1982 1977	15 7 11	71 349.0 (X) (X)	4 496.4 5 752.2 (S)	652.0 8.6 20.6	(D) 2 695.6 (X) (X)	(D) 429.9 (X) (X)	(D) 1 797.0 (X) (X)	221.4 (X) (X)	67 311.0 (X) (X)
33121 93	Sinter from ore, flue dust, and other materials do	1982	3	16 921.2	1 165.4	64.4	80.2	3.6	1 085.2	60.8	15 766.0
33121 94	Blast furnace gas mil cu	1977	2	27 883.7 1 568.2	(D) (D)	(D) (D)	(D) (D)	(D) (D)	(D) 	(D) -	23 055.7 1 640.5
	Ferroalloys: As reported in the census of manufactures:	1977	1	3 777.8	(D)	(D) (D)	(D) (D)	(D) (D)	-	-	3 522.3
33121 85 33131 00	Ferromanganese, including briquets1,000 s	1982 1977	8 (NA)	218.7 (D)	210.6 (D)	113.1 (D)	197.4 (D)	106.9 (D)	13.3 (D)	6.2 (D)	83.1 (D)
33121 79 33132 —	tons	-									
33133 — 33134 89 33134 15	Other ferroalloys, including silvery iron and spiegeleisen do	1982	(NA) (NA)	673.2 1 549.1	620.6 1 242.1	521.5 659.0	569.5 (D)	440.1 (D)	51.1 (D)	84.1 (D)	89.7 (D)
	As reported in the Bureau of Mines	1982 1977	(NA) (NA)	(X) (X)	826.0 (NA)	652.2 (NA)	(X) (X)	(X) (X)	(X) (X)	(X) (X)	(X) (X)
33121 98	Other blast furnace products1,000 s tons	1982 1977	7 6	13 009.7 (S)	1 213.4 (D)	268.5 (D)	299.3 (D)	84.1 (D)	(D) (D)	(D) (D)	(D) (S)
33121 00	Coke oven and blast furnace products, n.s.k do	1982 1977	(NA) (NA)	(S) (X) (X)	(D) (X) (X)	16.0 .2	(X) (X)	16.ó (X)	(D) (X) (C)	(X)	(×)
33122	Steel ingot and semifinished shapes and forms: As reported in the census of									20	
	manufacturesAs reported in the current Industrial Report MA-	1982 1977	58 58	(X) (X)	(X)	3 082.0 4 039.3	(X) (NA)	(X) (NA)	(X) (NA)	(X) (NA)	(NA)
	33B, Steel Mill Products (see table 6a-3 for detailed data)	1982 1977	(NA) (NA)	(X) (X)	(X) (X)	2 962.8 4 028.9	(X) (NA)	(X) (NA)	(X) (NA)	(X) (NA)	(NA)
33123 —	Hot rolled sheet and strip, including tin plate, black		(1.17.1)	(7)	(**)	025.0	(, ,, ,)	(,	(,	(,	(,
	plate, terne plate, and tin free steel: As reported in the census of manufactures	1982	37	(X) (X)	(X) (X)	11 913.5	(X)	(X) (X)	(X)	(X) (X)	(X) (X)
	As reported in the Current Industrial Report MA- 33B, Steel Mill Products (see table 6a-3 for	1977	36	(X)	(X)	11 057.8	(X)	(X)	(X)	(X)	(X)
	detailed data)	1982 1977	(NA) (NA)	(X) (X)	(X) (X)	11 935.4 11 919.1	(X) (X)	(X) (X)	(X) (X)	(X) (X)	(X) (X)
33124 —	Hot rolled bars and bar shapes, plates, structural shapes and piling:										
	As reported in the census of manufactures	1982 1977	87 85	(X) (X)	(X) (X)	8 199.2 9 140.9	(X) (X)	(X) (X)	(X) (X)	(X) (X)	(X) (X)
	As reported in the Current Industrial Report MA- 33B, Steel Mill Products (see table 6a-3 for detailed data)	1982	(NA)			8 275.8					
33125 —	7	1977	(NA)	(X) (X)	(X)	9 133.4	(X) (X)	(X) (X)	(X) (X)	(X) (X)	(X) (X)
33155 —	Steel wire, including galvanized and other coated wire:										
	As reported in the census of manufactures	1982 1977	114 (NA)	(X) (X)	(X) (X)	1 392.9 1 336.1	(X) (X)	(X) (X)	(X) (X)	(X) (X)	(X) (X)
	As reported in the Current Industrial Report MA- 33B, Steel Mill Products (see table 6a-3 for detailed data)	1982				1 347.3					
33126	7	1982	(NA) (NA)	(X) (X)	(X) (X)	1 284.0	(X) (X)	(X) (X)	(X) (X)	(X) (X)	(X) (X)
3317	Steel pipe and tubes: As reported in the census of										
	As reported in the census or manufactures	1982 1977	165 (NA)	(X) (X)	(X)	7 218.6 5 620.4	(X) (X)	(X) (X)	(X) (X)	(X) (X)	(X) (X)
	33B, Steel Mill Products (see table 6a-3 for detailed data)	1982 1977	(NA) (NA)	(X) (X)	(X) (X)	7 099.3 5 552.7	(X) (X)	(X) (X)	(X) (X)	(X) (X)	(X) (X)

Table 6a-1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

	is in appendixes. For meaning of aboreviations and symbols, see					Quantity					
1982 product	Product		Number of companies with		Total, in interplant		Comn	nercial	Interplant	transfers	and consumed in the same
code	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		shipments of \$100,000	Quantity of total		Value (million		Value (million		Value (million	plant in manufacture of other
	BLAST FURNACES AND STEEL MILLS—	Year	or more	production	Quantity ²	dollars)	Quantity	dollars)	Quantity	dollars)	products
	Con.										
33127 — 33167 —	Cold rolled steel sheet and strip: As reported in the census of manufactures	1982	74 (NA)	(X)	(X) (X)	6 977.9 8 582.4	(X) (X)	(X) (X)	(X) (X)	(X) (X)	(X) (X)
	As reported in the Current Industrial Report MA- 33B, Steel Mill Products (see table 6a-3 for detailed data)	1982 1977	(NA) (NA)	(X) (X)	(X) (X)	6 956.8 7 694.6	(X) (X)	(X) (X)	(X) (X)	(X) (X)	(X) (X)
33128	Cold finished steel bars and bar shapes:	7982	69	(X) (X)	(X) (X)	1 264.3	(X) (X)	(X) (X)	(X)	(X) (X)	(X) (X)
33168	As reported in the census of manufactures As reported in the Current Industrial Report MA- 33B, Steel Mill Products (see table 6a-3 for	1977	(NA)			1 331.1					
3312A 34627	detailed data)	1982 1977 [1982 [1977	(NA) (NA) (NA)	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	8888	1 215.5 1 313.8 254.3 207.5	(X) (X) (XA)	(X) (X) 59.1 (NA)	SXXX SXXX	(X) (X) 195.3 (NA)	(X) (X) (NA)
	Seamless rolled ring forgings, ferrous (see table 6a-3 for detailed data)1,000 s	I-I			(×)	747.6		227.5		520.1	(142)
3312B 34628	Open die or smith forgings (hammer or press) ferrous (see table 6a-3 for detailed data) do	1977	(NA) (NA)	(X) (X)	595.2	673.6	(X) (NA)	(NA)	(X) (NA)	(NA)	(NA)
3312C	Other steel mill products, including steel rails, except wire products: As reported in the census of										
	manufactures	1982 1977	(NA) 14	(X) (X)	(X) (X)	395.6 561.1	(X) (NA)	379.1 (NA)	(X) (NA)	16.5 (NA)	(NA)
33120 00	' 3B, Steel Mill Products (see table 6a-3 for detailed data)	1982 1977	(NA) (NA)	(X) (X)	(X) (X)	409.6 552.9	(X) (NA)	379.1 (NA)	(X) (NA)	16.5 (NA)	(NA)
33120 00	Blast furnaces and steel mill products, n.s.k., typically for establishments with 20 employees or more (see note)	1982 1977	(NA) (NA)	(X) (X)	(X) (X)	108.5 171.7	(X) (X)	(X) (X)	(X) (X)	(X) (X)	(X) (X)
	ELECTROMETALLURGICAL PRODUCTS (see table 6a-2 for separate industry data)										
3313 33121 79	Total	1982	(NA)	(<u>X</u>)	(X)	749.5	(X)	(X)	(X) (D)	(X)	(X) (D)
33121 85	Made in electric furnaces1,000 s tons_	1982	(NA)	(D)	(D) (X)	728.0	(U)	(D)		(U)	
	Made in coke ovens and blast furnaces do	1977	(NA) (NA)	(X) (X) (X)	(X) (X) (X)	944.1 21.5	(D) (D)	(D) (D) (D)	(D) (D) (D)	(D) (D) (D)	(D) (D) (D)
	As reported in the Bureau of Mines do	1977 1982 1977	(NA) (NA) (NA)	(D) (X) (NA)	(D) 826.0 (NA)	(D) 652.2 (NA)	(D) (X) (NA)	(D) (X) (NA)	(D) (X) (NA)	(D) (X) (NA)	(D) (D) (X) (NA)
33131 33121 85	Ferromanganesedo	-[]982 977	12 (NA)	218,7 (D)	210.6 (D)	113.1 (D)	197.4 (D)	106.9 (D)	13.3 (D)	6.2 (D)	83.1 (D)
33132	Ferrochromium (including briquets), ferrochromium silicon, exothermic chromium additives, and other chromium alloys do	1982 1977	10 (NA)	128.8 (X)	112.6 (X)	75.1 163.5	(D) (D)	(D) (D)	(D) (D)	(D) (D)	(D) (D)
33133	Ferrosilicon (including briquets) and other silicon alloys do	1982 1977	11 (NA)	406.6 (X)	409.6 (X)	243.0 327.4	375.0 (D)	235.0 (D)	34.6 (D)	8.0 (D)	84.9 (D)
33134 33121 79	Other ferroalloys do	-[1982 -[1977	(NA) (NA)	564.9 (X)	176.7 (X)	275.1 290.2	126.7 (NA)	193.5 (NA)	50.1 (NA)	81.5 (NA)	376.5 (D)
33134 15	Super alloys (these superior heat and creep resistant alloys are excluded from alloy categories listed elsewhere)	1982	6	10.9	11.1	98.5	(D)	(D)	(D)	(D)	(D)
33134 89 33121 79	Other ferroalloys, including silvery iron and	1977 1982 1977	4 7 10	24.8 126.9 199.1	24.2 87.3 178.1	41.0 104.8 127.1	(D) (D) 79.0 (D)	(D) (D) 92.3 (D)	(D) (D) 8.3 (D)	(D) (D) 12.5 (D)	(D) (D) - -
33134 98	Other products made in electric and other furnaces, except blast furnaces do	1982 1977	10 11	475.0 467.8	89.7 459.2	71.7 122.1	(D) (D)	(D)	(D) (D)	(D) :	376.5 376.5
33130 00	Electrometallurgical products, n.s.k., typically for establishments with 10 employees or more (see note)	1977	(NA)			42.2	(X)	42.2	(X)	-	_
33130 02	Electrometallurgical products, n.s.k., typically for establishments with less than 10 employees (see	1977	(NA)	(X) (NA)	(X) (NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	note)	1982 1977	(NA) (NA)	(X) (X)	(X) (X)	1.1 3.9	(X) (X)	1.1 3.9	(X) (X)	(X) (X)	(X) (X)

Table 6a-1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

			1982		1977			
1000		Number of	Product s	hipments ¹	Number of	Product s	hipments ¹	
1982 product	Product	companies with			companies with			
code		shipments		Value	shipments of		Value	
	_	\$100,000 or more	Quantity ²	(million dollars)	\$100,000 or more	Quantity ²	(million dollars)	
	STEEL WIRE AND RELATED PRODUCTS (see table 6a-2 for separate industry data)							
3315								
33125 — 34961 —								
34964 — 34966 —	- Total	(NA)	(X)	5 190.5	(NA)	(X)	4 369.2	
34967 — 34968 —	Made in wiredrawing mills	(NA)	(*)	2 761.1	(NA)	(v)	2 608.4	
33151	Made in other industries	(NA)	(X) (X)	2 429.4	(NA)	(X) (X)	1 760.8	
34961 33151 13	Noninsulated ferrous wire rope, cable, and strand	(NA)	(X)	913.4	(NA)	(X)	610.5	
34961 13	Rope and cable made from steel wire (excluding							
22151 15	fabricated wire rope assemblies)1,000 s tons	63	(S)	419.1	67	(S)	³ 394.6	
33151 15 34961 15	Fabricated wire rope assemblies, including lifting slings do	55	(S)	68.8	(NA)	(X)	(3)	
33151 21 34961 21	Composite strand, rope, and cable, including wire	33	(0)	00.0	((40)	(^)	(-)	
1	strand of different metals, except ACSR do	22	(S)	83.6	15	(S)	60.4	
33151 33	Steel wire strand: For prestressed concrete do	10	(0)	07.7	9	(5)	24.5	
34961 35 33151 35	Other, including guard rail cable do	10 25	(S) 220.3	87.7 131.1	12	(S) 34.3	34.5 55.1	
34961 33 33151 51	Wire forms, except rope assemblies do	86	(S)	119.2	57	(S)	356.4	
34961 51 33151 00	Noninsulated ferrous rope, cable, and strand, n.s.k.	(NA)	(S)	4.0	(NA)	(S)	0.5	
34961 00 33152	Steel nails and spikes	(NA)	(X)	434.4	(NA)	(X)	έ 9.5 447.1	
34967 33152 11	Steel wire nails, spikes, and brads:	ì	` '		` ′	` ,		
34967 11	Bright1,000 s	28	160.8	91.3	(NA)	168.1	107.1	
33152 13 34967 13	Galvanizeddo	25	(S)	82.0	(NA)	74.3	52.1	
33152 17 34967 15	Cement-coated do	13	39.3	20.3	(NA)	76.8	43.5	
33152 19 34967 17	Other do	11	*26.6	19.8	(NA)	25.8	25.5	
33152 23 34967 19	Steel wire staples do	24	*188.1	157.2	(NA)	(S)	141.2	
33152 25 34967 21	Steel tacks (wire and cut) do	6	(S)	10.1	(NA)	3.2	6.0	
33152 33 34967 23	Steel cut nails, spikes, and brads, including track	17	(6)	52.0	(614)	(6)	67.5	
33152 00 34967 00	Steel nails and spikes, n.s.k.	17 (NA)	(S) (X)	52.0 1.6	(NA) (NA)	(S) (X)	67.5 4.2	
33155 33125	Steel wire:							
00120	As reported in the census of manufactures As reported in Current Industrial Report MA-33B, Steel	114	(X)	1 392.9	(NA)	(X)	1 336.1	
	Mill Products1,000 s	(NA)	(X)	1 347.3	(NA)	(X)	1 284.0	
33156 34966	Fencing and fence gates	(NA)	(X)	446.6	(NA)	(X)	411.6	
33156 13 34966 13	Chain link fencing, excluding posts, gates, and							
	fittings	34	*248.9	126.4	32	(S)	170.9	
33156 21 34966 21	- Wire fence, woven and weldeddo	28	274.6	176.7	19	(S)	78.0	
33156 35 34966 35	Fence gates, posts, and fittings do	44	**298.0	120.5	(NA)	(S)	140.6	
33156 71 34966 71	Ornamental lawn fencedo	3	(S)	.6	(NA)	(S)	9.1	
33156 00 34966 00	Fencing and fence gates, n.s.k.	(NA)	(X)	22.5	(NA)	(X)	13.0	
33157 34964	- Ferrous wire cloth and other ferrous woven wire	(81.8)	()()	070.5	(ALA)	()()	000.4	
33157 31 34964 31	products1,000 s	(NA)	(X)	272.5	(NA)	(X)	222.1	
33157 61	tons	8	*55.6	24.8	(NA)	8.7	11.4	
34964 61 33157 71	Industrial wire cloth, steel mil sq ft	24	33.5	79.5	30	*129.4	65.4	
	Woven wire netting (poultry, fur farm, stucco, etc.) do	10	*333.9	48.9	8	(S)	50.1	

Table 6a-1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

			1982			1977	
		Number of	Product sh	nipments1	Number of	Product sh	ipments ¹
1982 product code	Product .	companies with shipments of \$100,000 or more	Quantity ²	Value (million dollars)	companies with shipments of \$100,000 or more	Quantity ²	Value (million dollars)
	STEEL WIRE AND RELATED PRODUCTS (see table 6a-2 for separate industry data)—Con.		-				
33157 — 34964 — 33157 99 34964 99	Ferrous wire cloth and other woven wire products—Con. Other wire cloth and woven wire products, including						
20457.00	diamond cloth, spiral cloth, drying belts, insect screening, stainless steel paper machine wire cloth, etc mil sq ft	38	(S)	117.9	(NA)	(S)	93.3
33157 00 34964 00	- Ferrous wire cloth and other ferrous woven wire	(414)	00		212		
33159 — 34968 — 33159 41	products, n.s.k	(NA) (NA)	(X) (X)	1.4 1 636.8	(NA) (NA)	(X)	1.9 1 2 65.4
34968 41	Wire chain, tire1,000 s tons	9	(S)	40.0	9	(S)	30.9
33159 49 34968 49	Wire chain, other do	31	(S)	181.1	25	(S)	158.3
33159 51 34968 51	Barbed and twisted wire do	16	84.9	60.6	14	(S)	52.0
33159 55 34968 55	Wire bale and ties do Welded steel wire fabric:	18	(S)	44.8	15	(S)	23.9
33159 61 34968 61	Concrete reinforcing mesh do	41	*594.5	269.6	43	*741.9	250.7
33159 65 34968 65	Other welded steel wire fabric do	30	(S)	81.2	14	93.8	46.2
33159 71 34968 71 33159 73 34968 73	Wire garment hangersmil lb Wire carts, including household, grocery, and	13	220.6	85.3	16	(S)	68.7
33159 75	industrial industrial	15	(X)	103.8	(NA)	(X)	7 2. 5
14968 75 13159 77	Steel wire cages	26	(X)	63.2	(NA)	(X)	43.5
4968 77 3159 98 4968 98	Paper clips Other wire products, including guards, baskets, florists'	3	(X)	(4)	4	(X)	7.8
3159 00	designs, kitchenware, etc.	327	(X)	4698.0	(NA)	(X)	498.8
4968 00	Other fabricated ferrous wire products, except springs,	(NA)	(X)	9.2	(NA)	(X)	12.1
3150 00	Steel wire and wire products, n.s.k., typically for establishments with 20 employees or more (see note)	(NA)	(X)	61.1	(NA)	(X)	42.2
33150 02	Steel wire and wire products, n.s.k., typically for establishments with less than 20 employees (see note)	(NA)	(X)	32.9	(NA)	(X)	34.0
	COLD FINISHING OF STEEL SHAPES (see table 6a-2 for separate industry data)						
3316 33127	- Total	(NA)	(X)	8 3 24. 5	(NA)	(X)	9 93 8. 6
33 128 —	Made in cold finishing of steel industry	(NA)	(X)	2 803.4	(NA)	(X) (X)	2 562.8
33167 — 331 2 7 —	Made in steel mills	(NA)	(X)	5 521.1	(NA)	(X)	7 375.8
,,,,	As reported in the census of manufactures	74	(X)	6 977.9	(NA)	(X)	8 582.4
33168 —	data) Cold finished steel bars and bar shapes:	(NA)	(X)	6 956.8	(NA)	(X)	7 694.6
33128	As reported in the census of manufactures As reported in the Current Industrial Report MA-33B, Steel Mill Products (see table 6a-3 for detailed	69	(X)	1 264.3	(NA)	(X)	1 331.1
33160 00	data)	(NA)	(X)	1 215.5	(NA)	(X)	1 313.8
33160 02	establishments with 10 employees or more (see note) Cold finished steel shapes, n.s.k. typically for	(NA)	(X)	49.3	(NA)	(X)	4.6
	establishments with less than 10 employees (see note)	(NA)	(x)	33.0	(NA)	(X)	20.4

Table 6a-1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977-Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

			1982		1977			
1982		Number of companies	Product shipments ¹		Number of companies	Product shipments ¹		
product code	Product	with shipments of \$100,000 or more	Quantity ²	Value (million dollars)	with shipments of \$100,000 or more	Quantity ²	Value (million dollars)	
1	STEEL PIPE AND TUBES							
3317 33126	Total	165	(X)	7 218. 6	(NA)	(NA)	5 620.7	
	As reported in the census of manufacturers: Made in steel pipe and tube inoustry Made in steel mills As reported in the Current Industrial Report MA-33B,	144 21	(X) (X)	3 657.1 3 5 61 .5	120 23	(NA) (NA)	'2 62 0.3 3 000.4	
33170 02	Steel Mill ProductsSteel pipe and tube, n.s.k., typically for establishments with	(NA)	(X)	7 099.3	(NA)	(NA)	5 552.7	
33170 02	less than 20 employees (see note)	(NA)	(X)	-	(NA)	(X)	17.1	

Note: In 1982 Census of Manufactures, data for establishments of small single-unit companies with up to 20 employees were estimated from administrative records data rather than data actually collected from respondents. Employment cutoff used for administrative records for each industry and shipments figures are included in code ending with "002". In both 1982 and 1977 Censuses of Manufactures, products not completely identified on standard forms were coded in appropriate product class (five-digit) followed by "00" or to appropriate product group code (four-digit) followed by "000".

Table 6a-2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1982 and 1977

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

			1982		1977			
1982		Number of companies	Product sh	ipments ¹	Number of companies	Product ship	ments ¹	
product code	Product	with shipments of \$100,000 or more	Quantity ²	Value (million dollars)	with shipments of \$100,000 or more	Quantity ²	Value (million dollars)	
33121 85 33131 00								
	Ferromanganese 1,000 s tons.	8	210.6	113.1	(NA)	(D)	(D)	
33121 85 33131 00	Made in blast furnaces (industry 3312) do Made in electric furnaces and other furnaces (industry	2	(D)	(D)	2		(D)	
33121 79	3313 and other industries) do	7	(D)	(D)	11	408.1	159.1	
33132								
33134 15 33134 89	Other ferroalloys, including silvery iron and spiegeleisen do	(NA)	620.6	521.5	10	178.1	127.1	
						(5)	(5)	
33121 79 33132 —	Made in blast furnaces (industry 3312) do Ferrochromium (including briquets), ferrochromium silicon,	2	(D)	(D)	(NA)	(D)	(D)	
	exothermic chromium additives, and other chromium alloys, made in electric and other furnaces)	10	112.6	75.1	(NA)	(D)	(D)	
33133 —	Ferrosilicon (including briquets) and other silicon alloys, made in electric and other furnaces do	11	409.6	243.0	(NA)	1 242.1	6 59.0	
33134 89	Made in electric furnaces and other furnaces (industry 3313 and other industries) do	5	(D)	(D)	10	178.1	127.1	
33125	Steel wire	114	(X)	1 392.9	(NA)	(X)	1 336.1	
33155 — 33125 00		16	(X)	392.4	24	(X)	606.3	
33155 00	Made in steel mills (industry 3312) Made in steel wiredrawing (industry 3315) and other	99		1 000.6			729.8	
33126	industries	165	(X)	7 218.6	84	(X) (X)	5 620.4	
3317 33126 00			(X)	3 561.5	(NA)		3 000.4	
3317	Made in steel mills (industry 3312) Made in steel pipe and tubes (industry 3317) and other	21	(X)		23	(X)		
33127	industries	144	(X)	3 6 57.1	120	(X)	2 6 20.3	
33167	Cold-rolled steel sheets and strips	74	(X)	6 977.9	(NA)	(X)	8 582.4	
33127 00 331 6 7 00	Made in steel mills (industry 3312) Made in cold finishing of steel shapes (industry 3316)	18	(X)	5 162 6	27	(X)	6 953.9	
33128	and other industries	5 6	(X)	1 815.3	45	(X)	1 6 28.5	
33128	Cold finished steel bars and bar shapes	6 9	(X)	1 264.3	(NA)	(X)	1 331.1	
33128 00 331 6 8 00	Made in steel mills (industry 3312) Made in cold finishing of steel shapes (industry 3316)	13	(X)	358.5	17	(X)	421.9	
20150 00	and other industries	56	(X)	905.8	39	(X)	909.2	
33160 00	Cold finishing of steel shapes, n.s.k.	(NA)	(X) L	82.4	(NA) /	(x)	25.1	
Se	ee footnotes at end of table							

¹Data reported by all producers, not just those with shipments of \$100,000 or more.

²For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

³For 1977, product code 33151 15 was included with product codes 33151 13 and 33151 51; product code 34961 15 was included with product codes 34961 13 and 34961 51.

⁴For 1982, product codes 33159 77 and 34968 77 are combined with product codes 33159 98 and 34968 98 to avoid disclosing data for individual companies.

Table 6a-2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1982 and 1977—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

			1982		1977		
4000		Number of	Product ship	ments ¹	Number of	Product ship	ments ¹
1982 product	Product	companies with			companies with		
code		shipments of		Value	shipments of		Value
		\$100,000 or more	Quantity ²	(million dollars)	\$100,000 or more	Quantity ²	(million dollars)
3 312A	7						
34627	Seamless rolled ring forgings, ferrous1,000 s tons	22	(X)	254.3	(NA)	(S)	207.5
3312A — 34627 —	Made in steel mills (industry 3312)dodo	2		(D)	(NA)		93.6
3312B	Open die or smith forgings (hammer or press), ferrousdo	20 7 9	(X) (X)	(D) 747.6	(NA) (NA)	(S) 595 .2	113.8 6 7 3.6
34628 — 3312B —	Made in steel mills (industry 3312) do	10	(X) (X)	(D) (D)	(NA)	185.6	288.9
34628 — 33 121 8 5	Made in steel forgings (industry 3462)do	69	(X)	(D)	(NA)	309.6	384.7
33131	Ferromanganese 1,000 s tons (gr wt) (gr wt) (gr wt)	12	210.6	113.1	(NA)	(D)	(D)
33121 85 33131 —	Made in blast furnaces (industry 3312) do Made in electric and other furnaces (industry 3313 and	5	(D)	(D)	2	(D)	(D)
33134	The moustres)	7	(D)	(D)	11	408.1	159.1
33121 79	Other ferroalloys and products made in electric and other furnaces, except blast furnaces do	(NA)	176.7	275.1	(NA)	661.5	2 9 0. 2
33134 —	Other ferroalloys and products made in electric and other furnaces, except blast furnaces do	(NA)	(D) (D)	(D)	(NA)	661.5	290.2
33134 15 33121 79	Superalloys do Other ferroalloys, including silvery iron and spiegeleisen do	7	87.3	(D) 104.8	(NA)	24.2 178.1	41.0 127.1
33134 89 33121 79	Made in blast furnaces (industry 3312) do	5	(D)	(D)	-	-	-
33134 89	Made in electric and other furnaces (industry 3313 and other industries do	2	(D)	(D)	10	178.1	127.1
33 12 5 33 15							
34961 — 34964 —	- Steel wire and related products	(NA)	(X)	5 190.5	(NA)	(X)	4 369.2
34966 34967							
34968 33125	Steel wire made in steel mills	16	(X) (X)	392.4	(NA)	(X) (X)	606.3
3315- — 34961 —	Steel wire and related products made by wiredrawers	(NA)	(X)	2 761.1	(NA)	(X)	2 608.4
34964 — 34966 —	- Miscellaneous fabricated steel wire products not made by						
34967 — 34968 —	wiredrawers	(NA)	(X)	2 037.1	(NA)	(X)	1 154.5
33151	Noninsulated ferrous wire rope, cable, and strand	(NA)	(X)	913.4	(NA)	(%)	6 10 .5
34961 — 33151 —	Made in industries 3312 and 3315	(NA)	(X) (X) (X)	522.0	(NA) (NA)	(X) (X)	439.1
34961 — 33151 13	Made in industry 3496 and other industries	(NA)	(X)	391.4	(NA)	(X) (X)	171.4
34961 13	Iron and steel wire rope and cable1,000 s	63	(S)	419.1	67	(S)	³ 394.6
33151 13 34961 13	Made in industries 3312 and 3315 do Made in industry 3496 and other industries do	16 47	166.6 (S)	286.8 132.3	29 38	(S) (S) (S)	³ 307.3 ³ 87.3
33151 15 34961 15	Fabricated wire rope assemblies, including lifting						
33151 15	slings do do Made in industries 3312 and 3315 do	55 16	(S) (D) (D)	68.8 (D) (D)	(NA) (NA)	(NA) (NA)	(3) (3) (3)
34961 15 33151 21	Made in industry 3496 and other industries do	39	(D)	(D)	(NA)	(NA)	(3)
34961 21	Composite strand, rope, and cable, including wire strands of different metals, except ACSR do	22	(6)	92.6	(NA)	(6)	60.4
33151 21	Made in industries 3312 and 3315	4	(S) 32.6	83.6 40.7	7	(S) *33.3	36.9
34961 21 33151 33	Made in industry 3496 and other industries do	18	(S)	42.9	8	(S)	23.5
34961 35	Steel wire strand for prestressed concretedo	10	(S)	87.7	(NA)	(S)	34.5
33151 33 34961 35	Made in industries 3312 and 3315 do Made in industry 3496 and other industries do	9	(D) (D)	(D) (D)	5 4	49.9 (S)	(D) (D)
33151 35	Steel wire strand, except wire strand for prestressed						
34961 33	concrete, including guard rail cable do	25	220.3	131.1	(NA)	34.3	55.1
33151 35 34961 33	Made in industries 3312 and 3315 do Made in industry 3496 and other industries do	15 10	149.6 *70.7	88.4 42.7	11	(D) (D)	(D) (D)
33151 51 34961 51		86	(S)	119.2	(NA)	(S)	³ 56.4
33151 51 34961 51	Made in industries 3312 and 3315 do Made in industry 3496 and other industries do	6 80	(S) (S)	7.5 111.6	10 47	*22.3 (S)	³ 15.8 ³ 40.6
33151 00 34961 00	Noninsulated ferrous wire, rope, cable, and strand, n.s.k	(NA)	(X)	4.0	(NA)	(X)	9.5
33151 00 34961 00	Made in industries 3312 and 3315 Made in industries 3496 and other industries	(NA) (NA)	(X) (X)	(Z) 4.0	(NA) (NA)	(X) (X)	(Z) 9.5
33152 — 34967 —	Steel nalls and spikes	(NA)	(X) (X)	434.4	(NA)	(X)	447.1
33152 — 34967 —	Made in industries 3312 and 3315	(NA)	(X) (X)	227.8	(NA)	(X) (X)	359.0 88.1
54507	Made in industry 3496 and other industries	(NA)	(X)	206.6	(NA)	(*)	88.1
33152 11	Steel wire nails, spikes, and brads:						
34967 11	Bright1,000 s tons	28	160.8	91.3	(NA)	168.1	107.1
33152 11 34967 11	Made in industries 3312 and 3315 do Made in industry 3496 and other industries do	16 12	113.2 47.7	72.4 18.9	(NA) (NA)	(D) (D)	(D) (D)

Table 6a-2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1982 and 1977—Con.

Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

			1982		1977			
1982		Number of	Product sl	hipments ¹	Number of	Product s	hipments ¹	
product	Product	companies			companies			
		shipments of \$100,000		Value (million	shipments of \$100,000		Value (million	
1		or more	Quantity ²	dollars)	or more	Quantity ²	dollars)	
33152 36967	Steel nails and spikes-Con.							
30907	Made in industry 3496 and other industries—Con. Steel wire nails, spikes, and brads—Con.							
33152 13 34967 13	Galvanized1.000 s							
33152 13	tons Made in industries 3312 and 3315do	25 16	(S) *57.1	82.0 53.3	(NA) (NA)	74.3 (D)	52.1 (D)	
34967 13 33152 17	Made in industry 3496 and other industires do	9	(S) 39.3	28.7	(NA)	(D) (D)	(D)	
34967 15 33152 17	Gement-coated do Made in industries 3312 and 3315 do	11	(D)	20.3 (D)	(NA) (NA)	76.8 (D)	43.5 (D)	
34967 15 33152 19	Made in industry 3496 and other industires do Other nails, spikes, etc do	2 11	(D) *26.6	(D) 19.8	(NA) (NA)	(D) 25.8	(D) 25.5	
34967 17 33152 19	Made in industries 3312 and 3315	5	(D)	(D)	(NA)	(D)	(D) (D)	
34967 17 33152 23	Made in industry 3496 and other industries do	6	(D)	(D)	(NA)	(D)		
34967 19	Steel wire staples do	24	*188.1	157.2	(NA)	(S)	141.2	
33152 23 34967 19	Made in industries 3312 and 3315 do_ Made in industry 3496 and other industries do_	7 17	36.5 **151.6	41.4 115.8	(NA) (NA)	(D) (D)	(D) (D)	
33152 25 34967 21 33152 25	Steel tacks (wire and cut) do	6	(S)	10.1	(NA)	3.2	6.0	
34967 21 33152 33	Made in industries 3312 and 3315 do_ Made in industry 3496 and other industries do_	6	(S)	10.1	(NA) (NA)	(D) (D)	(D) (D)	
34967 23	Steel cut nails, spikes, and brads, including track	17	(S)	52.0	(NA)	(6)	67.5	
33152 33 34967 23	Made in industry 3496 and other industries do_	8	*44.3 (S)	24.8 27.2	(NA) (NA) (NA)	(S) (D) (D)	(D) (D)	
33152 00 34967 00	Steel nails and spikes, n.s.k.	(NA)	(×)	1.6	(NA)	(X)	4.2	
33152 00 34967 00	Made in industries 3312 and 3315 Made in industry 3496 and other industries	(NA) (NA)	(X) (X)	1.6	(NA) (NA)	(D) (D)	(D) (D)	
33125 33155	Steel wire	114	(X)	1 392.9	(NA)	(X)	1 336.1	
33125 00 33155 00	Made in steel mills (industry 3312) Made in steel wiredrawing (industry 3315) and other	16	(X)	392.4	24	(X)	606.3	
33156	industriesFencing and fence gates	99 (NA)	(X)	1 000.6 44 6.6	84	(X)	729.8 411. 6	
34966 — 33156 —	Made in industries 3312 and 3315	(NA)	(X) (X)	301.6	(NA) (NA)	(X) (X) (X)	280.3	
34966 — 33156 13	Made in industry 3496 and other industries	(NA)	(X)	145.1	(NA)	(X)	131.3	
34966 13	Chain link fencing, excluding posts, gates, and fittings1,000 s tons	34	*248.9	126.4	(NA)	(S)	170.9	
33156 13 34966 13	Made in industries 3312 and 3315 do Made in industry 3496 and other industries do	12 22	**102.7 146.2	63.9 62.5	12 20	(S) (S) (S)	125.8 45.1	
33156 35 34966 35 33156 35	Fence posts, gates, and fittings do	44	**298.0 *70.8	120.5 66.3	(NA) (NA)	(S)	140.6 (D)	
34966 35 33156 21	Made in industry 3496 and other industries do	12 32	**227.1	54.5	(NA)	(D) (D)	(D)	
34966 21 33156 21	Wire fence, woven and welded do	28 13	274.6 235.9	176.7 148.7	(NA) 12	(S) 135.1	78.0 72.1	
34966 21 33156 71	Made in industries 3312 and 3315 do Made in industry 3496 and other industries do	15	(S)	27.9	7	(S)	5.9	
34966 71	Ornamental lawn fence do	3	(S)	.6	(NA)	(S)	9.1	
33156 71 34966 71	Made in industries 3312 and 3315 do_ Made in industry 3496 and other industries do_	3	- (S)	- .6	(NA) (NA)	(D) (D)	(D) (D)	
33156 00 34966 00	Fencing and fence gates, n.s.k.	(NA)	(X)	22.5	(NA)	(X)	13.0	
33156 00 34966 00	Made in industries 3312 and 3315 Made in industry 3496 and other industries	(NA)	(X)	22.5	(NA) (NA)	(D) (D)	(D) (D)	
33157 34964	Ferrous wire cloth and other woven ferrous wire							
33157 —	J products Made in industries 3312 and 3315	(NA) (NA)	(X) (X)	272.5 68.0	(NA) (NA)	(X) (X) (X)	222.1 84.5	
34964 — 33157 31 34964 31	Made in industry 3496 and other industries	(NA)	(X)	204.4	(NA)	(X)	137.7	
33157 31	Hardware cloth1,000 s tons	8	55.1	24.8	(NA)	8.7	11.4	
34964 31 33157 61	Made in industries 3312 and 3315 dododo	5	(D) (D)	(D) (D)	(NA) (NA)	(D) (D)	(D) (D)	
34964 61 33157 61	Industrial wire cloth, steel mil sq ft made in industries 3312 and 3315 do	24 3	33.5 (D)	79.5 (D)	(NA) 5	*129.4 *104.3	65.4 16.9	
34964 61 33157 71	Made in industry 3496 and other industries do	21	(D)	(D) (D)	25	**25.3	48.5	
34964 71 33157 71	Woven wire netting (poultry, fur farm, stucco, etc.) do_ Made in industries 3312 and 3315 do_	10 8	*333.9 (D)	48.9 (D)	(NA) 8	(S) (D)	50.1 (D)	
34964 71 33157 99	Made in industry 3496 and other industries do	2	(D) (D)	(D) (D)		(D)	(D) (D)	
34964 99	Other wire cloth and woven wire products, including							
33157 99	diamond cloth, spiral cloth, drying belts, insect screening, stainless steel paper machines mil sq ft_ Made in industries 3312 and 3315 do_	38 2	(S) (D) (D)	117.9	(NA) (NA)	(S) (D) (D)	493.3 (D)	
34964 98	Made in industry 3496 and other industries do_	36	(D)	(D) (D)	(NA)	(D)	(D) (D)	

Table 6a-2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1982 and 1977—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

			1982			1977	
1982		Number of	Product ship	oments ¹	Number of	Product ship	ments ¹
product	Product	companies with			companies with		
code		shipments of		Value	shipments of		Value
		\$100,000	Ougatitus	(million	\$100,000	Ougatity?	(million
		or more	Quantity ²	dollars)	or more	Quantity ²	dollars)
33157 34964 —	Ferrous wire cloth and other ferrous woven wire						
33157 00	products—Con.						
34964 00	Ferrous wire cloth and other woven ferrous wire products, n.s.k.	(NA)	(X)	1.4	(NA)	(X)	1.9
33157 00	Made in industries 3312 and 3315	-	-	-	(NA)	(X) (X) (X)	(D)
34964 00 33 15 9	Made in industry 3496 and other industries	(NA) (NA)	(X) (X)	1.4 1 636.8	(NA) (NA)	(X) (X)	(D) 1 265.4
34968 33159	Made in industries 3312 and 3315	(NA)		547.2	(NA)		639.5
34968	Made in industry 3496 and other industries	(NA)	(X) (X)	1 089.6	(NA)	(X)	625.9
	Wire chain:						
33159 41 34968 41	Tire1,000 s						
33159 41	Made in industries 3312 and 3315 do	9 5	(S) 14.2	40.0 34.3	(NA) 5	(S) 30.8	30.9 27.9
34968 41 33159 49	Made in industries 3312 and 3315 do Made in industry 3496 and other industries do	4	(S)	5.7	4	(S)	3.1
34968 49 _	Other do	31	(S)	181.1	(NA)	(S)	158.3
33159 49 34968 49	Made in industries 3312 and 3315 do Made in industry 3496 and other industries do	6 25	(S) (S)	97.0 84.1	18	107.2 (S)	104.5 53.8
33159 51 34968 51 L	Barbed and twisted steel wire do	16	84.9	60.6	(NA)	(S)	52.0
33159 51 34968 51	Made in industries 3312 and 3315 do_ Made in industry 3496 and other industries do_	11 5	78.6 6.2	59.0 1.6	11	(D) (D)	(D) (D)
33159 55	Wire bale tiesdo	18	(S)	44.8	(NA)	(S)	23.9
34968 55 33159 55	Made in industries 3312 and 3315 do	7	26.7	18.5	10	41.9	19.4
34968 55	Made in industries 3312 and 3313 do	11	(S)	26.2	5	(S)	4.5
	Welded steel wire fabric:						
33159 61 34968 61	Concrete reinforcing mesh do	41	*594.5	269.6	(NA)	*741.9	250.7
33159 61	Made in industries 3312 and 3315 do	17	*481.1	217.5	27	718.8	241.8
34968 61 33159 65	Made in industry 3496 and other industries do Other welded steel wire fabric do	24	*113.4 (S)	51.9 81.2	16 (NA)	*23.1 93.8	8.9 46.2
34968 65 33159 65	Made in industries 3312 and 3315 do	8	60.7	39.0	8	91.3	39.2
34968 65 33159 71	Made in industry 3496 and other industries do	22	(S)	42.2	6	2.5	7.0
34968 71 33159 71	Wire garment hangersmil lb. Made in industries 3312 and 3315	13	220.6 153.7	85.3 57.7	(NA) 6	(S)	68.7 48.2
34968 71	Made in industries 3312 and 3315 do	9	66.9	27.6	10	(S) *72.7	20.5
33159 73 34968 73	Wire carts, including household, grocery, and						
33159 73	Made in industries 3312 and 3315	15	(X)	103.8	(NA) (NA)	(X)	72.5 (D) (D)
34968 73 33159 75	Made in industry 3496 and other industries	15	(X)	103.8	(NA)	(×)	(D)
34968 75	Steel wire cages	26	(X)	63.2	(NA)	(X)	43.5
33159 75	Made in industries 3312 and 3315		_	-	(NA)	(X) (X)	(D)
34968 75 33159 77	Made in industry 3496 and other industries	26	(X)	63.2	(NA)		(D)
34968 77	Paper clips	3	(X)	(4)	4	(X)	7.8
33159 77 34968 77	Made in industries 3312 and 3315 Made in industry 3496 and other industries	- 3	(X)	- (4)	(NA) (NA)	(X) (X)	(D) (D)
33159 98	Made in indestry 6456 and other indestres	ı ı	(^/	(/	(IVA)		(0)
34968 98	Other wire products, including gaskets, guards, florists' designs, kitchenware, etc.	327	(X)	4698.0	(NA)	(X)	498.8
33159 98	Made in industries 3312 and 3315	12		20.6	(NA)	(X) (X) (X)	
34968 98		315	(X) (X)	4677.3	(NA)		(D) (D)
33159 00 34968 00 33159 00	Other fabricated wire products, n.s.k	(NA) (NA)	(X)	9.2	(NA) (NA)	(X)	12.1 (D)
34968 00	Made in industries 3312 and 3315	(NA)	(X) (X)	5.9	(NA)	(X) (X)	(D)

Note: In 1982 Census of Manufactures, data for establishments of small single-unit companies with up to 20 employees were estimated from administrative records data rather than data actually collected from respondents. Employment cutoff used for administrative records for each industry and shipments figures are included in code ending with "002". In both 1982 and 1977 Censuses of Manufactures, products not completely identified on standard forms were coded in appropriate product class (five-digit) followed by "00" or to appropriate product group code (four-digit) followed by "000".

¹Data reported by all producers, not just those with shipments of \$100,000 or more.

²For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

³For 1977, product code 33151 15 was included with product codes 33151 13 and 33151 51; product code 34961 15 was included with product codes 34961 13 and 34961 51.

⁴For 1982, product codes 33159 77 and 34968 77 are combined with product codes 33159 98 and 34968 98 to avoid disclosing data for individual companies.

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Table 6a-3. Receipts, Consumption, and Shipments of Steel Mill Products: 1982 and 1977

[Quantity in short tons; value in thousand dollars. For meaning of abbreviations and symbols, see introductory text]

		1982								
1982						Shipme	ents²			
product code ¹	Grade and product		Steel consumed in	Tot	al	To other co	ompanies	Transfers to ot same co		
		Receipts ² (quantity)	producing plants (quantity)	Quantity	Value f.o.b. plant	Quantity	Value f.o.b. plant	Quantity	Value f.o.b. plant	
	CARBON STEEL									
33122 11	Ingots	295 926	139 543	516 500	163 438	79 277	20 524	437 223	142 914	
33122 13	Semifinished products: Blooms, billets, slabs, sheet bars, tin-mill bars, tube rounds, and									
33122 19	Skelp	2 338 207 1 712 873	456 528 89 514	2 424 171 2 549 421	645 475 857 688	902 164 2 312 280	239 588 768 742	1 522 007 237 141	405 887 88 946	
33124 11 33124 13	Finished products: Plates: Floor platesPlates, other than floor plates	7 21 934	122 076	3 000 644	1 407 565	2 893 910	1 360 422	106 734	47 143	
33123 11 33167 11	Sheets: Hot-rolled (including enameling sheets)	6 677 621 746 704	900 144 285 114	14 375 690 10 895 505	4 870 321 4 727 216	10 026 698 9 942 827	3 397 653 4 318 311	4 348 992 952 678	1 472 668 408 905	
	Sheets and strip: Galvanized:									
33123 13 33123 15 33123 17 33123 18	Hot-dipped	80 706 2 888 	12 439 - 9 224	4 357 593 493 015 813 648	2 291 407 286 769 462 564	4 173 561 492 438 768 875	2 187 563 286 426 436 067	184 032 577 44 773	103 844 343 26 497	
33123 19 33167 15	Strip: Hot-rolledCold-rolled	504 211 144 078	57 534 5 361	468 707 840 277	215 433 626 979	437 938 685 412	201 029 542 940	30 769 154 865	14 404 84 039	
33123 26 33123 24 33123 27	Tin-mill products: Electrolytic and hot-dipped tin plate	(D) (D)	(D) (D)	3 055 846 377 078	1 994 669 198 278	(D) (D)	(D) (D)	(D) (D)	(D) (D)	
33123 27	and steel foil)Structural shapes (heavy), sheet piling and bearing piles	(D)	(D)	933 126 2 902 746	551 417 1 224 672	(D) 2 862 896	(D) 1 207 746	(D) 39 850	(D) 16 926	
33124 22 33124 24	Bars: Hot-rolled bars, except concrete reinforcing Light structurals (less than 3 inches)	734 272 (D)	142 949 (D)	4 315 900 731 657	1 790 847 220 070	4 012 811 547 233	1 670 065 168 853	303 089 184 424	120 782 51 217	
33124 25 33124 27 33168 11 33124 29	Concrete reinforcing bars: Rolled from new billets Rolled from old materials (rails, axles, etc.) Cold-finished bars Tool steel	(D) (D) (D)	(D) (D) (D)	3 792 923 925 982 1 916	1 081 144 756 927 6 812	3 068 203 916 400 (D)	884 147 749 981 (D)	724 720 9 582 (D)	196 997 6 946 (D)	
3312C 11 3312C 13 3312C 15 3312C 17 3312C 19 3312C 21 3312C 23	Rails, wheels, and truck accessories: Rails. Standard tee (more than 60 lb per yard) All other rails, including light (60 lb per yard or less) Joint bars Tie plates Wheels (rolled and forged) Axles (rolled and forged) Track spikes	(D) (D) (D) (D) (D) (D)	000000	479 512 27 737 12 837 99 292 72 342 17 859 49 237	221 750 15 482 18 161 51 809 59 477 11 026 31 864	000000000000000000000000000000000000000	9999999	000000000000000000000000000000000000000	(D) (D) (D) (D) (D) (D)	
33176 12 33176 19	Pipe and tubes: Line pipeOil country goods	(D) (D)	(D) (D)	1 125 925 1 314 715	753 461 1 369 489	1 121 144 1 306 394	750 291 1 363 944	4 781 8 321	3 170 5 545	
33176 21 33176 22	Pressure tubing: Seamless Welded	(D) (D)	(D) (D)	66 196 98 519	108 341 119 512	(D) (D)	(D) (D)	(D) (D)	(D) (D)	
33176 23 33176 24 33176 27 33176 29	Mechanical tubing: Seamless Welded Structurals Miscellaneous (including standard pipe)	(D) 25 474 (D) 28 136	(D) 37 331 (D) 15 696	108 410 1 369 091 507 330 1 266 392	149 528 1 062 597 232 532 846 502	(D) 1 317 840 (D) 1 230 215	(D) 1 021 836 (D) 829 278	(D) 51 251 (D) 36 177	(D) 40 761 (D) 17 224	
33155 11 33155 15 33155 19	Wire: Plain wire Galvanized wire Other coated wire	159 735 47 678 (D)	498 170 61 559 (D)	1 320 069 225 408 168 827	758 483 152 301 193 103	1 198 952 203 969 147 864	693 689 135 224 176 503	121 117 21 439 20 963	64 794 17 077 16 600	
33152 21 33159 51 33156 21 33159 55 33151 11	Wire products4: Nails and staples Barbed and twisted wire Wire fence, woven and welded Bale ties Wire rope and cable	(D) (D) (D) (D) (D)	(D) (D) (D) (D) (D)	243 088 76 827 178 625 30 313 156 213	193 738 56 174 130 751 20 346 281 071	(D) (D) (D) (D) (D)	(D) (D) (D) (D) (D)	(D) (D) (D) (D)	(D) (D) (D) (D)	
33151 33 33151 35 33157 71	Wire strand: For prestressed concrete Other Woven wire netting	(D)	(D)	128 894 113 490 54 946	79 107 92 273 50 351	128 894 (D) (D)	79 107 (D) (D)	(D) (D)	(D) (D)	

				197	77				
					Shipme				1982 product
	D	Steel consumed in	Tota	al .	To other co	ompanies ————————————————————————————————————	Transfers to other plan	ts of same company	code ¹
	Receipts ² (quantity)	producing plants (quantity)	Quantity	Value f.o.b. plant	Quantity	Value f.o.b. plant	Quantity	Value f.o.b. plant	
	1 539 106	151 402	1 418 183	265 276	16 545	4 215	1 401 638	261 061	33122 11
	7 514 205 1 969 610	242 050 90 892	7 492 204 2 834 088	1 756 884 773 097	1 155 685 2 480 580	295 839 673,313	6 336 519 353 508	1 461 045 99 784	33122 13 33122 19
	128 258	270 392	5 981 011	1 925 711	5 634 400	1 823 236	346 611	102 475	33124 11 33124 13
	7 577 978 1 686 938	218 177 390 443	21 030 765 17 303 942	5 340 673 5 568 766	15 065 915 15 341 930	3 877 682 4 942 110	5 964 850 1 962 012	1 462 991 626 656	33123 11 33167 11
	122 263 (D) (D)	36 367 (D) (D)	4 850 813 361 342 1 198 073	1 896 323 155 503 500 399	4 674 465 ³ 361 342 1 090 119	1 825 379 ³ 155 503 455 743	176 348 (³) 107 954	70 944 (³) 44 656	33123 13 33123 15 33123 17 33123 18
,	1 026 098 331 158	96 269 5 611	1 349 276 1 215 247	417 529 611 955	1 177 165 993 796	362 772 532 501	172 111 221 451	54 757 79 454	33123 19 33167 15
	(D) (D)	(D) (D)	4 733 975 765 600	1 946 840 270 801	³ 4 733 975 ³ 765 600	³ 1 946 840 ³ 270 801	(3)	(3) (3)	33123 26 33123 24
	(D) 36 037	(D) 41 475	1 019 901 4 058 353	390 400 1 176 210	³ 1 010 901 3 977 619	³ 390 400 1 152 019	(3) 80 734	(3) 24 191	33123 27 33124 15
	1 591 051 6 772	287 131 9 661	6 978 830 934 300	2 343 670 226 935	6 485 612 737 199	2 176 771 183 485	493 218 197 101	166 899 43 450	33124 22 33124 24
	127 069 3 278 (D)	652 352 1 937 (D)	3 458 286 1 565 130 5 424	694 632 845 856 9 062	2 800 749 1 537 541 ³ 5 424	565 762 831 553 ³ 9 062	- 657 537 27 589 27 589 27 589 (3)	128 870 14 303 14 303 (³)	33124 25 33124 27 33168 11 33124 29
	(D) (D) (D) (D) (D) (NA) (NA)	(0) (0) (0) (0) (0) (0) (0) (0)	1 090 881 52 766 28 104 261 890 157 477 (NA)	337 442 20 232 20 475 90 103 84 674 (NA)	³ 1 090 881 ³ 52 766 ³ 28 104 ³ 261 890 ³ 157 477 (NA) (NA)	³ 337 442 ³ 20 232 ³ 20 475 ³ 90 103 ³ 84 674 (NA) (NA)	(3) (3) (3) (3) (3) (NA) (NA)	(3) (3) (3) (3) (NA) (NA)	3312C 11 3312C 13 3312C 15 3312C 17 3312C 19 3312C 21 3312C 23
	(D) (D)	(D) (D)	1 101 780 1 827 792	436 831 1 113 205	³ 1 101 780 ³ 1 827 792	³ 436 631 ³ 1 113 205	(3) (3)	(3) (3)	33176 12 33176 19
	(D) (D)	(D) (D)	164 500 280 381	173 752 161 917	³ 164 500 ³ 280 381	³ 173 752 ³ 161 917	(³)	(3) (3)	33176 21 33176 22
	(D) 13 695 (D) (NA)	(D) 147 611 (D) (NA)	283 660 1 477 322 633 398 (NA)	226 303 852 565 228 349 (NA)	³ 283 660 1 432 063 ³ 633 398 (NA)	³ 226 303 823 552 ³ 228 349 (NA)	(3) 45 259 (3) (NA)	(3) 29 013 (3) (NA)	33176 23 33176 24 33176 27 33176 29
	119 686 26 096 (D)	596 353 25 093 (D)	1 691 053 271 507 195 757	766 778 142 960 182 402	1 540 816 254 472 182 365	704 582 133 919 17 1 924	150 247 17 035 13 392	62 196 9 041 10 478	33155 11 33155 15 33155 19
	(D) (D) (D) (D) (D)	(D) (D) (D) (D)	353 765 64 255 140 457 39 770 147 186	212 537 33 104 73 880 18 809 196 391	350 815 ³ 64 255 ³ 140 457 39 502 138 399	210 965 ³ 33 104 ³ 73 880 18 663 183 078	2 950 (3) (3) 268 8 787	1 572 (3) (3) 146 13 313	33152 21 33159 51 33156 21 33159 55 33151 11
	(D) (D) (D)	(D) (D) (D)	30 624 53 356 83 868	16 219 50 873 54 573	30 624 ³ 53 356 ³ 83 868	16 219 350 873 354 573	(3) (3)	(3) (3)	33151 33 33151 35 33157 71

Table 6a-3. Receipts, Consumption, and Shipments of Steel Mill Products: 1982 and 1977-

[Quantity in short tons; value in thousand dollars. For meaning of abbreviations and symbols, see introductory text]

		1982							
1982						Shipm	ents ²		
product code ¹	Grade and product		Steel consumed in	Tot	Total		ompanies	Transfers to ot same co	
		Receipts ² (quantity)	producing plants (quantity)	Quantity	Value f.o.b. plant	Quantity	Value f.o.b. plant	Quantity	Value f.o.b. plant
	ALLOY STEEL								
33122 31	Ingots	(D)	(D)	301 541	193 557	(D)	(D)	(D)	(D)
33122 36 33122 39	Semifinished products: Blooms, billets, slabs, sheet bars, tube rounds, and skelp Wire rods	595 685 13 494	223 343	867 806 23 544	568 057 19 266	416 323 (D)	288 482 (D)	451 483 (D)	279 575 (D)
33124 34	Finished products: Plates and structural shapes (3 in. or more) Sheets and strip:	(D)	(D)	1 563 669	1 019 158	(D)	(D)	(D)	(D)
33123 31 33167 31 33123 34	Sheets: Hot-rolled Cold-rolled Galvanized, electrical, and metallic coated	(D) (D)	(D) (D) (D)	897 264 159 127 362 581	412 870 154 408 355 124	752 719 (D) (D)	353 522 (D) (D)	144 545 (D) (D)	59 348 (D) (D)
33123 39 33167 35	Strip: Hot-rolledCold-rolled	(D) (D)	(D) (D)	50 481 146 173	32 317 228 129	(D) (D)	(D)	(D) (D)	(D) (D)
33124 41 33168 31	Bars: Hot-rolled (including structural shapes less than 3 in.) Cold-finished	(D) (D)	(D) (D)	1 288 450 142 442	896 731 204 215	1 213 963 (D)	845 547 (D)	74 487 (D)	51 184 (D)
33124 48 33124 49	Tool steel: High speed Other than high speed	(D) (D)	(D) (D)	9 760 34 062	77 954 106 271	(D) (D)	(D) (D)	(D) (D)	(D) (D)
33176 32 33176 43	Pipe and tubes: Oil country goods and line pipePressure tubing	(D) (D) (D) (D)	(D) (D) (D)	881 413 36 653	1 378 256 106 115	(D) (D)	(D) (D)	(D) (D) (D) (D)	(D) (D)
33176 45 33176 48 33155 37	Mechanical tubing	(D) (D) (D)	(D) (D) (D)	329 862 12 149 27 098	517 277 15 849 53 117	(D) (D) (D) (D)	(D) (D) (D) (D)	(D) (D) (D)	(D) (D) (D) (D)
	STAINLESS STEEL								
				1					1
33122 51	Ingots	(D)	(D)	226 156	266 002	(D)	(D)	(D)	(D)
33122 56 33122 59	Semifinished products: Blooms, billets, slabs, sheet bars, tube rounds, and skelp Wire rods	169 193 (D)	6 077 (D)	158 973 15 733	210 634 38 710	41 958 15 733	83 781 38 710	117 015	126 853
33124 53	Finished products: Plates and structurals	(D)	(D)	112 947	285 372	(D)	(D)	(D)	(D)
33123 51 33167 51	Sheets and strip: Hot-rolled Cold-rolled	(D) 76 037	(D) 17 067	288 828 650 008	264 219 1 220 098	79 613 616 709	86 736 1 136 512	209 215 33 299	177 483 83 586
33124 61 33168 51	Bars: Hot-rolled Cold-finished	6 421 (D)	7 (D)	37 796 63 823	145 641 254 315	31 053 (D)	130 578 (D)	6 743 (D)	15 063 (D)
33176 61 33176 62	Pipe and tubes: Pressure tubing: Seamless Welded	(D) (D)	(D) (D)	15 262 51 135	101 724 206 235	(D) (D)	(D) (D)	(D) (D)	(D) (D)
33176 63	Mechanical tubing: Seamless		(D)	1 967	27 138		(D)		
33176 64 33155 51	Welded	(D) (D) 4 795	(D) 2 360	26 005 52 411	104 707 190 303	(D) (D) 52 089	(D) 188 558	(D) (D) 322	(D) (D) 1 745

Source: Current Industrial Report MA-33B, Steel Mill Products.

Con

¹Product codes in 33155 series also include products in 33125 series; the same applies for 33167 and 33127; 33168 and 33128; and 33176 and 33126.

²Excludes receipts and shipments of steel processed on a conversion basis for nonsteel producing companies. Receipts data represent receipts at producing mills only but include receipts from both domestic and foreign sources.

³Transfers to other plants of the same company are included with shipments to other companies. Such transfers constitute between 10 and 20 percent for carbon black plate, carbon tool steel, carbon seamless pressure tubing, alloy hot-rolled strip, alloy plates, stainless hot- and cold-rolled strip, and stainless seamless pressure tubing; between 20 and 50 percent for alloy pressure tubing, and alloy mechanical, structural, and miscellaneous pipe and tubing; more than 50 percent for stainless ingots. For all other cases, interplant transfers constitute less than 10 percent of the total.

	1977											
					Shipme	ents ²			1982			
			Tota	al	To other co	ompanies	Transfers to other plant	ts of same company	product code ¹			
	Receipts ² (quantity)	Steel consumed in producing plants (quantity)	Quantity	Value f.o.b. plant	Quantity	Value f.o.b. plant	Quantity	Value f.o.b. plant				
·												
	185 056	406 912	236 576	133 981	43 346	33 738	193 230	100 243	33122 31			
	875 214 (D)	166 737 (D)	1 587 032 56 945	670 323 31 312	580 869 356 945	274 676 ³ 31 312	1 006 163 (³)	395 647 (³)	33122 36 33122 39			
	(D)	(D)	2 302 302	984 582	³2 302 302	³ 984 582	(3)	(³)	33124 34			
	(D) (D) (D)	(D) (D) (D)	984 770 77 089 559 802	318 997 52 039 405 207	810 196 ³ 77 089 ³ 559 802	264 246 ³ 52 039 ³ 405 207	174 574 (3) (3)	54 751 (3) (3)	33123 31 33167 31 33123 34			
	(D) (D)	(D) (D)	103 354 99 647	50 941 170 052	³ 103 354 95 655	³ 50 941 155 721	(³) 3 992	(3) 14 331	33123 39 33167 35			
	195 639 202	67 541 167	2 436 779 257 702	1 143 072 221 485	2 267 405 ³ 257 702	1 067 896 ³ 221 485	169 374 (³)	75 176 (³)	33124 41 33168 31			
,	(D) (D)	(D) (D)	25 364 58 708	134 019 159 924	³ 25 364 53 249	³ 134 019 153 147	(³) 5 459	(³) 6 777	33124 48 33124 49			
<u>}</u>	(D)	(D)	42 912	78 948	³42 912	³ 78 948	(3)	(3)	33176 32 33176 43			
}	(D) (D)	(D) (D)	541 700 85 372	496 715 66 272	³ 541 700 ³ 85 372	³ 496 715 ³ 66 272	(³)	(3) (3)	33176 45 33176 48 33155 37			
	41 704	13 347	61 414	67 269	³ 61 414	³ 67 269	(3)	(3)	33122 51			
	293 208 (D)	7 411 (D)	254 357 24 140	283 884 46 859	41 166 ³ 24 140	56 983 346 859	213 191 (³)	226 901 (³)	33122 56 33122 59			
	5 720	3 066	99 492	204 472	399 492	³204 472	(3)	(3)	33124 53			
	(D) (D)	(D) (D)	289 797 428 018	212 743 617 974	8 594 420 449	16 205 609 578	281 203 7 569	196 538 8 396	33123 51 33167 51			
	(D) (D)	(D) (D)	61 033 96 059	131 157 246 457	44 914 ³ 96 059	105 647 ³ 246 457	16 119 (3)	25 510 (³)	33124 61 33168 51			
	(D) (D)	(D) (D)	17 328 48 152	87 557 178 463	³ 17 326 ³ 48 152	³ 87 557 ³ 173 43	(3) (3)	(3) (3)	33176 61 33176 62			
	(D) 175 (D)	(D) 7 364 (D)	4 339 18 288 41 584	30 886 67 905 125 578	³ 4 339 ³ 18 288 41 358	³ 30 886 ³ 67 905 124 603	(3) (3) 226	(3) (3) 975	33176 63 33176 64 33155 51			

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1982 and 1977

[Million dollars. Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by type" classes. Statistics for some States are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1982. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Product class and geographic area	1982 value of product shipments	1977 value of product shipments	Product class and geographic area	1982 value of product shipments	1977 value of product shipments
33121, COKE OVEN AND BLAST FURNACE PRODUCTS			3312C, OTHER STEEL MILL PRODUCTS, EXCEPT WIRE PRODUCTS		
United States	1 873.1	3 032.2	United States	395.6	561.1
AlabamaIndiana		295.7 8 6 .9			
Michigan New York	59.7	84.8 199.8	Pennsylvania	166.7	160.8
OhioPennsylvania	312.2	523.8 1 271.4			
Tennessee	19.0	(EE)	33133, FERROSILICON		
33122, STEEL INGOT AND SEMIFINISHED			United States	243.0	327.4
SHAPES AND FORMS		,	Ohio	95.0	(GG)
United States		4 039.3			
IllinoisNew York	116.8	(GG) 166.6	33151, NONINSULATED FERROUS WIRE		
OhioPennsylvania		823.7 1 332.5	ROPE, CABLE, AND STRAND, PRODUCED IN WIREDRAWING PLANTS (ALSO SEE		
Texas	248.0	119.8	CODE 34961)		
33123, HOT ROLLED SHEET AND STRIP			United States	522.0	439.1
United States	11 913.5	11 057.8	California	41.0 17.0	18.3 13.1
IllinoisIndiana	749.8 3 612.2	7 6 4.8 2 500.0	Pennsylvania	85.1	96.4
Michigan	1 133.1	1 542.0 1 922.5			
Pennsylvania	1 176.2	1 485.0	33152, STEEL NAILS AND SPIKES, PRODUCED IN WIREDRAWING PLANTS (ALSO SEE CODE 34967)		
33124, HOT ROLLED BARS AND BAR SHAPES			United States	227.8	359.0
United States	8 199.2	9 140.9	Illinois	45.7	141.4
CaliforniaIllinois	198.5 870.7	234.8 1 176.3			
Indiana Kentucky	1 114.7	1 427.8 50.6	33155, STEEL WIRE, NOT PRODUCED IN	:	
Michigan		68.1	STEEL MILLS (ALSO SEE CODE 33125)		
New York		499.2 1 031.0	Haland Canan	1 000 0	700.8
Pennsylvania Texas		2 466.7 558.5	United States	1 000.6	72 9.8
			California	92.3 6 2.3	72.9 49.2
33125, STEEL WIRE, PRODUCED IN STEEL			Florida	31.4 80.0	20.5 61.5
MILLS (ALSO SEE CODE 33155)		:	Indiana	48.4	(EE)
United States	392.4		Massachusetts	50.9 27.4	66.3 (CC)
California	8.7 85.5	(FF) 177.7	New York	36.7 2 6. 3	17.8 30.6
			Ohio	110.3	124.7
33126, STEEL PIPE AND TUBES, PRODUCED IN STEEL MILLS (ALSO SEE CODE 33176)			Pennsylvania Tennessee Texas	73.3 60.7 22.4	47.0 32.1 (CC)
United States	3 561.5	3 000.4			
OhioPennsylvania	755.6 1 370.9	969.7 1 07 6 .5	33156, FENCING AND FENCE GATES, PRODUCED IN WIREDRAWING PLANTS (ALSO SEE CODE 34966)		_
33127, COLD ROLLED STEEL SHEET AND		- 1	· ·		
STRIP, PRODUCED IN STEEL MILLS (ALSO SEE CODE 33167)			United States	301.6	280.3
United States	5 162.6	6 953.9	California	28.1 43.2 39.0	33.1 50.2 (FF)
Indiana	1 666.7	1 645.5	Pennsylvania	38.4 29. 6	(EE) 34.0
OhioPennsylvania	1 308.7	1 775.2 1 516.9		20.0	04.0
South Carolina	10.2	(NA)	COAST EEDBOUG WEDT OF OTHER STATE		
33128, COLD FINISHED STEEL BARS AND BAR SHAPES, PRODUCED IN STEEL MILLS (ALSO SEE CODE 33168)			33157, FERROUS WIRE CLOTH AND OTHER FERROUS WOVEN WIRE PRODUCTS, PRODUCED IN WIREDRAWING PLANTS (ALSO SEE CODE 34964)		
United States	3 5 8.5	421.9	United States	68.0	84.5
Pennsylvania			Illinois	20.3	(EE)

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1982 and 1977—Con.

Million dollars. Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by type" classes. Statistics for some States are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1982. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

of its	Product class and geographic area	1982 value of product shipments	1977 value of product shipments	Product class and geographic area	1982 value of product shipments	1977 value of product shipments
1.1	33159, OTHER FABRICATED FERROUS WIRE PRODUCTS, EXCEPT SPRINGS, PRODUCED IN WIREDRAWING PLANTS (ALSO SEE CODE 34968)			33167, COLD ROLLED STEEL SHEET AND STRIP, NOT PRODUCED IN STEEL MILLS (ALSO SEE CODE 33127)—Con.		
.4	United States California	547.2 40.9 34.7 40.9 13.6 28.2 19.1 104.6	639.5 34.6 26.2 70.9 34.8 40.4 25.2 116.1	Michigan ————————————————————————————————————	294.3 427.7 571.7	291.6 504.8 319.7
3)	, Texas	55.1	26.4	United States	9 05. 8	909.2
	33167, COLD ROLLED STEEL SHEET AND STRIP, NOT PRODUCED IN STEEL MILLS (ALSO SEE CODE 33127)			California	22.3 32.3 96.5 172.5 72.0	30.9 30.9 129.0 239.8 72.8
1	United States California Connecticut Illinois	1 815.3 50.6 169.8 58.8	177.4	New York Ohio Pennsylvania Texas	25.5 179.5 120.5 13.7	(EE) 185.1 127.7 (AA)

Note: For 1977, the following value ranges (in million dollars) substitute for actual figures withheld to avoid disclosing data for individual companies: AA—less than \$2.0 but not 0; BB—\$2.0 to \$4.9; CC—\$5.0 to \$9.9; EE—\$10.0 to \$19.9; FF—\$20.0 to \$49.9; GG—\$50.0 or more.

Table 6c. Product Classes—Value Shipped by All Producers: 1982 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

	on the state of th								
1982									
prod-	Product class								
uct	1 Todact class								
code		1982	19811	1980¹	1979¹	19781	1977	1972	1967
3312-	Blast furnaces and steel mills	35 456.8	53 854.1	47 386.2	52 457.5	46 025.3	39 368.0	22 210.5	18 102.3
33121	Coke oven and blast furnace products	1 873.1	3 140.8	2 869.1	3 491.1	3 251.6	3 032.2	1 497.3	1 257.4
33122	Steel ingot and semifinished shapes and forms	3 082.0	4 954.9	5 098.9	5 905.8	5 003.9	4 039.3	2 502.9	2 526.5
33123 33124	Hot rolled sheet and strip Hot rolled bars and bar shapes	11 913.5 8 199.2	14 382.9 12 944.6	12 784.8 12 033.1	14 637.4 13 270.4	12 988.3 11 222.2	11 057.8 9 140.9	6 740.1 5 612.8	4 533.3 4 456.4
33125	Steel wire, produced in steel mills (also see code 33155)	392.4	625.6	586.6	746.6	665.2	606.3	397.6	377.6
33126	Steel pipe and tubes, produced in steel mills (also see code	002.4	020.0	300.0	7 40.0	000.2	000.0	007.0	0,,,,
00407	33176)	3 561.5	7 638.5	5 058.4	4 081.9	3 726.6	3 000.4	1 501.0	1 554.1
33127	Cold rolled steel sheet and strip, produced in steel mills (also see	5 162.6	7 862.6	6 700.3	8 326.9	7 441.1	6 953.9	3 134.1	2 607.0
33128	code 33167)Cold finished steel bars and bar shapes, produced in steel mills								
3312A	(also see code 33168)	358.5	679.9	704.0	610.1	489.7	421.9	268.7	256.6
331ZA	Seamless rolled ring ferrous forgings, produced in steel mills (also see code 34627)	(D)	137.0	127.5	120.3	92.7	93.6	(NA)	(NA)
3312B	Open die or smith ferrous forgings, hammer or press, produced in	ì						` ′	, ,
3312C	steel mills (also see code 34628)	(D)	470.4	403.2	410.8	374.0	288.9	(NA) (NA)	(NA)
33120	Other steel mill products, except wire productsBlast furnace and steel mill products, n.s.k	395.6 108.5	833.4 183.8	882.6 137.8	781.6 74.6	573.0 (S)	561.1 171.7	(NA)	(NA) (NA)
3313-								552.3	. ,
3313-	Electrometallurgical products Ferromanganese	728.0 (D)	1 166.7 147.9	1 245.7 188.0	1 3 27.0 197.2	1 019.4 155.2	944.1 159.1	(NA)	403.4 (NA)
33132	Ferrochromium	75.1	130.5	159.7	180.0	130.2	163.5	116.6	104.5
33133	Ferrosilicon	243.0	445.6	415.5	462.6	394.5	327.4	180.8	102.9
33134	Other ferroalloy products produced in electric furnaces	(D)	455.6	496.2	466.1	332.9	290.2	(NA)	(NA)
33130	Electrometallurgical products, n.s.k.	43.3	(2)	(2)	21.1	(S)	3.9	2.5	1.9
3315- 33151	Steel wire and related products	2 761.1	3 281.2	3 169.0	3 370.8	2 932.8	2 608.4	1 512.6	1 062.3
33151	Noninsulated ferrous wire rope, cable, and strand, produced in wiredrawing plants (also see code 34961)	522.0	600.6	585.4	549.3	429.3	439.1	270.2	164.2
33152	Steel nails and spikes, produced in wiredrawing plants (also see code 34967)								
100455	code 34967)	227.8	339.5	310.8	404.2	399.9	359.0	248.5	158.8
33155 33156	Steel wire, not produced in steel mills (also see code 33125) Fencing and fence gates, produced in wiredrawing plants (also see	1 000.6	911.8	871.5	987.9	804.1	729.8	328.7	300.5
00130	code 34966)	301.6	322.6	342.4	353.6	327.7	280.3	172.1	75.8
33157	Ferrous wire cloth and other ferrous woven wire products,								
33159	produced in wiredrawing plants (also see code 34964) Other fabricated ferrous wire products, except springs, produced in	68.0	115.6	121.0	115.3	103.1	94.5	53.6	35.4
.55155	wiredrawing plants (also see code 34968)	547.2	873.4	840.7	884.0	722.0	639.5	390.0	294.4
33150	Steel wire and related products, n.s.k.	93.9	117.6	97.2	76.6	(S)	76.2	49.5	33.2
3316-	Cold finishing of steel shapes	2 803.4	3 223.6	2 942.7	3 535.8	3 098.9	2 562.8	1 487.1	945.8
33167	Cold rolled steel sheet and strip, not produced in steel mills (also								
33168	see code 33127)Cold finished steel bars and bar shapes, not produced in steel	1 815.3	1 952.4	1 747.9	2 143.7	1 927.7	1 628.5	903.8	554.9
33103	mills (also see code 33128)	905.8	1 186.8	1 119.9	1 330.6	1 142.3	909.2	558.9	372.6
33160	Cold finishing of steel shapes, n.s.k.	82.4	84.4	74.9	61.5	(S)	25.1	24.4	18.3
33170	Steel pipe and tubes	3 657.1	4 928.3	3 713.3	3 596.9	3 217.2	2 620.3	1 264.5	1 075.0
		0 007.1	7 020.0	00.0	0 000.0	U		. 204.0	

¹Figures are estimates derived from a representative sample of manufacturing establishments canvassed in annual survey of manufactures and, therefore, may differ from results that would be obtained from a complete canvass of all manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures volumes for this period.

²Withheld because estimated value derived for code is a negative figure.

Table 7. Materials Consumed by Kind: 1982 and 1977

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 material				1977		
code	Material	Quantity ¹	Delivered cost (million dollars)	Quantity ¹	Delivered cost (million dollars)	
	INDUSTRY 3312, BLAST FURNACES AND STEEL MILLS					
		(X)	10 238 5	(x)	21 941 6	
121120	Materials, parts, containers, and supplies 1,000 s tons	(X) 37 394.4	18 238.5 2 455.2	(X) 77 533.3		
101112	Iron ore, including manganiferrous: Crude1,000 gross					
101123 101125	Wt Concentrates do Agglomerates do	14 280.6 11 151.8 39 196.9	281.0 487.0 2 068.6	30 203.2 30 568.8 59 990.0	913.6	
106112	Manganese ore, including ferruginous (containing 10 percent manganese)1,000 gross					
106113 331051	Ferroalloy, ores (excluding manganese)do Pig iron, excluding silvery iron1,000 s tons	239.8 (D) 1 128.4	12.4 (⁴) 180.5	979.8 (X) 5 154.9	35.0	
331051 190023 331081	Fig fron, excluding slivery iron	1 128.4 28 161.2 *217.5	2 049.6 2 21.8	5 154.9 34 503.5 203.3	2 183.6	
190020	Aluminum and aluminum-base alloy scrap and dross do_ Nonferrous metals, alloys, and ferroalloys (ingot, pig, shot,	(D)	(4)	(D)		
333402 333113	etc.): Aluminum Copper, including both refined unalloyed and copper-base	63.0	75.9	82.3	82.3	
333971	alloy raw materialsdo Nickel, excluding ferronickeldo	3.7 46.9	5.0 180.5	6.8 50.9	200.5	
333975 333232	Tin do_ Lead do_	10.7 14.6	136.7 12.7	20.1 14.3	185.1 10.7	
333348 333982	Zincdo Cobaltmil lb_	217.9 892.4	176.8 11.7	242.1 1.7	176.5 9.0	
331313 331320 331331	Ferromanganese, silicomanganese, and manganese 1,000 s tons Ferrochromium do Ferrosilicon (more than 8 percent silicon) do	513.9 230.5 159.5	232.6 145.2 94.3	1 087.0 372.3 253.7		
331343 331345	Ferronickeldo	6.8 24.6	70.0 56.8	12.1 53.8	73.5	
331351 331353	Ferrotungsten do	.1 2.7	1.6 31.9	.6 5.6	11.2 49.7	
331342 329502	Other ferroalloys, including silvery iron do Dead-burned magnesia do Sulfurie acid (100 percent H SQ)	66.5 (D) **402.6	141.3 (4) 22.9	104.5 10.4 618.4	111.4	
281930 281361 280005	Sulfuric acid (100 percent H ₂ SO ₄) do Oxygen, including high and low purity mil cu ft Industrial chemicals (except sulfuric acid and oxygen)	124 588.5 61.5	22.9 210.3 79.6	618.4 195 656.1 (X)	28.7 195.0 67.0	
291103 325501	Clay refractories1,000 s tons	46.1 (S)	95.9 200.0	(X) (X) (S)	86.0 224.1	
329701 332161	Nonclay refractoriesdo_ Gray iron ingot molds and stoolsdo_	(S) *838.6	145.7 257.3	(S) 1 813.2	183.4	
329503 327403	Fluxes: Limestonedo Lime, including quicklime and dead-burned dolomitedo	8 748.8 4 153.8	85.0 209.8	18 256.4 9 883.4		
329505 329506	Fluorspar	*234.1 *805.2	30.9 28.1	9 883.4 540.4 4 389.1		
331005	Ingots, semifinished shapes (blooms, billets, etc.), and other steel shapes received for further processing, except for					
362411 354402	drawing wireCarbon and graphite electrodesIndustrial dies, molds, jigs, and fixtures	3.2 1.1 13.6	3 847.1 259.4 36.6	(X) (X) (X)	4 051.5 132.0 46.0	
970099	All other materials and components, parts, containers, and supplies consumed (see note) Materials, parts, containers, and supplies, n.s.k. ²	(X) (X)	43 413.2	(X) (X) (X)	33 417.7	
971000	Materials, parts, containers, and supplies, n.s.k. ²	(X)	387.6	(X)	261.2	
	INDUSTRY 3313, ELECTROMETALLURGICAL PRODUCTS					
	Materials, parts, containers, and supplies	-(X)	335.2	(X)	475.4	
106112 106113	Manganese ore gross weight Ferroalloy ores (excluding manganese)	201.7 303.2	16.6 24.5	469.2 (X)		
325501 329701	Clay refractories 1,000 s tons Nonclay refractories do	(S) *.9	3.3	(X) 8.7 (D)).5 (D)	
331313 331320	Ferroalloys: Ferromanganese, silicomanganese, and manganese	1		(D)	(D) (D)	
331331 331343	Ferrosilicon (more than 8 percent silicon) do Ferromolybdenum do	(5)	37.9	(D) (D) (D)	(6)	
331345 331351	Ferrotungstendo	(S)	37.9	(D)	(D)	
331353 331342 190023	Ferrovanadium do Other ferroalloys, including silvery iron do Iron and steel purchased scrap do	275.9	20.1	407.0	-	
329503	Fluxes:				(5)	
327403 362411	Limestone do	20.2	1.1 - 13.7	-[(B) (X)	(5) (5)	
354402 970099	Industrial dies, molds, jigs, and fixturesAll other materials and components, parts, containers, and supplies	(x)	.2 181.7	(X)	(5) 5334.6	
971000	Materials, parts, containers, and supplies, n.s.k. ²	(X) (X)	35.3	(X) (X)	28.9	
	INDUSTRY 3315, STEEL WIRE AND RELATED PRODUCTS					
	Materials, parts, containers, and supplies,	(X)	1 275.1	(X)	1 200.1	
	Nonferrous metals, alloys, and ferroalloys:			-		
333113	Copper, including both refined unalloyed and copper-base					

Table 7. Materials Consumed by Kind: 1982 and 1977—Con.

Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text)

	4000		19	82	19	1977		
1	1982 material code	Material	Ouantity ¹	Delivered cost (million dollars)	Ouantity ¹	Delivered cost (million dollars)		
		INDUSTRY 3315, STEEL WIRE AND RELATED PRODUCTS—Con.			,			
	333232 333348 281930	Nonferrous metals, alloys, and ferroalloys:—Con. Lead	**18.0 235.3 126.1	1.3 16.5 .7	4.0 23.8 11.2	2.4 16.3 .7		
	331061 331063 331065	Carbon steel do Alloy steel, except stainless do Stainless steel do	*4 801.8 *104.7 18.5	673.1 48.5 27.9	2 055.7 **50.5 (S)	570.8 28.4 37.4		
	331073 331075 331077 331079 331005	Carbon steel	(S) 25.1 (S) **72.8	135.4 11.4 24.0 26.9	**239.7 (S) 6.0 (S)	95.2 12.7 15.2 9.7		
ı	970099	steel shapes received for further process, except for drawing wire All other materials and components, parts, containers, and supplies	(X)	35.7	(X)	41.0		
	971000	supplies	(X) (X)	159.3 107.0	(X) (X)	208.1 159.5		
		INDUSTRY 3316, COLD FINISHING OF STEEL SHAPES						
	,	(Material data was not collected for this industry)						
		INDUSTRY 3317, STEEL PIPE AND TUBES		-				
-		(Material data was not collected for this industry)						

¹For some establishments, data have been estimated from central unit values which are based on quantity-cost relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

²Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
³For 1977, material code 190020 was combined with material code 970099 to avoid disclosing data for individual companies.
⁴For 1982, material codes 106113, 190020, and 329502 are combined with 970099 to avoid disclosing data for individual companies.
⁵For 1977, material codes 106113, 329503, 327403, 362411, and 354402 were included with material code 970099.

Table 8a. Blast Furnaces and Steel Mills (Industry 3312)—Departmental Operations by Degree of Integration: 1982 and 1977

[For meaning of abbreviations and symbols, see introductory text For explanation of terms, see appendixes.]

	Production-worker hours (millions)							Produc	tion-worker w	ages (million	dollars)	
Department		Fully inte-	Par	rtially integrate works1	ed	Non- inte-		Fully inte-		Partially integrated works1		
	Total	grated works ¹	Total	With	Without	grated works ¹	Total	grated works ¹	Total	With	Without	grated works ¹
1982								-				
All departments	37 5 .7	204.5	171.2	24.1	101.4	45.6	6 181.6	3 512.3	2 669.3	401.0	1 572.0	696.3
Coke ovens Blast furnaces Steel department (furnaces)	22.9 12.6 39.5	16.6 10.5 17.0	6.3 2.1 22.5	- 1.7 2.6	.4 - 18.4	5.9 .4 1.5	370.7 214.8 568.5	283.7 178.6 285.7	87.0 36.2 282.8	28.3 46.6	5.3 210.2	81.7 7.9 26.0
Rolling and finishing mills: Sheet and strip mills Tin mills Bar mills, including rebars Wiredrawing mills Pipe mills Other mills, including semifinishing,	41.9 7.8 19.8 4.2 10.4	26.4 6.2 6.5 1.1 7.4	15.5 1.6 13.3 3.1 3.0	3.9 - .3 (Z) 1.3	6.6 .1 10.5 2.6 1.3	5.0 1.5 2.5 .5	753.0 134.5 291.7 62.3 161.6	450.9 107.9 106.8 17.7 114.9	302.1 26.6 184.9 44.6 46.7	66.9 - 4.1 .2 21.6	123.2 1.3 146.1 37.7 18.1	112.0 25.3 34.7 6.7 7.0
plate, and structural	37.0	17.5	19.5	5.3	12.4	1.8	561.4	304.7	256.7	87.1	147.8	21.8
Foundry (iron or steel) Forging (presses, hammers, or	2.1	1.8	.3	.1	.2	-	35.2	30.2	5.0	2.4	2.6	-
Upsetters)Other manufacturing or fabricating	3.3	1.4	1.9	.5	1.3	.1	54.0	24.9	29.1	8.7	18.2	2.2
department (nuts, bolts, containers, etc.)	11.3	.6	10.7	-	9.9	.8	173.4	11.9	161.5	-	148.0	13.5
Service or auxiliary operations and all other activitiesUnspecified	119.8 43.1	74.2 17.3	45.6 25.8	8.5	33.9 3.8	3.2 22.0	1 988.1 812.2	1 269.2 325.2	718.9 487.0	135,1	541.1 172.4	42.7 314.8

1.4 28.7 95.0 67.0 86.0 24.1 83.4 53.7

1.5 2.0 6.0

Table 8a. Blast Furnaces and Steel Mills (Industry 3312)—Departmental Operations by Degree of Integration: 1982 and 1977—Con.

[For meaning of abbreviations and symbols, see introductory text For explanation of terms, see appendixes.]

	Production-worker hours (millions)							Production-worker wages (million dollars)				
Department		Fully inte-	Pa	tially integrat	ed	Non- inte-	e- inte-		Partially integrated works1			Non- inte-
	Total	grated works ¹	Total	With	Without	grated works ¹	Total	grated works ¹	Total	With	Without	grated works ¹
1977												
All departments	668.7	36 0 .9	2 31.9	90.2	141.7	7 5.8	6 653 .0	3 712.7	2 230.4	877 .2	1 353.2	710.1
Coke ovens Blast furnaces Steel department (furnaces)	35.8 30.8 58.4	23.7 21.7 30.1	3.2 7.0 26.0	(D) 7.0 9.1	(D) 16.9	8.9 2.1 2.3	344.1 303.1 586.0	237.1 221.1 306.6	30.5 62.5 259.6	(D) 62.5 95.9	(D) 163.7	76.5 19.5 19.8
Rolling and finishing mills: Sheet and strip mills Tin mills Bar mills, including rebars Wiredrawing mills Pipe mills	67.9 15.7 37.8 8.7 24.7	47.1 13.1 16.9 3.7 12.6	17.5 (D) 17.8 2.5 11.8	8.4 (D) 3.2 - 3.4	9.1 - 14.6 2.5 8.4	3.3 (D) 3.1 2.5 .3	719.7 168.7 347.3 82.3 229.0	509.9 (D) 162.3 34.2 117.8	177.1 (D) 160.1 24.2 109.3	83.9 (D) 31.4 - 32.9	93.2 - 128.7 24.2 76.4	32.7 (D) 24.9 23.9 1.9
Other mills, including semifinishing, plate, and structuralFoundry (iron or steel)	76.7 7.2	42.8 (D)	33.1 3.8	20.1 1.4	13.0 2.4	.8 (D)	754.1 64.1	441.8 (D)	305.0 31.9	178.4 13.7	126.6 18.2	7.3 (D)
Forging (presses, hammers, or upsetters). Other manufacturing or fabricating	7.4	2.9	3.0	(D)	(D)	1.5	69.4	28.9	28.9	(D)	(D)	11.6
departments (nuts, bolts, containers, etc.)Service or auxiliary operations and all	16.6	(D)	(D)	(D)	(D)	(D)	141.7	18.8	(D)	(D)	(D)	(D)
other activitiesUnspecified	217.2 63.8	131.4 9.7	78.2 15.1	34.2 -	44.0 15.1	7.6 38.9	2 195.5 648.0	1 347.7 115.8	775.9 154.9	342.4	433.5 154.9	71.9 377.5

¹For definition, see Description of Industries in text.

Table 8b. Steel Wire Mills, Cold Finishing Mills, and Pipe and Tube Mills—Department Operations: 1982 and 1977

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

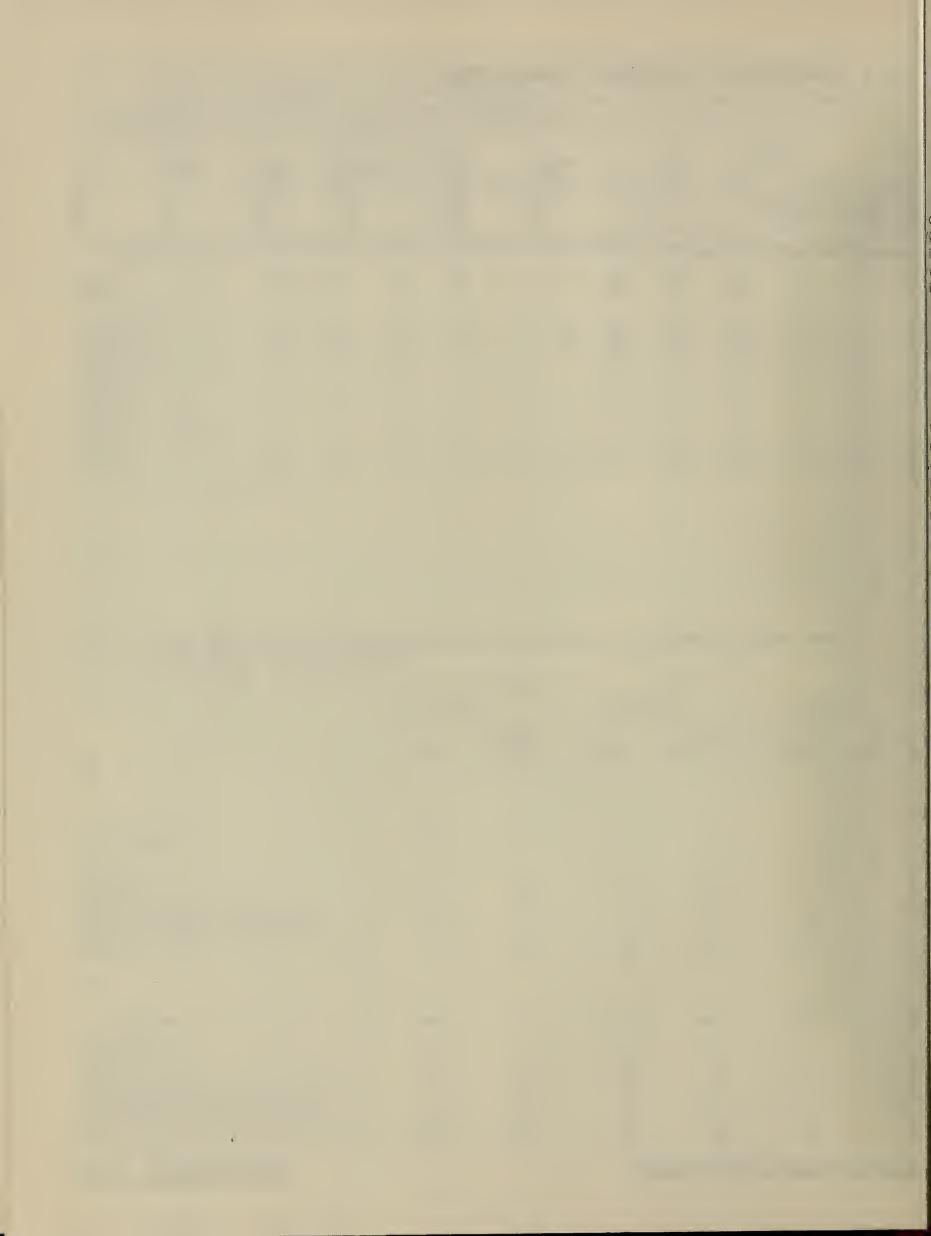
4000	Steel wire drag		Cold finish (SIC 33		Steel pipe and tube (SIC 3317)		
Department	Worker-hours (millions)	Production- worker wages (million dollars)	Worker-hours (millions)	Production- worker wages (million dollars)	Worker-hours (millions)	Production- worker wages (million dollars)	
1982							
All departments	31.0	296.7	19.7	245.6	37.6	460.6	
Rolling and finishing mills: Sheet and strip mills	_	-	7.4	97.5	.1	3.1	
Tin mills	.5 13.1 .2 .9	8.0 139.2 1.9 11.6	.2 1.7 1.9 .3 1.1	4.1 20.2 24.0 2.3 6.8	- .1 - 16.1 2.9	.9 - 208.4 40.7	
Other manufacturing or fabricating departments (nuts, bolts, forgings, containers, etc.)	5.4 2.2 8.7	49.0 21.5 65.5	.2 2.3 4.6	2.0 26.4 62.3	2.5 2.9 13.0	27.9 28.2 151.4	
1977							
All departments	49.0	304.9	28.7	238.8	43.7	33 0 .6	
Rolling and finishing mills: Sheet and strip mills Tin mills Bar mills, including rebars	(Z) - -	(D)	10.4 (Z) (S) 1.6	98.4 (D) (S) 11.3	- (D)	- (D)	
Wiredrawing mills Pipe mills Other mills, including semifinishing, plate, and structural Other manufacturing or fabricating departments (nuts, bolts,	15.6 (D) (D)	104.9 (D) (D)	1.6 (D) 1.9	11.3 (D) 16.6	20.0	173.7 31.0	
forgings, containers, etc.) Service or auxiliary operations and all other activities Unspecified	12.6 3.5 16.9	82.3 20.9 94.5	2.0 (S) (S)	13.2 (S) (S)	8.4 (S) (S)	50.5 (S) (S)	

Table 9. Force Account Construction Workers: 1982

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

		All establ	ishments	Establish	nments reporting emp	oyees engaged in construction		
. SIC code	Industry			Total		Engaged in construction ¹		
,		Employees (1,000)	Payroll (millions)	Employees (1,000)	Payroll (millions)	Employees (1,000)	Payroll (millions)	
3312 3315 3316 3317	Blast furnaces and steel mills Steel wire and related products Cold finishing of steel shapes Steel pipe and tubes	295.8 22.0 15.4 27.0	8 677.9 442.9 367.9 648.1	57.0 6.6 3.8 5.1	1 660.4 130.9 94.6 118.8	9.2 .8 .3 .9	248.3 15.3 7.5 19.9	

Number and gross earnings of employees on payroll engaged in construction of major additions or alterations to plans and utilized as a separate work force. Workers engaged in regular maintenance and repair operations are not included.



APPENDIX A. Explanation of Terms

This appendix is in two sections. Section 1 includes items which were requested of all establishments that were mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) that were not included on the report forms but were derived from information collected on the forms. Section 2 covers supplementary items that were requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in tables 3c and 3d of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies—As discussed in the Introduction, a separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operates at different physical locations, even if the individual locations are producing the same line of goods, a separate report was requested for each location. If the company operates in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on the number of custodial employees, capital expenditures, inventories, or any shipments from inventories during the portion of the year the plant was in operation.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction to Part 1 of the General Summary subject report.

Employment and related items—The regular report forms requested separate information on production workers as of a payroll period for each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees—This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period ending nearest the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers—This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees—This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment who are engaged in the construction of major additions or alterations to the plant and who are utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls was also requested of auxiliary units (e.g., administrative offices, warehouses, and research and development laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the general summary and geographic area reports and in the final bound volumes as a separate category.

Payrolls—This item includes the gross earnings of all employees on the payroll of operating manufacturing establishments paid in the calendar year 1982. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, all bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers

of corporations, but excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payroll of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours—This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials—This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, components, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed - In addition to the total cost of materials, which every establishment was required to report, information was also collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the specific materials consumed is shown in table 7 if appropriate to the industry. Establishments consuming less than a specified amount (usually \$10,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as "not specified by kind." (See the Introduction for the importance of administrative records in the industry.)

Value of shipments—This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further

processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of "all other costs" (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products—As in previous censuses, data were collected for almost all industries on the quantity and value of individual products shipped. In the 1982 census program, information was collected on the output of approximately 11,000 individual product items. The term "product," as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term "product" as used in the marketing sense. In some cases it may be much more detailed and, in other cases, it is more aggregative. For example, "pharmaceutical preparations" was distributed into over 100 items; whereas, "motor gasoline" was reported as a single item.

Approximately 6,000 of the product items were listed separately on the 1982 census report forms. Data for about 5,000 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1982 for these items, as derived from the commodity surveys, are shown in the "products shipped" table (table 6a) together with the tieline total value collected in the census for reconciliation purposes.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1977 information is presented for most products.

Typically, both quantity and value of shipments information was collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers was also collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production was also collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products—To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the

individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Introduction, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1982 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, and the like. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments - The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication, since the products of some industries are used as materials by others. With some important exceptions, such as for motor vehicles and parts, this duplication is not significant at the four-digit industry level. However, it is significant at the two-digit and three-digit industry group level because these totals often include industries that represent successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the "Food" group and the addition of pulp mills to paper mills in the "Paper and Allied Products" group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the census of manufactures.

Value added by manufacture—This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

Because of the change in instructions for reporting inventories for 1982, the 1982 figure for value added is not strictly comparable to prior-year data. This is explained more fully in the inventories section below.

"Value added" avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures—For establishments in operation and establishments under construction but not yet in operation, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures exclude that portion of expenditures leased from nonmanufacturing concerns, new facilities owned by the Federal Government but operated under

contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers were also requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred to the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; i.e., it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form and is subject to sampling error (see table 3d). The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in both tables 3a and 3d. The figure in table 3a is a census universe total and may differ from the results of the ASM sample shown in table 3d. Since the figures in table 3d are subject to sampling error, they are not considered as reliable as the universe figures.

End-of-year inventories—Respondents were asked to report their 1981 and 1982 end-of-year inventories at cost or market. Effective with the 1982 Economic Censuses, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications. Inventories and value added data estimated on a basis comparable to the historical data, using the reported information for 1982, are shown in footnote 4 of table 1a. However, the end-of-1981 figure shown in this footnote may differ from the corresponding value published as part of the 1981 Annual Survey of Manufactures.

This difference at the four-digit SIC level is due primarily to the effects of industry shifts. As described in the Industry Classification of Establishments section of the Introduction, ASM noncertainty plants are allowed to shift from one industry to another in a census year; whereas, they are "frozen" in a particular industry in ASM years. Other explanations for this difference include the effects of sampling and processing errors and revisions to end-of-1981 data reported by respondents.

In using inventory data by stage of fabrication for "all industries" and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw

materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and "all manufacturing," which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios - These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

As noted in the Introduction, an establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage equal to the same of th ratios have been developed to measure the relationship of the primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product and shipments shown in tables 6a through 6c.

to

Specialization ratio represents the ratio of primary product is in shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped products by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

Supplemental labor costs—Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees. While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records do not generally provide reliable figures on net employee benefits of these types.

Cost of purchased services - ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, and communication services. Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property are also included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force are also excluded.

The response coverage ratio shown in table 3d for each of the three types of purchased services listed above is a measure of the extent to which respondents reported for each item. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight; see section 3) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Electric energy used for heat and power-Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy and quantity of generated-less-sold electric energy were collected only on the ASM forms. The cost and quantity of purchased electric energy represent the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Beginning- and end-of-year depreciable assets - The data encompass all fixed depreciable assets on the books of establishments at the beginning and at the end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as patent rights and royalties. Also excluded are land and depletable assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures - The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Breakdown of new capital expenditures for machinery and equipment—ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category "automobiles, trucks, etc., for highway use" is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

The "not specified by kind" or n.s.k. item for expenditures for new machinery and buildings, shown in table 3d, represents the total machinery and equipment expenditures for establishments that did not break down their expenditures for the three specific categories. This means that for most industries the specific categories are understated.

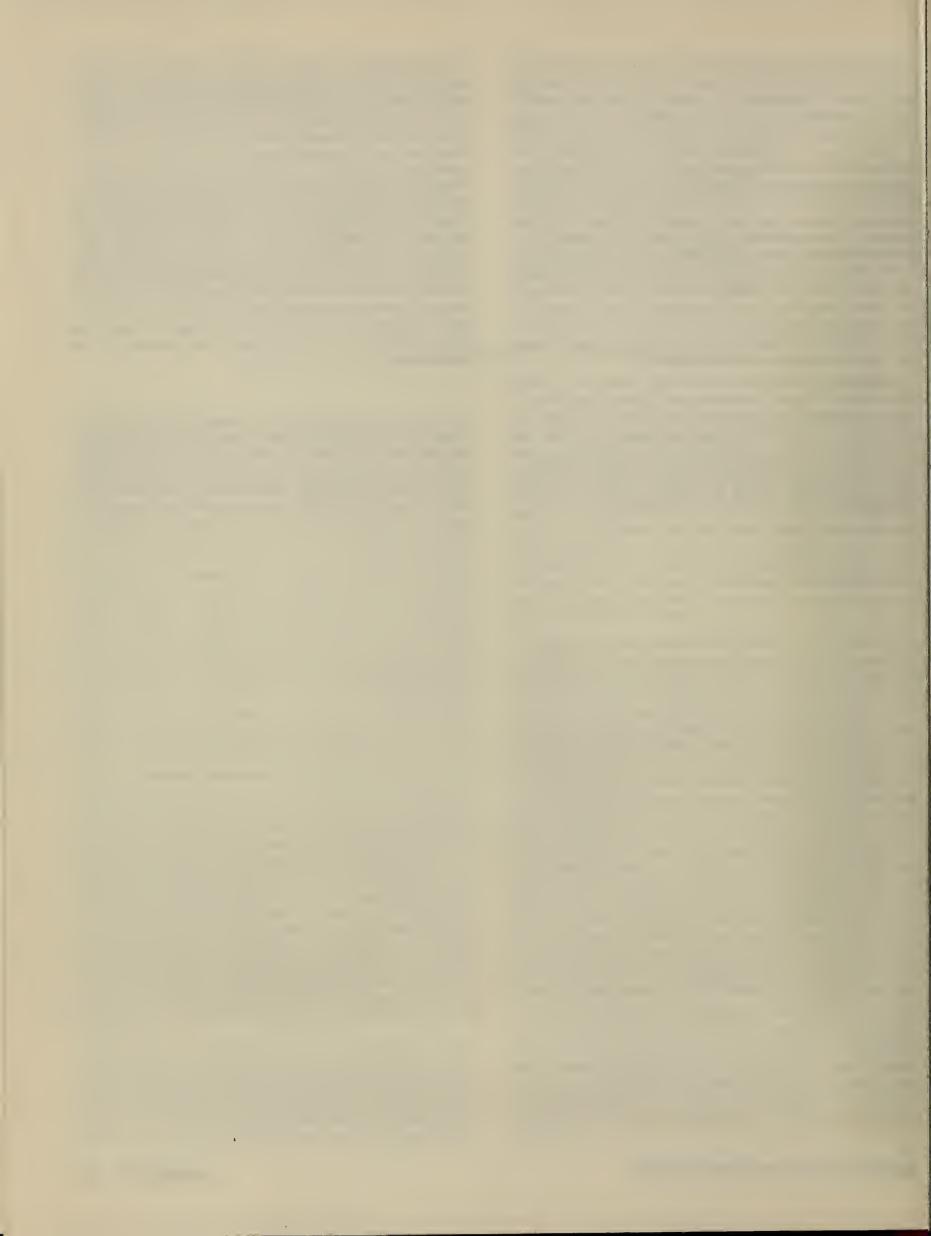
Retirements—Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1982. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent was also requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Rental payments — This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company, and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciation charges—This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.



APPENDIX B.

Annual Survey of Manufactures (ASM) Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The Annual Survey of Manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 55,000 manufacturing establishments selected from a total of about 225,000 establishments. These 225,000 establishments represent all manufacturing establishments of multiunit companies and all single-unit manufacturing establishments with five employees or more tabulated in the 1977 Census of Manufactures. This mail portion is supplemented by a Social Security Administration list of new manufacturing establishments opened after 1977. The individual establishments were defined as the sampling unit for this sample. This is a change from the previous ASM sample when companies were used as the sampling unit. The implication of this change is that the probability of selection of any establishment relates only to the size of the establishment itself and is independent of the size of the company with which the establishment is affiliated. The efficiencies associated with the change to an establishment sample have made it possible to reduce the mail sample panel from 70,000 establishments in 1978 to 55,000 establishments in the

The nonmail portion of the survey includes all single-unit establishments that were tabulated with less than five employees in the 1977 Census of Manufactures. Although this portion contained approximately 125,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of other Federal agencies. This administrative record information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under special conditions, which safeguard the confidentiality of both tax and census records. Estimates for data for these small establishments were developed using industry averages in conjunction with the administrative information.

The corresponding estimates for the mail and nonmail establishments were added together, along with the adjusted base-year differences as defined in Description of Estimating Procedures below. The remaining description of the survey sample relates only to the mail portion of the ASM sample.

All establishments with 250 employees or more in the 1977 census were included in the survey panel with certainty. These establishments collectively account for approximately 65 percent of the total value of shipments for manufacturing establishments in the 1977 census. Smaller establishments were sampled with probabilities ranging from 1.000 down to 0.005 in accordance with mathematical theory for optimum allocation of a sample.

The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. For establishments included in the 1977 Census of Manufactures, the measure of size depended directly upon each establishment's 1977 product class values and the

historic variability of the year-to-year shipments of each product class. Roughly equivalent measures of size were assigned to postcensus birth establishments based on their industry codes and anticipated payroll and employment.

The method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight to differences in employment, value added, and other general statistics, for these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of establishments into and out of a given sample panel without introducing a bias into the survey estimates.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1978-1981 were computed using a modified "difference estimate" formula. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1977 census published number for an item total and the linear ASM estimate of the total for 1977. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

This base-year difference was then adjusted to reflect the estimated growth at the four-digit or, in the case of product classes, five-digit based Standard Industriai Classification (SIC) level from 1977 to the year of the survey; for example, 1981. It should be noted that due to processing constraints, the growth factors lagged one year; i.e., if 1981 is the survey year, they were not based on the estimated growth from 1977 to 1981 but rather the growth from 1977 to 1980. This one-year lag had negligible effect on the estimates, particularly at the total manufacturing level where the adjusted base-year difference accounted for less than 1 percent of the estimate for total value of shipments.

These adjusted base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail establishments, to produce the estimates for the years 1978-1981. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

The 1982 sample data included in table 3d were also developed using difference estimates. However, since the universe totals for the census year (1977 or 1982) were not known, a modification of the procedure described above was necessary. For each item in table 3d, except purchased services and breakdown of expenditures for new machinery and equipment (see further description in appendix A, section 2), linear

estimates of the publication totals from the ASM mail sample were adjusted by the difference between imputed census totals and the corresponding ASM mail sample estimates of these imputed totals. These imputed totals are obtained by applying industry average ratios to control item values at the establishment level. For example, an imputed total beginning assets figure is obtained by multiplying each establishment's total value of shipments by the industry (four-digit SIC) average for the ratio of beginning assets to shipments.

Separate estimates for the nonmail establishments were not developed. However, their contribution to the publication estimates is reflected in the difference adjustment.

The method of inventory valuation percentages included in table 3c was developed using both complete census information and ASM estimates. The percentages for the four major categories (LIFO, non-LIFO, valuation method not reported, and LIFO reported without associated value and reserve) were derived from the complete census and correspond to the values included in table 3d. The percentages for the specific non-LIFO methods of valuations (FIFO, average cost, specific costs, etc.) are ratio estimates developed from the ASM in conjunction with the census universe estimate for the total of the non-LIFO methods.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. Except for table 3c, they are presented in the form of relative standard errors, the standard errors divided by the estimated values to which they refer. In table 3c, "absolute" standard errors of the estimates are presented.

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

- 2. From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.
- 3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total and about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors would also occur if a complete canvass were to be conducted under the same conditions as the survey.

Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

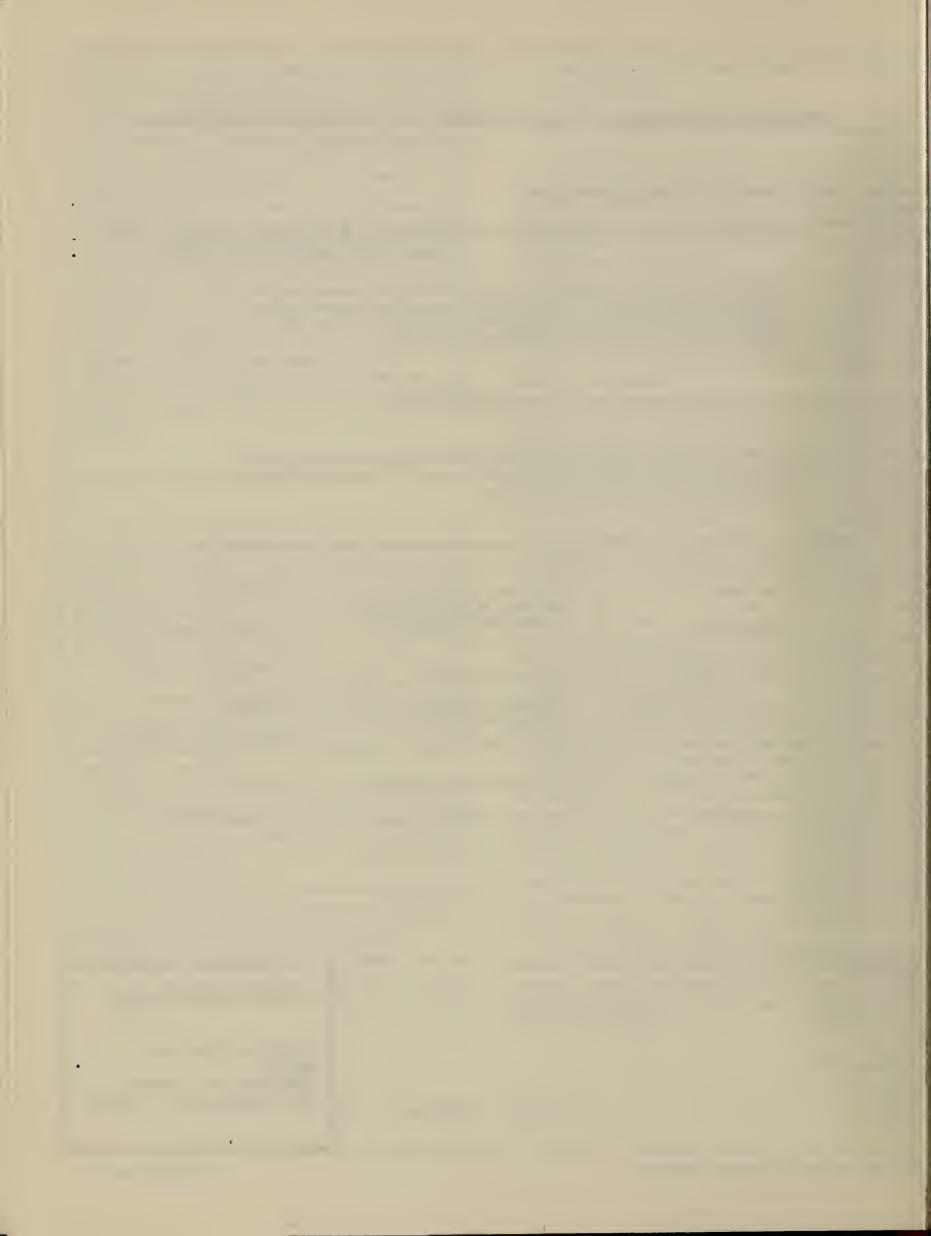
As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

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PUBLICATION PROGRAM

1982 CENSUS OF MANUFACTURES

Publications of the 1982 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publication order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services (Publications), Bureau of the Census, Washington, D.C. 20233

Preliminary Reports

Preliminary industry data are issued in 443 separate reports covering 452 industries (or combinations of industries). Preliminary data for States are grouped and released in reports for each of the nine census geographic divisions.

Final Reports

Final detailed statistics are issued in separate paperbound reports.

Industry series-82 reports (MC82-I-20A to -39D)

Each of the 82 reports provides information for a group of related industries (e.g., "dairy products" includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 452 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment and degree of primary product specialization. Statistics are given on production of specific products and consumption of energy and various materials by industry.

Geographic area series-51 reports (MC82-A-1 to -51)

A separate report for each State and the District of Columbia presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, SMSA's, and large industrial counties and places. Comparative statistics for earlier census years are shown for the State and large SMSA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics—including inventories, assets, rents, and energy costs—are presented only in statewide totals.

Subject series—10 reports (MC82-S-1 to -10)

Each of the 10 reports contains detailed statistics for an individual subject, such as: selected materials consumed, selected metalworking

operations, manufacturing activity in government establishments, concentration ratios in manufacturing, type of organization, water use in manufacturing, fuels and electric energy consumed (separate publications for industry statistics, and State and SMSA statistics), textile machinery in place, production indexes, and a general National-level summary.

Final Report Volumes

Final paperbound reports subsequently are assembled and reissued in clothbound volumes.

- Volume I. Summary and Subject Statistics—data previously issued in series MC82-S.
- Volume II. Industry Statistics—data previously issued in series MC82-1.

Part 1. Major Groups 20 to 26

Part 2. Major Groups 27 to 34

Part 3. Major Groups 35 to 39

 Volume III. Geographic Area Statistics—data previously issued in series MC82-A.

Part 1. Alabama to Montana

Part 2. Nebraska to Wyoming

Microfiche

All published data also are available on microfiche.

Computer Tapes

Selected data—generally detailed information by industry and/or geographic area—also are available on public-use computer tapes. For the selected data, these tapes will provide the same information found in the final reports. Public-use computer tapes are available for users who wish to summarize, rearrange, or process large amounts of data. These tapes, with corresponding technical documentation, are sold by Data User Services Division, Customer Services (Tapes), Bureau of the Census, Washington, D.C. 20233.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, service industries, construction industries, mineral industries, enterprise statistics, minority-owned businesses, women-owned businesses, and transportation also are issued as part of the 1982 Economic Censuses. A separate series of reports covers the censuses of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Northern Mariana Islands. All published reports and microfiche are sold by the Superintendent of Documents, U. S. Government Printing Office. Appropriate announcements and order forms describing these products are available free of charge from Data User Services Division, Customer Services (Publications), Bureau of the Census, Washington, D.C. 20233.

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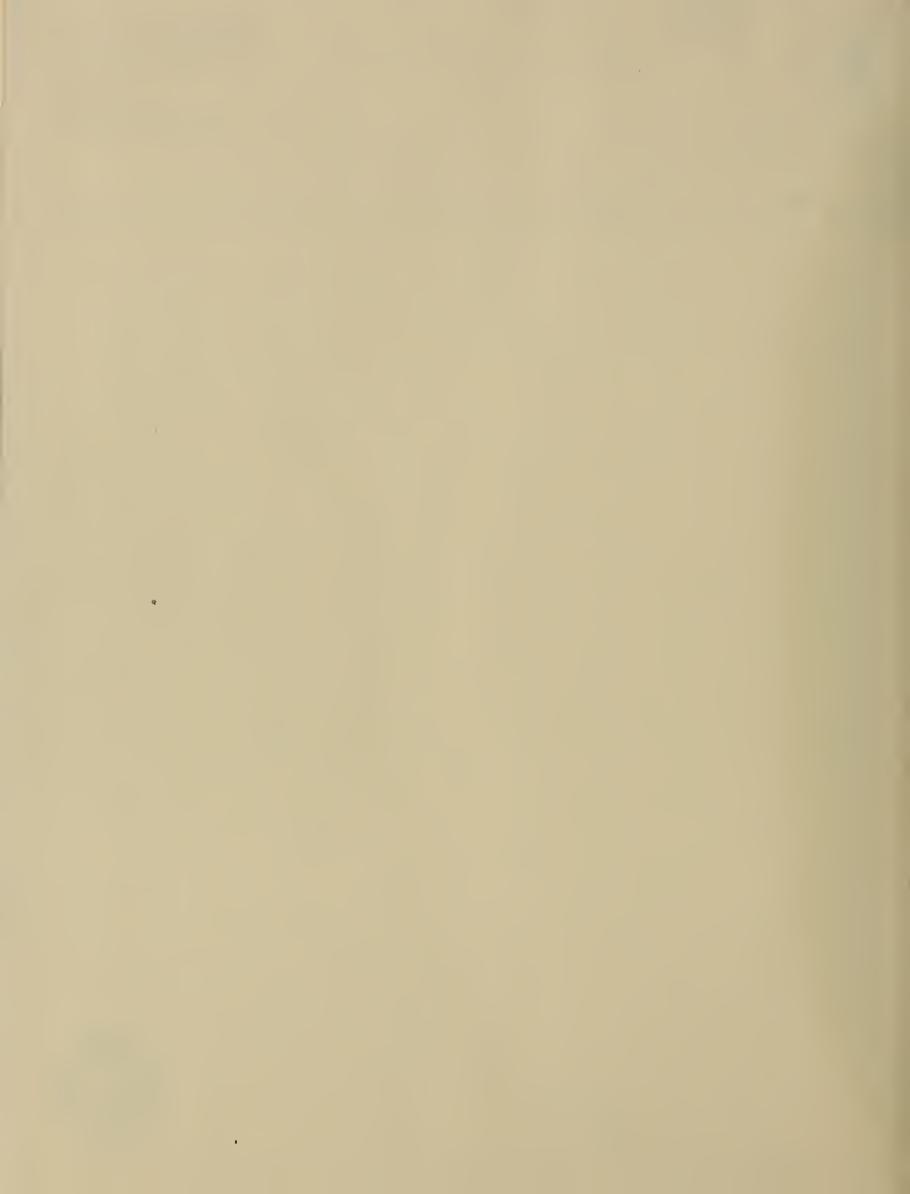


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