

---

**Current Population Survey:  
Annual Demographic File, 1972**

---

**United States Department of Commerce  
Bureau of the Census**

**ICPSR 7563**

This document was previously available in paper format only. It was converted to Portable Document Format (PDF), with no editing, on the date below as part of ICPSR's electronic document conversion project, supported in part by the National Science Foundation (SBR-9617813). The document may not be completely searchable. No additional updating of this collection has been performed.

October 1999



*UNIVERSITY CONSO  
ICAL AND SOCIAL I*

I  
C  
P  
S  
R

CURRENT POPULATION SURVEY  
ANNUAL DEMOGRAPHIC FILES  
FOR 1972

(ICPSR 7563)

Principal  
Investigator

U.S. Bureau of the  
Census

First ICPSR Edition, 1977



CURRENT POPULATION SURVEY ANNUAL  
DEMOGRAPHIC FILE FOR 1972

(ICPSR 7563)

Principal Investigator  
United States Bureau of the Census

Inter-university Consortium for Political and Social Research  
P.O. Box 1248  
Ann Arbor, Michigan 48106

First ICPSR Edition, 1977



#### ACKNOWLEDGMENT OF ASSISTANCE

All manuscripts utilizing data made available through the Consortium should acknowledge that fact as well as identify the original collector of the data. The ICPSR council urges all users of ICPSR data facilities to follow some adaptation of this statement with the parentheses indicating items to be filled in appropriately or deleted by the individual user.

The data (and tabulations) utilized in this (publication) were made available (in part) by the Inter-university Consortium for Political and Social Research. The data for the Current Population Survey Annual Demographic File for 1972 were originally collected by the United States Bureau of the Census. Neither the original collectors of the data nor the Consortium bear any responsibility for the analyses or interpretations presented here.

In order to provide funding agencies with essential information about the use of archival resources, and to facilitate the exchange of information about ICPSR participants' research activities, each user of the ICPSR data facilities is expected to send two copies of each completed manuscript or thesis abstract to the Consortium. Please indicate in the cover letter which data were used.

## STUDY DESCRIPTION

An annual survey of the population of the United States, conducted by the U.S. Census Bureau in 1972, constitutes this dataset. The files in this series are often referred to as the March Current Population Survey (CPS) Demographic Supplements. Contained in the data file are records for families selected in the sample as well as for each person in the families so chosen. Included in the dataset are 188,710 records, representing families and individuals. Variables in a file include such characteristics as income, age, race, household structure, education, family relationships, occupation and employment history.

The data files were obtained by ICPSR from the Data Program and Library Service, DPLS) The University of Wisconsin.

## PROCESSING INFORMATION

Some data management operations intended to store the records more efficiently were performed by DPLS. These included the removal of 144 blank characters at the end of each physical record obtained from the Census Bureau, and reblocking of the data to permit storage of the data as one magnetic tape per file. The original Census Bureau documentation, also obtained from DPLS, was only slightly altered to reflect the changes performed by DPLS on the data records.



## DESCRIPTION OF FILE

(U.S. Census Bureau)

[Two pages containing technical characteristics of the file as supplied by the Census Bureau, are not relevant to the data files in their present form, and have been omitted from this documentation.]

### b. File Format

The file contains two record types, Family records (Character F1) and Person records (Character P1). In total, there are approximately 200,000 records. The March CPS supplement records are designed for cross-referencing the Person record for each person to the Family record for that person using Characters F34-F35.

There is one March CPS Supplement Family record associated with each primary family, secondary family, subfamily, and unrelated individual (primary and secondary). In general, the Family record contains information resulting from combining information for more than one person in the family, such as family size and family income. In addition to family characteristics, each Family record includes a few selected items of information about the household.

There may be from one to six secondary Family records for a household. Each person in a secondary family will have an identical code in Character P39.

For subfamilies, there are two Family records. One of these is the record for the primary family of which the subfamily is a part and includes the primary family members' data along with the subfamily members' income and other data accumulated on a family basis. The other is a record for the subfamily itself, consisting of data accumulated for subfamily members. There may be from one to six subfamily records for a household. Each person in a subfamily will have an identical code in Character P40.

For each unrelated individual (primary and secondary), the Family record consists of data for just that individual. There will be only one primary individual's Family record for secondary individuals in a household or group quarters. There is a Person record for each:  
(1) Civilian 14+, (2) Member of the Armed Forces (all are 14+),  
(3) Persons under 14 years.

The order of procedures in arranging records in a household is: (1) Primary Family record (or primary individual's Family record), (2) Head of primary family (or primary individual, followed by secondary Family

records), (3) Wife of primary family head, (4) Child(ren) of primary family head, (5) Other relative of primary family head, (6) Subfamily record, (7) Head of subfamily, (8) Wife of subfamily head, (9) Child(ren) of subfamily head, (10) records for the second through the sixth subfamily, (11) Secondary Family record, (12) Head of secondary family head, (13) Wife of secondary family head, (14) Child(ren) of secondary family head, (15) Other relative of secondary family head, (16) records for the second through the sixth secondary family, (17) Secondary individual's Family record, (18) Secondary individual's record (19) other secondary individual's records.

The arrangement of records in a group quarter is: (1) Secondary individual's Family record, (2) Secondary individual's record, (3) other secondary individuals' Family record, followed by that secondary individuals' Person record.

The items described as "In Universe" or "Not in Universe" were designed to identify or select often used categories and can be used for this purpose. Records for a household may be split between two reels since no attempt was made to insure that the last records on a tape comprise a complete household.

c. Data

Each file consists of <sup>216</sup>~~360~~ character records in which all information is recorded as numeric codes. There are two record types: (1) Family records and (2) Person records. Each Family record is followed by a variable number of Person records.

In this documentation the numeric identification of a particular data item is the same as its character location within the 360-character records. Items on the Family record are prefixed with an F; Person records are prefixed with a P. For instance, Current Occupation, item P172-174, is a three-digit code beginning in character 172 of the Person record.

d. Discrepancies

Some situations exist that may require the user to exert extra care in handling the data files of the Bureau. There may be minor discrepancies and inconsistencies which a user may have to correct if the materials are to be employed in intensive special analyses or with tabulation programs that require exactly consistent conditions in the data file. The Bureau will deliver machine-readable copies of its data files as they stand; it does not take the responsibility for correction, for individual users, of deficiencies that may be discovered in further processing of these records. These tapes lack the additional review which is given printed reports before publication. The Bureau will maintain a list of corrections to the CPS tapes, but the price of the tapes would increase if they were changed each time errors were detected, thus these alterations will not be made.

Current Population Survey  
Annual Demographic File  
Family Characteristics  
1972

Character	Characteristic	Universe
	Code and Description of Code	
F1	Record Type 4 - Family	All family records (01-09 in F27-28)
F2-3	Noninterview Cluster <sup>1/</sup> 00 - 76	All records
F4-5	Keyfitz Cluster <sup>1/</sup> 00 - 76	All records
F6-10	Random Cluster <sup>1/</sup> 00100 - 99999	All records
F11-15	Serial Number 10010 - 89999	All records
F16-20	"A" Weight (implied decimal) <sup>1/</sup> 0.0000 - 1.0000	All records
F21-25	"P" Weight (implied decimal) <sup>1/</sup> 0.0000 - 1.1277	All records
F26	Month in Sample 1-8 - Month in sample	All records

Current Population Survey  
Annual Demographic File  
Family Characteristics  
1972

Character	Characteristic	Universe
	Code and Description of Code	
F27-28	Type of Family 01 - Primary family containing no subfamily 02 - Primary family containing one or more subfamily 03 - Secondary family 04 - Subfamily 05 - Primary individual 06 - Secondary individual 14+ in a household 07 - Secondary individual 14+ in a group quarters 08 - Secondary individual under 14 in a household 09 - Secondary individual under 14 in a group quarters	All records
F29-30	Age of Head (or unrelated individual) 00 - Less than one year 01 - 98 - Actual years 99 - 99 years old or older	All family records
F31	Not Used	
F32	Sex of Head 1 - Male 2 - Female	All family records
F33	Race of Head 1 - White 2 - Negro 3 - Race other than white or Negro	All family records
F34	Not Used	
F35-36	Number of Person Records for This Family 01-39 - Actual number	All family records

Current Population Survey  
Annual Demographic File  
Family Characteristics

1972

Character	Characteristic	Universe
	Code and Description of Code	
F37-38	State	All family records
	11 Connecticut	
	19 Maine	
	Massachusetts	
	New Hampshire	
	Rhode Island	
	Vermont	
	21 New York	
	22 New Jersey	
	23 Pennsylvania	
	31 Ohio	
	32 Indiana	
	33 Illinois	
	39 Michigan	
	Wisconsin	
	41 Iowa	
	Minnesota	
	43 Missouri	
	49 Kansas	
	Nebraska	
	North Dakota	
	South Dakota	
	51 District of Columbia	
	52 Maryland	
	53 West Virginia	

## Current Population Survey

## Annual Demographic File

## Family Characteristics

1972

Character	Characteristic	Universe
	Code and Description of Code	
F37-38 (cont.)	State	All family records
	54 Georgia	
	55 Florida	
	57 North Carolina	
	South Carolina	
	59 Delaware	
	Virginia	
	61 Kentucky	
	62 Tennessee	
	69 Alabama	
	Mississippi	
	71 Louisiana	
	72 Texas	
	79 Arkansas	
	Oklahoma	
	81 Arizona	
	Colorado	
	New Mexico	
	89 Idaho	
	Montana	
	Nevada	
	Utah	
	Wyoming	
	91 Oregon	
	92 California	
	99 Alaska	
	Hawaii	
	Washington	

Current Population Survey  
Annual Demographic File  
Family Characteristics

1972

Character	Characteristic	Universe
	Code and Description of Code	
F39-40	<p>Selected Standard Metropolitan Statistical Areas</p> <p>00 - Not listed below</p> <p>01 - New York</p> <p>02 - Los Angeles - Long Beach</p> <p>03 - Chicago</p> <p>04 - Philadelphia</p> <p>05 - Detroit</p> <p>06 - San Francisco - Oakland</p> <p>07 - Boston</p> <p>08 - Pittsburgh</p> <p>09 - St. Louis</p> <p>10 - Washington, D. C.</p> <p>11 - Cleveland</p> <p>12 - Baltimore</p> <p>13 - Newark, New Jersey</p> <p>14 - Minneapolis - St. Paul</p> <p>15 - Buffalo</p> <p>16 - Houston</p> <p>17 - Milwaukee</p> <p>18 - Patterson - Clifton - Passaic</p> <p>19 - Dallas</p>	All family records
F41	Not Used	

Current Population Survey  
Annual Demographic File  
Family Characteristics

1972

Character	Characteristic	Universe
	Code and Description of Code	
F42	Metropolitan-Nonmetropolitan Residence 1 - In SMSA, central city 2 - In SMSA, not central city 3 - Not in SMSA	All family records
F43	Household Identification Number 1-8 - Actual number	All family records
F44	Not Used	
F45-46	Type of Living Quarters <u>Housing Unit</u> 01 - House, apartment, flat 02 - Housing unit in nontransient hotel, etc. 03 - Housing unit permanent, in transient hotel, motel, etc. 04 - Housing unit in rooming house 05 - Trailer, permanent 06 - Trailer, mobile 07 - Housing unit not specified above  <u>Group Quarters</u> 08 - Quarters not housing unit in rooming or boarding house 09 - Unit not permanent in transient hotel, motel, etc. 10 - Tent or trailer site 11 - Other group quarters	All family records
F47-48	Number of Family Records for This Household 01-07 - Households (actual number) 01-39 - Group quarters (actual number) 00 - Second or subsequent family records within a household or group quarters	First family record in household <u>or</u> group quarters



Current Population Survey  
Annual Demographic File  
Family Characteristics

1972

Character	Characteristic	Universe
	Code and Description of Code	
F49-50	Number of Persons Record, for This Household 01-39 - Actual number 00 - Second or subsequent family records within a household or group quarters	First family record in household <u>or</u> group quarters
F51	Number of Nonrelatives of Head of Household 0 - None 1-4 - Actual number 5 - Not in universe	Families or unrelated individuals in household (1 in F52)
F52	Type of Living Quarters 1 - In household 2 - In group quarters	All family records
F53-54	Size of Family 02-19 - Actual number of persons 20 - 20 or more 00 - Not in universe	Families (01-04 in F27-28).
F55-56	Number of Family Members Under 18 Years Old 00 - None 01-08 - Actual number 09 - 9 or more 10 - Not in universe	Families (01-04 in F27-28)
F57	Number of Family Members 18-64 Years Old 0 - None 1-6 - Actual number 7 - 7 or more 8 - Not in universe	Families (01-04 in F27-28)

Current Population Survey  
Annual Demographic File  
Family Characteristics

1972

Character	Characteristics	Universe
	Code and Description of Code	
F58	Number of Family Members 65 Years and Over 0 - None 1-4 - Actual number 5 - 5 or more 6 - Not in universe	Families (01-04 in F27-28)
F59-60	Number of Own Children (of any age, of any marital status) 00 - None 01-08 - Actual number 09 - 9 or more 10 - Not in universe	Families (01-04 in F27-28)
F61-62	Number of Own Children Under 25 (of any marital status) 00 - None 01-08 - Actual number 09 - 9 or more 10 - Not in universe	Families (01-04 in F27-28)
F63-64	Number of Own (never married) Children Under 18 00 - None 01-08 - Actual number 09 - 9 or more 10 - Not in universe	Families (01-04 in F27-28)
F65	Number of Own Children Under 3 Years Old 0-4 - Actual number 5 - 5 or more 6 - Not in universe	Families (01-04 in F27-28)
F66	Number of Own Children Under One Year Old 0-2 - Actual number 3 - 3 or more 4 - Not in universe	Families (01-04 in F27-28)

Current Population Survey  
Annual Demographic File  
Family Characteristics

1972

Character	Characteristic	Universe
	Code and Description of Code	
F67	Presence of Own (never married) Children Under 18 Years Old, of Specific Age 1 - No own children under 18 1 or more own children under 18: 2 - All under 6 3 - Some under 6, some 6-17 4 - All 6-17 0 - Not in universe	Families (01-04 in F27-28)
F68	Not Used	
F69-70	Number of Related Children Under 18 Years Old (of any marital status) in Household 00 - None 01-08 - Actual number 09 - 9 or more 10 - Not in universe	Families (01-04 in F27-28)
F71-72	Not Used	
F73-78	Total Family Income (in dollars; may be a loss) <sup>1/</sup> -00001 to -09998 - Loss of \$1 to \$9998 -09999 - Loss of \$9999 or more 000000 - No income 000001 to 049999 - \$1 to \$49,999 050000 - \$50,000 or more 099999 - Not in universe	Families or unrelated individuals (01-07 in F27-28)
F79-84	Total Family Earnings (in dollars; may be a loss) <sup>1/</sup> -00001 to -09998 - Loss of \$1 to \$9998 -09999 - Loss of \$9999 or more 000000 - No income 000001 to 049999 - \$1 to \$49,999 050000 - \$50,000 or more 099999 - Not in universe	Families or unrelated individuals (01-07 in F27-28)

<sup>1/</sup> Loss is expressed by alpha numeric dash in first character of six-character field - e.g., F73, F79

Current Population Survey  
Annual Demographic File  
Family Characteristics

1972

Character	Characteristic	Universe
	Code and Description of Code	
F85-90	Total Family Income Other Than Earnings (in dollars; may be a loss) <sup>1/</sup> -00001 to -09998 - Loss of \$1 to \$9998 -09999 - Loss of \$9999 or more 000000 - No income 000001 to 049999 - \$1 to \$49,999 050000 - \$50,000 or more 099999 - Not in universe	Families or unrelated individuals (01-07 in F27-28)
F91-96	Total Household Income (in dollars; may be a loss) <sup>1/</sup> -00001 to -09998 - Loss of \$1 to \$9998 -09999 - Loss of \$9999 or more 000001 to 049999 - \$1 to \$49,999 050000 - \$50,000 or more 099999 - Not in universe	Family members 14 years or over in household (01-04 in F27-28 and 1 in F52)
F97-102	Total Income of Husband and Wife (in dollars; may be a loss) <sup>1/</sup> -00001 to -09998 - Loss of \$1 to \$9998 -09999 - Loss of \$9999 or more 000000 - No income 000001 to 049999 - \$1 to \$49,999 050000 - \$50,000 or more 099999 - Not in universe	Husband - wife families
F103-108	Economy (poverty) Cut-off Dollar Amount Poverty - Level cut-offs	Families (excluding subfamilies) indivi- duals 14+ (01-03, 05-07 in F27-28)
F109	Poverty Level 1 - Income below poverty level 2 - Income not below poverty level 0 - Not in universe	Families (excluding subfamilies) and unrelated individuals 14+ (01-03, 05-07 in F27-28)

<sup>1/</sup> Loss is expressed by alpha numeric dash in first character of  
six-character field - e.g., F85, F91

Current Population Survey  
Annual Demographic File  
Family Characteristics

1972

Character	Characteristic	Universe
	Code and Description of Code	
F110	Not Used	
F111-112	Source of Family Income	Families <u>or</u> unrelated individuals (01-07 in F27-28)
	01 - No income	
	02 - Wage/salary only	
	03 - Nonfarm self-employed only	
	04 - Farm self-employed only	
	05 - Nonfarm and farm self-employed only	
	06 - Wage/salary, nonfarm self-employed only	
	07 - Wage/salary, farm self-employed only	
	08 - Wage/salary, farm and nonfarm self-employed only	
	09 - Wage/salary and other only	
	10 - Nonfarm self-employed and other only	
	11 - Farm self-employed and other only	
	12 - Nonfarm and farm self-employed and other only	
	13 - Wage/salary, nonfarm self-employed and other only	
	14 - Wage/salary, farm self-employed and other only	
	15 - All types of income	
	16 - Other only, no earnings	
F113	Number of Members in Labor Force	Families <u>or</u> unrelated individuals (01-07 in F27-28)
	0 - No members in labor force	
	1 - 1 member in labor force	
	2 - 2 members in labor force	
	3 - 3 or more members in labor force	
	4 - Not in universe	

Current Population Survey  
Annual Demographic File  
Family Characteristics

1972

Character	Characteristic	Universe
	Code and Description of Code	
F114	Number of Earners 0 - No earners 1-4 - 1-4 earners 5 - 5 or more earners 6 - Not in universe	Families (excluding subfamilies) and unrelated individuals 14+ (01-03, 05-07 in F27-28)
F115	Sex and Marital Status of Family (or subfamily) Head and Labor Force Status of Wife Male head: Married, wife present: 1 - Wife in paid labor force 2 - Wife not in paid labor force 3 - Other marital status 4 - Female head 0 - Not in universe	Families (01-04 in F27-28)
F116	Employment Status Recode of Head 1 - Working 2 - With a job 3 - Looking 4 - House 5 - School 6 - Unable 7 - Other 0 - Not in universe	Families or unrelated individuals (01-07 in F27-28)
F117	Family Wage or Salary Income 1 - Allocated Blank - Not allocated	Families or unrelated individuals (01-07 in F27-28)
F118	Family Nonfarm Self-employed Income 1 - Allocated Blank - Not allocated	Families or unrelated individuals (01-07 in F27-28)

Current Population Survey  
Annual Demographic File  
Family Characteristics  
1972

Character	Characteristic	Universe
	Code and Description of Code	
F119	Family Farm Self-employed Income 1 - Allocated Blank - Not allocated	Families <u>or</u> unrelated individuals (01-07 in F27-28)
F120	Family Source A Income 1 - Allocated Blank - Not allocated	Families <u>or</u> unrelated individuals (01-07 in F27-28)
F121-126	Not used	
F127	Family Source B Income 1 - Allocated Blank - Not allocated	Families <u>or</u> unrelated individuals (01-07 in F27-28)
F128	Family Source C Income 1 - Allocated Blank - Not allocated	Families <u>or</u> unrelated individuals (01-07 in F27-28)
F129	Family Source D Income 1 - Allocated Blank - Not allocated	Families <u>or</u> unrelated individuals (01-07 in F27-28)
F130	Family Source E Income 1 - Allocated Blank - Not allocated	Families <u>or</u> unrelated individuals (01-07 in F27-28)
F131-144	Padding	

Current Population Survey  
Annual Demographic File  
Family Characteristics

1972

Character	Characteristic	Universe
	Code and Description of Code	
F145	Spanish Language 1 - Spanish spoken in household 2 - Spanish not spoken in household 3 - NA	Spanish Origin (codes 08-10 in Character P197-198) for at least one Hhld. member
F146	Spanish Origin of Family Head 1 - Head Spanish 2 - Head not Spanish 3 - Head NA	
F147-204	Padding	
F205-216	Family Weight Expressed to two decimals, point assumed. May in remote instances be negative. Negative symbol (-) to the left of the most significant digit (F205).	All family records
F217-360	Not Used	



Current Population Survey  
Annual Demographic File  
Persons Characteristics

1972

Character	Characteristic	Universe
	Code and Description of Code	
P1	Population Status 1 - Civilian 14+ 2 - Armed Forces (all are 14+) 3 - Persons under 14	All persons records
P2-3	Noninterview Cluster <sup>1/</sup>	All records
P4-5	Keyfitz Cluster <sup>1/</sup>	All records
P6-10	Random Cluster <sup>1/</sup>	All records
P11-15	Serial Number	All records
P16-20	"A" Weight	All records
P21-25	"P" Weight	All records
P26	Month in Sample Recoded from month and rotation group	All records
P27-28	Type of Family 01 - Primary family containing no subfamily 02 - Primary family containing one or more subfamily 03 - Secondary family 04 - Subfamily - unrelated individual 05 - Primary individual 06 - Secondary individual 14+ in a household 07 - Secondary individual 14+ in a group quarters 08 - Secondary individual under 14 in a household 09 - Secondary individual under 14 in a group quarters	All records

Current Population Survey  
Annual Demographic File  
Persons Characteristics  
1972

Character	Characteristic	Universe
	Code and Description of Code	
P29-30	Age 00 - Under 1 year 01-98 - 1-98 years 99 - 99 years or older	All persons records
P31	Calendar Quarter of Birth 1 - January to March 2 - April to June 3 - July to September 4 - October to December	All persons records
P32	Sex 1 - Male 2 - Female	All persons records
P33	Race 1 - White 2 - Negro 3 - Race other than white or Negro	All persons records
P34-35	Line Number 01-39 - Actual number	All persons records
P36	Padding	

Current Population Survey  
Annual Demographic File  
Persons Characteristics

1972

Character	Characteristic	Universe
	Code and Description of Code	
P37	Padding	
P38	<p>Relationship to Household Head</p> <ul style="list-style-type: none"> <li>1 - Head with other relatives (incl. wife) in household</li> <li>2 - Head with no other relatives in household</li> <li>3 - Wife of head</li> <li>4 - Other relative of head</li> <li>5 - Nonrelative of head with own relative (incl. wife) in household</li> <li>6 - Nonrelative of head with no own relatives in household</li> <li>0 - Not in universe</li> </ul>	Civilian 14 years or over (1 in P1)
P39	<p>Family Membership Key (Recode)</p> <ul style="list-style-type: none"> <li>1-6 - Member of secondary family No. 1-6</li> <li>7 - Member of primary family (including members of sub-families)</li> <li>8 - Unrelated individual (primary or secondary individual)</li> </ul>	All persons records
P40	<p>Subfamily Membership Key (Recode)</p> <ul style="list-style-type: none"> <li>1-6 - Member of subfamily No. 1-6</li> <li>0 - Not in a subfamily</li> </ul>	Person is a subfamily member

Current Population Survey  
Annual Demographic File  
Persons Characteristics

1972

Character	Characteristic	Universe
	Code and Description of Code	
P41-42	<p>Detailed Household Relationship (Recode)</p> <p>In household, in primary family:</p> <p>01 - Head of family</p> <p>02 - Wife of family head</p> <p>Child of family head, under 18, never married</p> <p>03 - Head of subfamily</p> <p>04 - Not in subfamily</p> <p>Child of family head, under 18, ever married</p> <p>05 - Head of subfamily</p> <p>06 - Wife of subfamily head</p> <p>07 - Not in subfamily</p> <p>Child of family head, 18 and over, never married</p> <p>08 - Head of subfamily</p> <p>09 - Not in subfamily</p> <p>Child of family head, 18 and over, ever married</p> <p>10 - Head of subfamily</p> <p>11 - Wife of subfamily head</p> <p>12 - Not in subfamily</p> <p>13 - Grandchild of family head, under 18, never married</p> <p>Other relative of family head:</p> <p>14 - Under 18, single, head of subfamily</p> <p>15 - Under 18, single, child of subfamily head</p> <p>16 - Under 18, single, not in a subfamily</p> <p>17 - Under 18, ever married, head of subfamily</p> <p>18 - Under 18, ever married, wife of subfamily head</p> <p>19 - Under 18, ever married, not in subfamily</p> <p>20 - 18 and over, never married, head of subfamily</p>	All persons records

Current Population Survey  
Annual Demographic File  
Persons Characteristics

1972

Character	Characteristic	Universe
	Code and Description of Code	
P41-42 (cont.)	21 - 18 and over, never married, not in subfamily	All persons records
	22 - 18 and over, ever married, head of subfamily	
	23 - 18 and over, ever married, wife of subfamily head	
	24 - 18 and over, ever married, not in subfamily	
	In household, in secondary family:	
	25 - Head of secondary family	
	26 - Wife of secondary family head	
	27 - Child under 18 of family head, never married	
	Other relative of family head	
	28 - Under 18, never married	
	29 - Under 18, ever married	
	30 - 18 and over, never married	
	31 - 18 and over, ever married	
	32 - In household, primary individual	
	33 - In household, secondary individual	
	34 - In group quarters, secondary individual	

Current Population Survey  
Annual Demographic File  
Persons Characteristics

1972

Character	Characteristic	Universe
	Code and Description of Code	
P43-44	<p>Family Relationship Summary (Recode) In a family (primary and secondary families combined):</p> <ul style="list-style-type: none"> <li>01 - Head of family</li> <li>02 - Wife of head</li> <li>03 - Child of head, under 18, never married</li> <li>04 - Child of head, under 18, ever married</li> <li>05 - Child of head, 18 and over</li> <li>06 - Grandchild of head</li> <li>07 - Other relative of family head, under 18, never married</li> <li>08 - Other relative of head, under 18, ever married</li> <li>09 - Other relative of head, 18 and over</li> </ul> <p>Not in a family - unrelated individual</p> <ul style="list-style-type: none"> <li>10 - Primary individual</li> <li>11 - Secondary individual</li> </ul>	All persons records
P45	<p>Marital Status</p> <ul style="list-style-type: none"> <li>1 - Single (never married)</li> </ul> <p>Ever married:</p> <ul style="list-style-type: none"> <li>2 - Married, spouse present</li> <li>Married, spouse absent:</li> <li>3 - Separated</li> <li>4 - Husband absent in armed forces (female only)</li> <li>5 - Other, spouse absent</li> <li>6 - Widowed</li> <li>7 - Divorced</li> <li>0 - Under 14 years of age (not in universe)</li> </ul>	All persons 14 years of age and over

Current Population Survey  
Annual Demographic File  
Persons Characteristics  
1972

Character	Characteristic	Universe
	Code and Description of Code	
P46	Padding	Males 14 years and over (1, 2, in P1 and 1 in P32)
P47-48	Padding	
P49-50	Padding	
P51-52	Padding	
P53-54	Padding	
P55	Veteran Status 1968 1 - Korean War 2 - World War II 3 - World War I 4 - Peace time "PA" 5 - Peace time "PB" 6 - Nonveteran 0 - Not in universe 1969 or later 1 - Vietnam Era 2 - Korean War 3 - World War II 4 - World War I 5 - Other service 6 - Nonveteran 0 - Not in universe	

Current Population Survey  
Annual Demographic File  
Persons Characteristics

1972

Character	Characteristic	Universe
	Code and Description of Code	
P56	Not Used	
P57-58	Highest Grade of School Attended 01 - None 02-09 - Elementary 1 to 8 10-13 - High school 1 to 4 14-17 - College 1 to 4 18 - College 5 19 - College 6+ 00 - Not in universe (under 14 years)	Persons 14 years and over (1, 2, in P1)
P59	Grade Completed 1 - Yes 2 - No 0 - Not in universe (under 14 years)	Persons 14 years and over (1, 2, in P1)
P60	Not Used	
P61-66	Total Income (each dollar)	Persons 14 years and over (1, 2, in P1)
P67-72	Wage or Salary Income	Persons 14 years and over (1, 2, in P1)
P73-78	Nonfarm Self-employment Income	Persons 14 years and over (1, 2, in P1)
P79-84	Farm Self-employment Income	Persons 14 years and over (1, 2, in P1)



Current Population Survey  
Annual Demographic File  
Persons Characteristics

1972

Character	Characteristic	Universe
	Code and Description of Code	
	<u>Income From Unearned Sources</u>	
P85-90	A - Social Security or Railroad Retirement	Persons 14 years and over (1, 2, in P1)
P91-96	B - Dividend Interest Net rental income	Persons 14 years and over (1, 2, in P1)
P97-102	C - Welfare or Public assistance	Persons 14 years and over (1, 2, in P1)
P103-108	D - Unemployment compensation Workmen's compensation Government employee pension	Persons 14 years and over (1, 2, in P1)
P109-114	E - Alimony Contribution Anything else	Persons 14 years and over (1, 2, in P1)
	<u>Codes for Characters P85-114:</u>	
	-00001 to -09998 - Loss of \$1 to \$9998	
	-09999 - Loss of \$9999 or more	
	000000 - No income	
	000001 to 049999 - \$1 to \$49,999	
	050000 - \$50,000 or more	
	099999 - Not in universe	

Current Population Survey  
Annual Demographic File  
Persons Characteristics

1972

Character	Characteristic	Universe
	Code and Description of Code	
P115	Social Security or Railroad Retirement 0 - Yes 1 - No	Persons 14 years and over (1, 2, in P1)
P116	Dividends 0 - Yes 1 - No	Persons 14 years and over (1, 2, in P1)
P117	Interest 0 - Yes 1 - No	Persons 14 years and over (1, 2, in P1)
P118	Net rental income 0 - Yes 1 - No	Persons 14 years and over (1, 2, in P1)
P119	Welfare or public assistance 0 - Yes 1 - No	Persons 14 years and over (1, 2, in P1)
P120	Unemployment Compensation 0 - Yes 1 - No	Persons 14 years and over (1, 2, in P1)
P121	Workmen's Compensation 0 - Yes 1 - No	Persons 14 years and over (1, 2, in P1)
P122	Government employee pensions 0 - Yes 1 - No	Persons 14 years and over (1, 2, in P1)
P123	Veterans payments 0 - Yes 1 - No	Persons 14 years and over (1, 2, in P1)

Current Population Survey  
Annual Demographic File  
Persons Characteristics

1972

Character	Characteristic	Universe
	Code and Description of Code	
P124	Private pensions 0 - Yes 1 - No	Persons 14 years and over (1, 2, in P1)
P125	Alimony 0 - Yes 1 - No	Persons 14 years and over (1, 2, in P1)
P126	Contributions 0 - Yes 1 - No	Persons 14 years and over (1, 2, in P1)
P127	Anything else 0 - Yes 1 - No	Persons 14 years and over (1, 2, in P1)
P128	Not Used	

Current Population Survey  
Annual Demographic File  
Persons Characteristics

1972

Character	Characteristic	Universe
	Code and Description of Code	
P129-130	<p>Source of Income (Racode),</p> <p>00 - Not in universe</p> <p>01 - No income</p> <p>02 - Wage or salary income only</p> <p>03 - Nonfarm self-employment income only</p> <p>04 - Farm self-employment income only</p> <p>05 - Nonfarm self-employment income <u>and</u> farm self-employment income only</p> <p>06 - Wage or salary income <u>and</u> non-farm self-employment income only</p> <p>07 - Wage or salary income <u>and</u> farm self-employment income only</p> <p>08 - Wage or salary income <u>and</u> nonfarm self-employment income <u>and</u> farm self-employment income only</p> <p>09 - Wage or salary income <u>and</u> income other than earnings</p> <p>10 - Nonfarm self-employment income <u>and</u> income other than earnings</p> <p>11 - Farm self-employment income <u>and</u> income other than earnings</p> <p>12 - Nonfarm self-employment income <u>and</u> farm self-employment income <u>and</u> income other than earnings</p> <p>13 - Wage or salary income <u>and</u> non-farm self-employment income <u>and</u> income other than earnings</p> <p>14 - Wage or salary income <u>and</u> farm self-employment income <u>and</u> income other than earnings</p> <p>15 - Wage or salary income <u>and</u> non-farm self-employment income <u>and</u> farm self-employment income <u>and</u> income other than earnings</p> <p>16 - Income other than earnings only</p>	Persons 14 years and over (1, 2, in P1)

Current Population Survey  
Annual Demographic File  
Persons Characteristics

1972

Character	Characteristic	Universe
	Code and Description of Code	
P131	<p>Weeks Worked Last Year</p> <p>1 - None (no weeks)</p> <p>2 - 1-13 weeks</p> <p>3 - 14-26 weeks</p> <p>4 - 27-39 weeks</p> <p>5 - 40-47 weeks</p> <p>6 - 48-49 weeks</p> <p>7 - 50-52 weeks</p> <p>0 - Not in universe</p>	Civilians 14 years and over (1 in P1)
P132	<p>Full-time/Part-time (not year round)</p> <p>Year round:</p> <p>1 - Full-time</p> <p>2 - Part-time</p> <p>Not year round:</p> <p>3 - Full-time</p> <p>4 - Part-time</p> <p>0 - Not in universe</p>	Civilians 14 years and over who worked last year (2-7 in P131)
P133-135	<p>Industry of Longest Job Held Last Year 1970</p> <p>016-936 - (See 1960 Industry Code List, page</p> <p>000 - Not in universe</p>	Civilians 14 years and over who worked last year (2-7 in P131)
P136-138	<p>3-Digit Occupation of Longest Job Held Last Year 1970</p> <p>000-985 - (See 1960 Census Code List, page</p> <p>999 - Not in universe</p>	Civilians 14 years and over who worked last year (2-7 in P131)
P139	<p>Class of Worker of Longest Job Held Last Year</p> <p>0 - Not in universe</p> <p>1 - Private wage or salary</p> <p>2 - Government (Federal, State, Local)</p> <p>3 - Self-employed in own business, etc</p> <p>4 - Without pay in family farm or business</p>	Civilians 14 years and over who worked last year (2-7 in P131)

Current Population Survey  
Annual Demographic File  
Persons Characteristics

1972

Character	Characteristic	Universe
	Code and Description of Code	
P147	<p>Weeks in Labor Force - Part-year workers</p> <p>1 - 1 to 13 weeks</p> <p>2 - 14 to 26 weeks</p> <p>3 - 27 to 39 weeks</p> <p>4 - 40 to 47 weeks</p> <p>5 - 48-49 weeks</p> <p>6 - 50-52 weeks</p> <p>0 - Not in universe</p>	Part-year civilian workers 14 years and over (2-6 in P131)
P148	<p>Stretches of Unemployment</p> <p>1 - 1 stretch</p> <p>2 - 2 stretches</p> <p>3 - 3+ stretches</p> <p>0 - Not in universe</p>	Part-year civilian workers 14 years and over who looked for work or were on layoff (2-6 in P145)
P149	<p>Main Reason Not Working</p> <p>1 - Ill</p> <p>2 - Home (females only)</p> <p>3 - School</p> <p>4 - Unable to find work</p> <p>5 - Armed Forces</p> <p>6 - Retired</p> <p>7 - Other</p> <p>0 - Not in universe</p>	Civilians 14 years and over who did not work last year (1 in P131)
P150	<p>Weeks in Labor Force - Nonworkers</p> <p>1 - None (not looking for work)</p> <p>2 - 1 to 4 weeks looking</p> <p>3 - 5 to 14 weeks looking</p> <p>4 - 15 to 26 weeks looking</p> <p>5 - 27 to 39 weeks looking</p> <p>6 - 40+ weeks looking</p> <p>0 - Not in universe</p>	Civilians 14 years and over who did not work last year (1 in P131)

Current Population Survey  
Annual Demographic File  
Persons Characteristics

1972

Character	Characteristic	Universe
	Code and Description of Code	
P140	Not Used	
P141-142	Summary Detailed Industry of Longest Job Held Last Year (Recode) 01-48 - (See list of recodes, page 00 - Not in universe <i>(1970 Codes are Used)</i>	Civilian workers 14 years and over (2-7 in P131)
P143-144	Summary Detailed Occupation of Longest Job Held Last Year (Recode) 01-37 - (See list of recodes, page 00 - Not in universe <i>(1970 Codes are Used)</i>	Civilian workers 14 years and over (2-7 in P131)
P145	Weeks Looking or on Layoff 1 - None 2 - 1 to 4 weeks 3 - 5 to 10 weeks 4 - 11 to 14 weeks 5 - 15 to 26 weeks 6 - 27 to 39 weeks 7 - 40+ weeks 0 - Not in universe	Part-year civilian workers 14 years and over (2-6 in P131)
P146	Main Reason for Part-year Work 1 - Looking 2 - Ill 3 - Home (females only) 4 - School 5 - Armed Forces 6 - Retired 7 - Other 0 - Not in universe	Part-year civilian workers 14 years and over (2-6 in P131)

Current Population Survey  
Annual Demographic File  
Persons Characteristics

1972

Character	Characteristic	Universe
	Code and Description of Code	
P151	WHAT WAS ... DOING MOST OF LAST WEEK? (Major activity) 1 - Working 2 - With a job 3 - Looking 4 - Housework 5 - School 6 - Unable 7 - Other 0 - Not in universe	Civilians 14 years and over (1 in P1)
P152	Employment Status (Recode) 1 - Working 2 - With a job, not at work 3 - Looking 4 - Housework 5 - School 6 - Unable 7 - Other 0 - Not in universe	Civilians 14 years and over (1 in P1)
P153-154	Hours Worked Last Week at All Jobs 01-99 - Actual number 00 - Not in universe	Civilians 14 years and over who were at work last week (1 in P1 and 1 in ESR)
P155	USUALLY WORK 35 HOURS OR MORE AT THIS JOB 1 - Yes 2 - No 0 - Not in universe	Civilians 14 years and over who worked less than 35 hours per week (1 in P1 and 1 in ESR (P152) and P153-154 is 01-34)
P156	Not Used	



Current Population Survey  
Annual Demographic File  
Persons Characteristics

1972

Character	Characteristic	Universe
	Code and Description of Code	
P157-158	Reason Less Than 35 Hours a Week 01 - Slack work 02 - Material shortage 03 - Plant or machine repairs 04 - New job started 05 - Job terminated 06 - Could find only part-time work 07 - Holiday 08 - Labor dispute 09 - Bad weather 10 - Own illness 11 - On vacation 12 - Too busy with house, school 13 - Did not want full-time job 14 - Full-time work week under 35 hrs. 15 - Other 00 - Not in universe	Civilians 14 years and over who worked less than 35 hours per week (1 in P1 <u>and</u> 1 in ESR (P152) <u>and</u> P153-154 is 01-34)
P159	Reason Absent From Work 1 - Own illness 2 - On vacation 3 - Bad weather 4 - Labor dispute 5 - New job to begin within 30 days 6 - Temporary layoff 7 - Indefinite layoff 8 - Other 0 - Not in universe	Civilians 14 years and over with a job but not at work <u>or</u> looking for work (1 in P1 and 2 <u>or</u> 3 in ESR (P152))
P160	Wages or Salary for Any of the Time Off Last Week 1 - Yes 2 - No 3 - Self-employed 0 - Not in universe	Civilians 14 years and over with a job but not at work (1 in P1 <u>and</u> 2 in ESR (P152))

Current Population Survey  
Annual Demographic File  
Persons Characteristics

1972

Character	Characteristic	Universe
	Code and Description of Code	
P161	Usually Work 35 Hours or More a Week at This Job 1 - Yes 2 - No 0 - Not in universe	Civilians 14 years and over with a job but not at work (1 in P1 and 2 in ESR (P152))
P162	Reason Start Looking for Work 1 - Lost job 2 - Quit job 3 - Left school 4 - Wanted temporary work 5 - Other 0 - Not in universe	Civilians 14 years and over looking for work (1 in P1 and 3 in ESR (P152))
P163-164	Weeks Unemployed 00-99 - Actual number	Civilians 14 years and over looking for work (1 in P1 and 3 in ESR (P152))
P165	HAS ... BEEN LOOKING FOR FULL-TIME OR PART-TIME WORK? 1 - Full 2 - Part 0 - Not in universe	Civilians 14 years and over looking for work (1 in P1 and 3 in ESR (P152))
P166	IS THERE ANY REASON WHY ... COULD NOT TAKE JOB LAST WEEK? (Y/N) 1 - Yes 2 - No 0 - Not in universe	Civilians 14 years and over looking for work (1 in P1 and 3 in ESR (P152))
P167	IS THERE ANY REASON WHY ... COULD NOT TAKE JOB LAST WEEK? 1 - Already had a job 2 - Temporary layoff 3 - Going to school 4 - Other 0 - Not in universe	Civilians 14 years and over looking for work (1 in P1 and 3 in ESR (P152) and Yes in P166)

Current Population Survey  
Annual Demographic File  
Persons Characteristics

1972

Character	Characteristic	Universe
	Code and Description of Code	
P168	WHEN DID ... LAST WORK AT, A FULL-TIME JOB OR BUSINESS LASTING 2 CONSECUTIVE WEEKS OR MORE? 1 - Less than 5 years ago 2 - More than 5 years ago 3 - Never worked full-time 2 weeks or more 4 - Never worked at all 0 - Not in universe	Civilians 14 years and over looking for work (1 in P1 and 3 in ESR (P152))
P169-171	Industry 016-936 000 - Not in universe <i>[1970 Codes are Used]</i>	Civilians 14 years and over (1 in P1) and a) ESR (P152) 3 and b) ESR (P152) 3 and P168 is 1 or 2 c) ESR (P152) 4-7, Month in sample (P26) is 1 or 5 and P183 is 1-5
P172-174	Occupation 000-985 999 - Not in universe <i>[1970 Codes are Used]</i>	Civilians 14 years and over (1 in P1) and a) ESR (P152) 1 or 2 b) ESR (P152) 3 and P168 is 1 or 2 c) ESR (P152) 4-7, Month in sample (P26) is 1 or 5 and P183 is 1-5
P175	Class of Worker 1 - Private 2 - Government 3 - Self-employed 4 - Without pay 5 - Never worked 0 - Not in universe	Civilians 14 years and over (1 in P1) and a) ESR (P152) 1 or 2 b) ESR (P152) 3 and P168 is 1 or 2 c) ESR (P152) 4-7, Month in sample (P26) is 1 or 5 and P183 is 1-5

Current Population Survey  
Annual Demographic File  
Persons Characteristics

1972

Character	Characteristic	Universe
	Code and Description of Code	
P176	Not Used	
P177-178	Detailed Industry 00 - Not in universe 01-48 - P169-171 (Recoded) <i>[1970 Codes are Used]</i>	Civilians 14 years and over (1 in P1) <u>and</u> a) ESR (P152) 1 or 2 b) ESR (P152) 3 and P168 is 1 or 2 c) ESR (P152) 4-7, Month in sample (P26) is 1 or 5 and P183 is 1-5
P179-180	Detailed Occupation Group 00 - Not in universe 01-37 - P172-174 (Recoded) <i>[1970 Codes are Used]</i>	Civilians 14 years and over (1 in P1) <u>and</u> a) ESR (P152) 1 or 2 b) ESR (P152) 3 and P168 is 1 or 2 c) ESR (P152) 4-7, Month in sample (P26) is 1 or 5 and P183 is 1-5

Current Population Survey  
Annual Demographic File  
Persons Characteristics

1972

Character	Characteristic	Universe
	Code and Description of Code	
P181-182	<p>Hours Worked</p> <p>00 - Usually full time, part time for noneconomic reasons</p> <p>Usually work full time, part time for economic reasons</p> <p>01 - 1-4 hours</p> <p>02 - 5-14 hours</p> <p>03 - 15-29 hours</p> <p>04 - 30-34 hours</p> <p>Usually work part time, economic reasons</p> <p>05 - 1-4 hours</p> <p>06 - 5-14 hours</p> <p>07 - 15-29 hours</p> <p>07 - 30-34 hours</p> <p>Usually work part time, noneconomic reasons</p> <p>09 - 1-4 hours</p> <p>10 - 5-14 hours</p> <p>11 - 15-29 hours</p> <p>12 - 30-34 hours</p> <p>13 - Not in universe</p>	Civilians 14 years and over who worked less than 35 hours per
P183	<p>LAST WORKED AT A REGULAR FULL- OR PART-TIME JOB OR BUSINESS LASTING 2 CONSECUTIVE WEEKS OR MORE</p> <p>1 - Within past 12 months</p> <p>2 - 1 up to 2 years ago</p> <p>3 - 2 up to 3 years ago</p> <p>4 - 3 up to 4 years ago</p> <p>5 - 4 up to 5 years ago</p> <p>6 - 5 or more years ago</p> <p>7 - Never worked</p> <p>0 - Not in universe</p>	Civilians 14 years and over (1 in P1 and ESR (P152) 4-7) and month in sample is 1 or 5 for 1968-1969. 1970-1971 month in sample is 4 or 8
P184	Not Used	

Current Population Survey  
Annual Demographic File  
Persons Characteristics

1972

Character	Characteristic	Universe
	Code and Description of Code	
P185-186	Major Occupational Group : 01 - Professional, technical, etc. 02 - Managers, officials, proprietors 03 - Clerical 04 - Sales 05 - Craftsmen 06 - Operatives 07 - Laborers 08 - Private household 09 - All other service workers 10 - Farmers and farm managers 11 - Farm laborers and foremen 12 - No previous full-time work experience 13 - Not in universe	Civilian labor force 1-3 in ESR (P152)

. Current Population Survey  
Annual Demographic File  
Persons Characteristics  
1972

Character	Characteristic	Universe
	Code and Description of Code	
P187-188	<p>Major Industry</p> <p>00 - Agriculture, private household workers and never worked and unemployed</p> <p>01 - Mining</p> <p>02 - Construction</p> <p>03 - Durable goods</p> <p>04 - Nondurable goods</p> <p>05 - Railroads and railway express</p> <p>06 - Other transportation</p> <p>07 - Other utilities</p> <p>08 - Wholesale trade</p> <p>09 - Retail trade</p> <p>10 - Finance, insurance &amp; real estate</p> <p>Miscellaneous service</p> <p>11 - Business and repair</p> <p>12 - Personal</p> <p>13 - Entertainment and recreation</p> <p>14 - Medical, except hospitals</p> <p>15 - Hospitals</p> <p>16 - Welfare and religious</p> <p>17 - Education</p> <p>18 - Other professional</p> <p>19 - Forestry and fisheries</p> <p>20 - Public Administration</p> <p>21 - Not in universe</p>	Civilian labor force 1-3 in ESR (P152)
P189-195	<p>METHODS USED IN THE LAST 4 WEEKS TO FIND WORK</p> <p>0 - Not in universe</p> <p>Blank - Method not used</p> <p>1 - Method used</p>	

Current Population Survey  
Annual Demographic File  
Persons Characteristics

1972

Character	Characteristic	Universe
	Code and Description of Code	
P189-195	METHODS USED IN THE LAST 4 WEEKS TO FIND WORK	
P189	Checked with public employment agency	Civilians 14 years and over looking for work (1 in P1 and 3 in ESR (P152))
P190	Checked with employment agency	Civilians 14 years and over looking for work (1 in P1 and 3 in ESR (P152))
P191	Checked with employer directly	Civilians 14 years and over looking for work (1 in P1 and 3 in ESR (P152))
P192	Checked with friends or relatives	Civilians 14 years and over looking for work (1 in P1 and 3 in ESR (P152))
P193	Placed or answered ads	Civilians 14 years and over looking for work (1 in P1 and 3 in ESR (P152))
P194	Other	Civilians 14 years and over looking for work (1 in P1 and 3 in ESR (P152))
P195	Nothing	Civilians 14 years and over not in labor force (1 in P1 and 4-7 in ESR (P152))



Current Population Survey  
Annual Demographic File  
Persons Characteristics

1972

Character	Characteristic	Universe
	Code and Description of Code	
P196	- SPANISH SPOKEN IN HOUSEHOLD? 1 - Spanish spoken in household 2 - Spanish not spoken in household 3 - NA	Spanish Origin (codes 08-12 in P197-198) for at least one household member
P197-198	ETHNIC ORIGIN (WHAT IS ... ORIGIN OR DESCENT?) 01 - German 02 - Italian 03 - Irish 04 - French 05 - Polish 06 - Russian 07 - English, Scot, Welsh 08 - Mexicano, Chicano 09 - Puerto Rican 10 - Cuban 11 - Central or So. Amer. 12 - Other Spanish 13 - Negro 14 - Other 15 - Don't know 16 - NA	All persons records
P199	Padding	
P200-204	Not Used	
P205-216	1968-1971 - Persons Supplement Weight (implied decimal) Expressed to two decimals, point assumed. May in remote instances be negative. Negative symbol (-) to the left of the most significant digit (P205).	All persons records
<del>P217-260</del>	<del>Not Used</del>	

U.S. DEPARTMENT OF COMMERCE  
Bureau of the Census  
Washington, D. C. 20233

1970 Census of Population

Occupation Classification

<u>Census Code</u>	PROFESSIONAL, TECHNICAL, AND KINDRED WORKERS
001	Accountants
002	Architects
	Computer specialists
003	Computer programmers
004	Computer systems analysts
005	Computer specialists, n.e.c.
	Engineers
006	Aeronautical and astronautical engineers
010	Chemical engineers
011	Civil engineers
012	Electrical and electronic engineers
013	Industrial engineers
014	Mechanical engineers
015	Metallurgical and materials engineers
020	Mining engineers
021	Petroleum engineers
022	Sales engineers
023	Engineers, n.e.c.
024	Farm management advisors
025	Foresters and conservationists
026	Home management advisors
	Lawyers and judges
030	Judges
031	Lawyers
	Librarians, archivists, and curators
032	Librarians
033	Archivists and curators
	Mathematical specialists
034	Actuaries
035	Mathematicians
036	Statisticians
	Life and physical scientists
042	Agricultural scientists
043	Atmospheric and space scientists
044	Biological scientists
045	Chemists
051	Geologists
052	Marine scientists
053	Physicists and astronomers

Census  
Code

PROFESSIONAL, TECHNICAL, AND KINDRED WORKERS-Con.

054	Life and physical scientists, n.e.c.
055	Operations and systems researchers and analysts
056	Personnel and labor relations workers
	Physicians, dentists, and related practitioners
061	Chiropractors
062	Dentists
063	Optometrists
064	Pharmacists
065	Physicians, medical and osteopaths
071	Podiatrists
072	Veterinarians
073	Health practitioners, n.e.c.
	Registered nurses, dietitians, and therapists
074	Dietitians
075	Registered nurses
076	Therapists
	Health technologists and technicians
080	Clinical laboratory technologists and technicians
081	Dental hygienists
082	Health record technologists and technicians
083	Radiologic technologists and technicians
084	Therapy assistants
085	Health technologists and technicians, n.e.c.
	Religious workers
086	Clergy
090	Religious workers, n.e.c.
	Social scientists
091	Economists
092	Political scientists
093	Psychologists
094	Sociologists
095	Urban and regional planners
096	Social scientists, n.e.c.
	Social and recreation workers
100	Social workers
101	Recreation workers
	Teachers, college and university
102	Agriculture teachers
103	Atmospheric, earth, marine, and space teachers
104	Biology teachers
105	Chemistry teachers
110	Physics teachers
111	Engineering teachers
112	Mathematics teachers

Census  
Code

PROFESSIONAL, TECHNICAL, AND KINDRED WORKERS-Con.

113	Health specialties teachers
114	Psychology teachers
115	Business and commerce teachers
116	Economics teachers
120	History teachers
121	Sociology teachers
122	Social science teachers, n.e.c.
123	Art, drama, and music teachers
124	Coaches and physical education teachers
125	Education teachers
126	English teachers
130	Foreign language teachers
131	Home economics teachers
132	Law teachers
133	Theology teachers
134	Trade, industrial, and technical teachers
135	Miscellaneous teachers, college and university
140	Teachers, college and university, subject not specified
	Teachers, except college and university
141	Adult education teachers
142 (N)	Elementary school teachers
143	Pre-kindergarten and kindergarten teachers
144	Secondary school teachers
145	Teachers, except college and university, n.e.c.
	Engineering and science technicians
150	Agriculture and biological technicians, except health
151	Chemical technicians
152	Draftsmen
153	Electrical and electronic engineering technicians
154	Industrial engineering technicians
155	Mechanical engineering technicians
156	Mathematical technicians
161	Surveyors
162	Engineering and science technicians, n.e.c.
	Technicians, except health, and engineering and science
163	Airplane pilots
164	Air traffic controllers
165	Embalmers
170	Flight engineers
171	Radio operators
172	Tool programmers, numerical control
173	Technicians, n.e.c.
174	Vocational and educational counselors
	Writers, artists, and entertainers
175	Actors
180	Athletes and kindred workers

**Census  
Code**

**PROFESSIONAL, TECHNICAL, AND KINDRED WORKERS-Con.**

**Writers, artists, and entertainers - Continued**

181	Authors
182	Dancers
183	Designers
184	Editors and reporters
185	Musicians and composers
190	Painters and sculptors
191	Photographers
192	Public relations specialists and publicity writers
193	Radio and television announcers
194	Writers, artists, and entertainers, n.e.c.
195	Research workers, not specified

**MANAGERS AND ADMINISTRATORS, EXCEPT FARM**

201	Assessors, controllers, and treasurers; local public administration
202	Bank officers and financial managers
203	Buyers and shippers, farm products
205	Buyers, wholesale and retail trade
210	Credit and collection managers
211	Funeral directors
212	Health administrators
213	Construction inspectors, public administration
215	Inspectors, except construction, public administration
216	Managers and superintendents, building
220	Office managers, n.e.c.
221	Officers, pilots, and pursers; ship
222	Officials and administrators; public administration, n.e.c.
223	Officials of lodges, societies, and unions
224	Postmasters and mail superintendents
225	Purchasing agents and buyers, n.e.c.
226	Railroad conductors
230	Restaurant, cafeteria, and bar managers
231	Sales managers and department heads, retail trade
233	Sales managers, except retail trade
235	School administrators, college
240	School administrators, elementary and secondary
245	Managers and administrators, n.e.c.

**SALES WORKERS**

260	Advertising agents and sales workers
261	Auctioneers
262	Demonstrators
264	Hucksters and peddlers
265	Insurance agents, brokers, and underwriters

Census  
Code

SALES WORKERS-Continued

266 Newspaper carriers and vendors  
270 Real estate agents and brokers  
271 Stock and bond sales agents  
Sales workers and sales clerks, n.e.c.  
281 Sales representatives, manufacturing industries  
282 Sales representatives, wholesale trade  
283 Sales clerks, retail trade  
284 Sales workers, except clerks, retail trade  
285 Sales workers, services and construction

CLERICAL AND KINDRED WORKERS

301 Bank tellers  
303 Billing clerks  
305 (P) Bookkeepers  
310 Cashiers  
311 Clerical assistants, social welfare  
312 Clerical supervisors, n.e.c.  
313 Collectors, bill and account  
314 Counter clerks, except food  
315 Dispatchers and starters, vehicle  
320 Enumerators and interviewers  
321 Estimators and investigators, n.e.c.  
323 Expeditors and production controllers  
325 File clerks  
326 Insurance adjusters, examiners, and investigators  
330 Library attendants and assistants  
331 Mail carriers, post office  
332 Mail handlers, except post office  
333 Messengers and office helpers  
334 Meter readers, utilities  
Office machine operators  
341 Bookkeeping and billing machine operators  
342 Calculating machine operators  
343 Computer and peripheral equipment operators  
344 Duplicating machine operators  
345 Key punch operators  
350 Tabulating machine operators  
355 Office machine operators, n.e.c.  
360 Payroll and timekeeping clerks  
361 Postal clerks  
362 Proofreaders  
363 Real estate appraisers  
364 Receptionists  
Secretaries  
370 Secretaries, legal  
371 Secretaries, medical  
372 (Q) Secretaries, n.e.c.

Census  
Code

CLERICAL AND KINDRED WORKERS-Continued

374	Shipping and receiving clerks
375	Statistical clerks
376	Stenographers
381	Stock clerks and storekeepers
382	Teacher aides, exc. school monitors
383	Telegraph messengers
384	Telegraph operators
385	Telephone operators
390	Ticket, station, and express agents
391	Typists
392	Weighers
394	Miscellaneous clerical workers
395	Not specified clerical workers

CRAFT AND KINDRED WORKERS

401	Automobile accessories installers
402	Bakers
403	Blacksmiths
404	Boilermakers
405	Bookbinders
410	Brickmasons and stonemasons
411	Brickmasons and stonemasons, apprentices
412	Bulldozer operators
413	Cabinetmakers
415 (R)	Carpenters
416	Carpenter apprentices
420	Carpet installers
421	Cement and concrete finishers
422	Compositors and typesetters
423	Printing trade apprentices, except printing press
424	Crane, derrick, and hoist operators
425	Decorators and window dressers
426	Dental laboratory technicians
430	Electricians
431	Electrician apprentices
433	Electric power line and cable installers and repairers
434	Electrotypers and stereotypers
435	Engravers, exc. photoengravers
436	Excavating, grading, and road machine operators; exc. bulldozer
440	Floor layers, exc. tile setters
441	Blue-collar worker supervisors, n.e.c.
442	Forge and hammer operators
443	Furniture and wood finishers
444	Furriers
445	Glaziers
446	Heat treaters, annealers, and temperers
450	Inspectors, scalers, and graders; log and lumber

Census  
Code

CRAFT AND KINDRED WORKERS-Continued

452	Inspectors, n.e.c.
453	Jewelers and watchmakers
454	Job and die setters, metal
455	Locomotive engineers
456	Locomotive firemen
461	Machinists
462	Machinist apprentices
	Mechanics and repairers
470	Air conditioning, heating, and refrigeration
471	Aircraft
472	Automotive body repairers
473 (S)	Automobile mechanics
474	Automobile mechanic apprentices
475	Data processing machine repairers
480	Farm implement
481	Heavy equipment mechanics, incl. diesel
482	Household appliance and accessory installers and mechanics
483	Loom fixers
484	Office machine
485	Radio and television
486	Railroad and car shop
491	Mechanic, exc. auto, apprentices
492	Miscellaneous mechanics and repairers
495	Not specified mechanics and repairers
501	Millers; grain, flour, and feed
502	Millwrights
503	Molders, metal
504	Molder apprentices
505	Motion picture projectionists
506	Opticians, and lens grinders and polishers
510	Painters, construction and maintenance
511	Painter apprentices
512	Paperhangers
514	Pattern and model makers, exc. paper
515	Photoengravers and lithographers
516	Piano and organ tuners and repairers
520	Plasterers
521	Plasterer apprentices
522	Plumbers and pipe fitters
523	Plumber and pipe fitter apprentices
525	Power station operators
530	Printing press operators
531	Printing press apprentices
533	Rollers and finishers, metal
534	Roofers and slaters
535	Sheetmetal workers and tinsmiths
536	Sheetmetal apprentices



Census  
Code

CRAFT AND KINDRED WORKERS-Continued

540	Shipfitters
542	Shoe repairers
543	Sign painters and letterers
545	Stationary engineers
546	Stone cutters and stone carvers
550	Structural metal workers
551	Tailors
552	Telephone installers and repairers
554	Telephone line installers and repairers
560	Tile setters
561	Tool and die makers
562	Tool and die maker apprentices
563	Upholsterers
571	Specified craft apprentices, n.e.c.
572	Not specified apprentices
575	Craft and kindred workers, n.e.c.
580	Former members of the Armed Forces

OPERATIVES, EXCEPT TRANSPORT

601	Asbestos and insulation workers
602 (T)	Assemblers
603	Blasters
604	Bottling and canning operatives
605	Surveyor helpers
610	Checkers, examiners, and inspectors; manufacturing
611	Clothing ironers and pressers
612	Cutting operatives, n.e.c.
613	Dressmakers, except factory
614	Drillers, earth
615	Dry wall installers and lathers
620	Dyers
621	Filers, polishers, sanders, and buffers
622	Furnace tenders, smelters, and pourers, metal
623	Garage workers and gas station attendants
624	Graders and sorters, manufacturing
625	Produce graders and packers, except factory and farm
626	Heaters, metal
630	Laundry and dry cleaning operatives, n.e.c.
631	Meat cutters and butchers, exc. manufacturing
633	Meat cutters and butchers, manufacturing
634	Meat wrappers, retail trade
635	Metal platers
636	Milliners
640	Mine operatives, n.e.c.
641	Mixing operatives

Census  
Code

OPERATIVES, EXCEPT TRANSPORT-Continued

642	Oilers and greasers, exc. auto
643	Packers and wrappers, except meat and produce
644	Painters, manufactured articles
645	Photographic process workers
	Precision machine operatives
650	Drill press operatives
651	Grinding machine operatives
652	Lathe and milling machine operatives
653	Precision machine operatives, n.e.c.
656	Punch and stamping press operatives
660	Riveters and fasteners
661	Sailors and deckhands
662	Sawyers
663	Sewers and stitchers
664	Shoemaking machine operatives
665	Solderers
666	Furnace tenders and stokers, except metal
	Textile operatives
670	Carding, lapping, and combine operatives
671	Knitters, loopers, and toppers
672	Spinners, twistors, and winders
673	Weavers
674	Textile operatives, n.e.c.
680	Welders and flame-cutters
681	Winding operatives, n.e.c.
690	Machine operatives, miscellaneous specified
692	Machine operatives, not specified
694	Miscellaneous operatives
695	Not specified operatives

TRANSPORT EQUIPMENT OPERATIVES

701	Boat operators
703	Bus drivers
704	Conductors and operators, urban rail transit
705	Delivery and route workers
706	Fork lift and tow motor operatives
710	Rail vehicle operators, n.e.c.
711	Parking attendants
712	Railroad brake operators and couplers
713	Railroad switch operators
714	Taxicab drivers and chauffers
715 (U)	Truck drivers

Census  
Code

LABORERS, EXCEPT FARM

740	Animal caretakers, except farm
750	Carpenters' helpers
751 (V)	Construction laborers, exc. carpenters' helpers
752	Fishers, hunters, and trappers
753	Freight and material handlers
754	Garbage collectors
755	Gardeners and groundskeepers, exc. farm
760	Longshore workers and stevedores
761	Timber cutting and logging workers
762	Stock handlers
763	Teamsters
764	Vehicle washers and equipment cleaners
770	Warehouse laborers, n.e.c.
780	Miscellaneous laborers
785	Not specified laborers

FARMERS AND FARM MANAGERS

801 (W)	Farmers (owners and tenants)
802	Farm managers

FARM LABORERS AND SUPERVISORS

821	Farm supervisors
822	Farm laborers, wage workers
823	Farm laborers, unpaid family workers
824	Farm service laborers, self-employed

SERVICE WORKERS, EXC. PRIVATE HOUSEHOLD

	Cleaning service workers
901	Lodging quarters cleaners, except private household
902	Building interior cleaners, n.e.c.
903 (X)	Janitors and sextons
	Food service workers
910	Bartenders
911	Waiters' assistant
912	Cooks, except private household
913	Dishwashers
914	Food counter and fountain workers
915 (Y)	Waiters
916	Food service workers, n.e.c., except private household
	Health service workers
921	Dental assistants
922	Health aides, except nursing
923	Health trainees
924	Lay midwives
925	Nursing aides, orderlies, and attendants
926	Practical nurses

Census  
Code

SERVICE WORKERS, EXC. PRIVATE HOUSEHOLD

Personal service workers

931	Flight attendants
932	Attendants, recreation and amusement
933	Attendants, personal service, n.e.c.
934	Baggage porters and bellhops
935	Barbers
940	Boarding and lodging house keepers
941	Bootblacks
942	Child care workers, exc. private household
943	Elevator operators
944	Hairdressers and cosmetologists
945	Personal service apprentices
950	Housekeepers, exc. private household
952	School monitors
953	Ushers, recreation and amusement
	Welfare service aides
	Protective service workers
960	Crossing guards and bridge tenders
961	Fire fighters
962	Guards
963	Marshals and constables
964	Police and detectives
965	Sheriffs and bailiffs

PRIVATE HOUSEHOLD WORKERS

980	Child care workers, private household
981	Cooks, private household
982	Housekeepers, private household
983	Launderers, private household
984 (Z)	Private household cleaners and servants

DEPARTMENT OF COMMERCE  
Bureau of the Census  
Washington, D.C. 20233

1970 Census of Population

Industry Classification

(Numbers in parentheses are the SIC  
code equivalents)

Census  
Code

AGRICULTURE, FORESTRY, AND FISHERIES

- 017 (A) Agricultural production (01)
- 018 Agricultural services, except horticultural (07 except 0713 and 073)
- 019 Horticultural services (073)
- 027 Forestry (08)
- 028 Fisheries (09)

MINING

- 047 Metal mining (10)
- 048 Coal mining (11, 12)
- 049 Crude petroleum and natural gas extractions (13)
- 057 Nonmetallic mining and quarrying, except fuel (14)

CONSTRUCTION

- 067 General building contractors (15)
- 068 General contractors, except building (16)
- 069 (B) Special trade contractors (17)
- 077 Not specified construction

MANUFACTURING

Durable goods

- Lumber and wood products, except furniture
  - 107 Logging (241)
  - 108 Sawmills, planing mills, and mill work (242, 243)
  - 109 Miscellaneous wood products (244, 249)
  - 118 Furniture and fixtures (25)
- Stone, clay, and glass products
  - 119 Glass and glass products (321-323)
  - 127 Cement, concrete, gypsum, and plaster products (324, 327)
  - 128 Structural clay products (325)
  - 137 Pottery and related products (326)
  - 138 Miscellaneous nonmetallic mineral and stone products (328, 329)

Census  
Code

MANUFACTURING-Continued

Durable goods-Continued

Metal industries

- 139 Blast furnaces, steel works, rolling and finishing mills  
(3312, 3313)
- 147 Other primary iron and steel industries (3315-3317, 332, 3391,  
part 3399)
- 148 Primary aluminum industries (3334, part 334, 3352, 3361, part  
3392, part 3399)
- 149 Other primary nonferrous industries (3331-3333, 3339, part 334,  
3351, 3356, 3357, 3362, 3369, part 3392, part 3399)
- 157 Cutlery, hand tools, and other hardware (342)
- 158 Fabricated structural metal products (344)
- 159 Screw machine products (345)
- 167 Metal stamping (346)
- 168 Miscellaneous fabricated metal products (341, 343, 347, 348, 349)
- 169 Not specified metal industries

Machinery, except electrical

- 177 Engines and turbines (351)
- 178 Farm machinery and equipment (352)
- 179 Construction and material handling machines (353)
- 187 Metalworking machinery (354)
- 188 Office and accounting machines (357 except 3573)
- 189 Electronic computing equipment (3573)
- 197 Machinery, except electrical, n.e.c. (355, 356, 358, 359)
- 198 Not specified machinery

Electrical machinery, equipment, and supplies

- 199 Household appliances (363)
- 207 Radio, TV, and communication equipment (365, 366)
- 208 Electrical machinery, equipment, and supplies, n.e.c.  
(361, 362, 364, 367, 369)
- 209 Not specified electrical machinery, equipment, and supplies

Transportation equipment

- 219 Motor vehicles and motor vehicle equipment (371)
- 227 Aircraft and parts (372)
- 228 Ship and boat building and repairing (373)
- 229 Railroad locomotives and equipment (374)
- 237 Mobile dwellings and campers (3791)
- 238 Cycles and miscellaneous transportation equipment (375, 3799)

Professional and photographic equipment, and watches

- 239 Scientific and controlling instruments (381, 382)
- 247 Optical and health services supplies (383, 384, 384)
- 248 Photographic equipment and supplies (386)
- 249 Watches, clocks, and clockwork-operated devices (387)
- 257 Not specified professional equipment

Ordnance (19)

- 258 Ordnance (19)
- 259 Miscellaneous manufacturing industries (39)

Census  
Code

MANUFACTURING--Continued

Nondurable goods

Food and kindred products

- 268 Meat products (201)
- 269 Dairy products (202)
- 278 Canning and preserving fruits, vegetables, and sea foods (203)
- 279 Grain-mill products (204, 0713)
- 287 Bakery products (205)
- 288 Confectionery and related products (207)
- 289 Beverage industries (208)
- 297 Miscellaneous food preparation and kindred products (206, 209)
- 298 Not specified food industries
- 299 Tobacco manufacturers (21)

Textile mill products

- 307 Knitting mills (225)
- 308 Dyeing and finishing textiles, except wool and knit goods (226)
- 309 Floor coverings, except hard surface (227)
- 317 Yarn, thread, and fabric mills (221-224, 228)
- 318 Miscellaneous textile mill products (229)

Apparel and other fabricated textile products

- 319 (C) Apparel and accessories (231-238)
- 327 Miscellaneous fabricated textile products (239)

Paper and allied products

- 328 Pulp, paper, and paperboard mills (261-263, 266)
- 329 Miscellaneous paper and pulp products (264)
- 337 Paperboard containers and boxes (265)

Printing, publishing, and allied industries

- 338 Newspaper publishing and printing (271)
- 339 Printing, publishing, and allied industries, except newspapers (272-279)

Chemicals and allied products

- 347 Industrial chemicals (281)
- 348 Plastics, synthetics and resins, except fibres (282, except 2823 and 2824)
- 349 Synthetic fibers (2823, 2824)
- 357 Drugs and medicines (283)
- 358 Soaps and cosmetics (284)
- 359 Paints, varnishes, and related products (285)
- 367 Agricultural chemicals (287)
- 368 Miscellaneous chemicals (286, 289)
- 369 Not specified chemicals and allied products

Petroleum and coal products

- 377 Petroleum refining (291)
- 378 Miscellaneous petroleum and coal products (295, 299)

Rubber and miscellaneous plastic products

- 379 Rubber products (301-303, 306)
- 387 Miscellaneous plastic products (307)

MANUFACTURING-Continued

Nondurable goods-continued

Leather and leather products

- 388 Tanned, curried, and finished leather (311)
- 389 Footwear, except rubber (313, 314)
- 397 Leather products, except footwear (312, 315-317, 319)
- 398 Not specified manufacturing industries

TRANSPORTATION, COMMUNICATIONS, AND  
OTHER PUBLIC UTILITIES

Transportation

- 407 (D) Railroads and railway express service (40)
- 408 Street railways and bus lines (411, 413-415, 417)
- 409 Taxicab service (412)
- 417 Trucking service (421, 423)
- 418 Warehousing and storage (422)
- 419 Water transportation (44)
- 427 Air transportation (45)
- 428 Pipe lines, except natural gas (46)
- 429 Services incidental to transportation (47)

Communications

- 447 Radio broadcasting and television (483)
- 448 Telephone (wire and radio) (481)
- 449 Telegraph and miscellaneous communication services (482, 489)

Utilities and sanitary services

- 467 Electric light and power (491)
- 468 Electric-gas utilities (493)
- 469 Gas and steam supply systems (492, 496)
- 477 Water supply (494)
- 478 Sanitary services (495)
- 479 Other and not specified utilities (497)

WHOLESALE AND RETAIL TRADE

Wholesale trade

- 507 Motor vehicles and equipment (501)
- 508 Drugs, chemicals, and allied products (502)
- 509 Dry goods and apparel (503)
- 527 Food and related products (504)
- 528 Farm products--raw materials (505)
- 529 Electrical goods (506)
- 537 Hardware, plumbing, and heating supplies (507)
- 538 Not specified electrical and hardware products



Census  
Code

WHOLESALE AND RETAIL TRADE-Continued

Wholesale trade-Continued

539	Machinery equipment and supplies (508)
557	Metals and minerals, n.e.c. (5091)
558	Petroleum products (5092)
559	Scrap and waste materials (5093)
567	Alcoholic beverages (5095)
568	Paper and its products (5096)
569	Lumber and construction materials (5098)
587	Wholesaler, n.e.c. (5094, 5097, 5099)
588	Not specified wholesale trade

Retail trade

607	Lumber and building material retailing (521-524)
608	Hardware and farm equipment stores (525)
609 (E)	Department and mail order establishments (531, 532)
617	Limited price variety stores (533)
618	Vending machine operators (534)
619	Direct selling establishments (535)
627	Miscellaneous general merchandise stores (539)
628 (F)	Grocery stores (541)
629	Dairy products stores (545)
637	Retail bakeries (546)
638	Food stores, n.e.c. (542-544, 549)
639	Motor vehicle dealers (551, 552)
647	Tire, battery, and accessory dealers (553)
648	Gasoline service stations (554)
649	Miscellaneous vehicle dealers (559)
657	Apparel and accessories stores, except shoe stores (56 except 566)
658	Shoe stores (566)
667	Furniture and home furnishings stores (571)
668	Household appliances, TV, and radio stores (572, 573)
679	Farm and garden supply stores (596)
687	Jewelry stores (597)
688	Fuel and ice dealers (598)
689	Retail florists (5992)
697	Miscellaneous retail stores (593-595, 599 except 5992)
698	Not specified retail trade

FINANCE, INSURANCE, AND REAL ESTATE

707	Banking (60)
708	Credit agencies (61)
709	Security, commodity brokerage, and investment companies (62, 67)
717	Insurance (63, 64)
718	Real estate, incl. real estate-insurance-law offices (65, 66)

**Consus  
Code**

**BUSINESS AND REPAIR SERVICES**

727 Advertising (731)  
728 Services to dwellings and other buildings (734)  
729 Commercial research, development, and testing labs (7391, 7397)  
737 Employment and temporary help agencies (736, 7398)  
738 Business management and consulting services (part 7392)  
739 Computer programming services (part 7392)  
747 Detective and protective services (7393)  
748 Business services, n.e.c. (732, 733, 735, 7394, 7395, 7396, 7399)  
749 Automobile services, except repair (751, 752, 754)  
757 Automobile repair and related services (753)  
758 Electrical repair shops (762, 7694)  
759 Miscellaneous repair services (763, 764, 769, except 7694)

**PERSONAL SERVICES**

769 (H) Private households (88)  
777 Hotels and motels (701)  
778 Lodging places, except hotels and motels (702, 703, 704)  
779 Laundering, cleaning, and other garment services (721, 727)  
787 Beauty shops (723)  
788 Barber shops (724)  
789 Shoe repair shops (725)  
797 Dressmaking shops (part 729)  
798 Miscellaneous personal services (722, 726, part 729)

**ENTERTAINMENT AND RECREATION SERVICES**

807 Theaters and motion pictures (78, 792)  
808 Bowling alleys, billiard and pool parlors (793)  
809 Miscellaneous entertainment and recreation services (791, 794)

**PROFESSIONAL AND RELATED SERVICES**

828 Offices of physicians (801, 803)  
829 Offices of dentists (802)  
837 Offices of chiropractors (804)  
838 (J) Hospitals (806)  
839 Convalescent institutions (8092)  
847 Offices of health practitioners, n.e.c. (part 8099)  
848 Health services, n.e.c. (807, part 8099)  
849 Legal services (81)  
857 (K) Elementary and secondary schools (821)  
858 Colleges and universities (822)  
859 Libraries (823)  
867 Educational services, n.e.c. (824, 829)  
868 Not specified educational services

**Census  
Code**

**PROFESSIONAL AND RELATED SERVICES-Continued**

869	Museums, art galleries, and zoos (84)
877	Religious organizations (866)
878	Welfare services (part 867)
879	Residential welfare facilities (part 867)
887	Nonprofit membership organizations (861-865, 869)
888	Engineering and architectural services (891)
889	Accounting, auditing, and bookkeeping services (893)
897	Miscellaneous professional and related services (892, 899)

**PUBLIC ADMINISTRATION**

907	Postal service (part 9190)
917 (L)	Federal public administration (part 9190, 9490)
927	State public administration (9290)
937 (M)	Local public administration (9390)

Characters P179-180 and P143-144

<u>1970 Detailed 2-digit Occupation</u>	<u>Recodes</u>	<u>Occ. Codes</u>	<u>IND</u>
Professional, technical, and kindred workers		(001-195)	
Engineers	01	006-023	
Physicians, dentists, and related practitioners	02	061-073	
Health workers, except practitioners	03	074-085	
Teachers, except college	04	141-145	
Engineering and science technicians	05	150-162	
Other professionals-salaried (1,2 Class of Worker)	06	All other 0__&1__	
Other professionals-self-employed (3,4 Class of Worker)	07		
Managers and administrator, except farm		(201-245)	
Salaried-Manufacturing (1,2 Class of Worker)	08		107-398
Salaried-Other industries (1,2 Class of worker)	09		All other ind.
Self-employed--retail trade (3,4 Class of worker)	10		607-698
Self-employed--other industries (3,4 Class of worker)	11		017-588, 707-937
Sales workers		(260-285)	
Retail trade	12		607-698
Other	13		017-588, 707-937
Clerical workers		(301-395)	
Bookkeepers	14	305	
Office machine operators	15	341-355	
Stenographers, typists, and secretaries	16	370-372, 376, 391	
Other clerical workers	17	All other 3__	
Craftsmen and kindred workers		(401-575)	
Carpenters	18	415, 416	
Other construction craftsmen	19	410-412, 421, 430, 431, 436, 440, 510-512, 520-523, 534, 550, 560	
Foremen (n.e.c.)	20	441	

1970 Detailed 2-digit OccupationRecodesOcc. CodesIND

Machinists and job setters	21	454,461,462	
Metal craftsmen, except mechanics and machinists and job setters	22	403,404,442,446, 502-504,514,533, 535,536,540,561, 562	
Mechanics—auto	23	472-474	
Mechanics, except auto	24	470,471,475-495	
All other craftsmen	25	All other 4__ & 5__ (601-695)	
Operatives except transport			
Mine workers	26		047-057
Motor vehicles and equipment	27		219
Other durable goods	28		107-209,227-259
Nondurable goods	29		268-398
All other	30		017-028,067-077, 407-937
Transport equipment operatives		(701-715)	
Drivers and deliverymen	31	703,705,714,715	
All others	32	701,704,706-713 (740-785)	
Nonfarm laborers			
Construction	33		067-077
Manufacturing	34		107-398
All other	35		017-057,407-937
Private household workers	36	980-984	
Service workers, except private household		(901-965)	
Cleaning service	37	901-903	
Food service	38	910-916	
Health service	39	921-926	
Personal service	40	931-954	
Protective service	41	960-965	
Farmers and farm managers	42	801-802	
Farm laborers and foremen		(821-824)	
Paid laborers and foremen	43	821,822,824	
Unpaid family laborers	44	823	

## Character (P177-178 and P141-142)

1970

Detailed IndustryRecodesIND

Goods-producing industries		(017-019, 047-398)
Agricultural production	01	017
Agricultural services	02	018-019
Mining	03	047-057
Construction	04	067-077
Manufacturing		(107-259)
Durable goods		
Ordnance	05	258
Lumber	06	107-109
Furniture	07	118
Stone, clay, glass	08	119-138
Primary metals	09	139-149
Fabricated metals (incl. not spec. metal)	10	157-169
Machinery, exc. elect.	11	177-198
Electrical equipment	12	199-109
Transportation equipment		(219-238)
Automobiles	13	219
Aircraft	14	227
Other transportation equipment	15	228-238
Instruments	16	239-257
Miscellaneous	17	259
Nondurable goods		(268-398)
Food	18	268-298
Tobacco	19	299
Textiles	20	307-318
Apparel	21	319-327
Paper	22	328-337
Printing	23	338, 339
Chemicals	24	347-369
Petroleum	25	377, 378
Rubber and plastics	26	379-387
Leather and not specified manufacturing	27	388-398

Detailed IndustryRecodesIND

Service Producing Industries		(027,028,407-937)
Transportation and public utilities		(407-479)
Railroads and railway express	28	407
Other Transportation	29	408-429
Communications	30	447-449
Other public utilities	31	467-479
Trade		(507-698)
Wholesale	32	507-588
Retail		(607-698)
Eating and drinking places	33	669
Other retail	34	607-668, 677-698
Finance, insurance, and real estate		(707-718)
Banking and other finance	35	707-709
Insurance and real estate	36	717, 718
Private Household service	37	769
Miscellaneous services		
Business and repair		(727-759)
Business	38	727-748
Repair	39	749-759
Personal services, except private household	40	777-798
Entertainment and recreation	41	807-809
Professional services		
Medical, except hospitals	42	828-837, 839-848
Hospitals	43	838
Welfare and religious	44	877-879
Educational	45	857-868
Other professional	46	849, 869, 887-897
Forestry and fisheries	47	027, 028
Public administration		(907-937)
Postal	48	907
Other federal	49	917
State	50	927
Local	51	937

1970 Major Occupation GroupRecodesIOCC

## White-collar workers

(001-395)

Professional, technical, and kindred  
workers

01

001-195

Managers and administrators, except farm

02

201-245

Clerical and kindred workers

03

260-285

Sales workers

04

301-395

## Blue-collar workers

(401-785)

Craftsmen and kindred workers

05

401-575

Operatives, except transport

06

601-695

Transport equipment operatives

07

701-715

Nonfarm laborers

08

740-785

## Service workers

(901-984)

Private household workers

09

980-984

All other service workers

10

901-965

## Farm workers

(801-824)

Farm and farm managers

11

801-802

Farm laborers and foremen

12

821-824

No previous full-time work experience

13

(X) I23Ed1-(Edited)=Never Worked



<u>1970 Major Industry (1)</u>	<u>Recodes</u>	<u>IND</u>
(Excludes Agriculture & Private Household)	00	
Mining	01	047-057
Construction	02	067-077
Manufacturing		(107-398)
Durable goods	03	107-259
Nondurable goods	04	268-398
Transportation and public utilities		(407-479)
Railroads and railway express	05	407
Other transportation	06	408-429
Other utilities	07	447-479
Wholesale and retail trade		(507-698)
Wholesale trade	08	507-588
Retail trade	09	607-698
Finance, insurance, and real estate	10	707-718
Miscellaneous service		
Business and repair	11	727-759
Personal, except private household	12	777-798
Entertainment and recreation	13	807-809
Medical, except hospitals	14	828-837, 839-848
Hospitals	15	838
Welfare and religious	16	877-879
Education	17	857-868
Other professional services	18	849, 869, 887-897
Forestry and fisheries	19	027, 028
Public administration	20	907-937

State Code List

March 1972

Code	Name	Code	Name
69	Alabama	43	Missouri
99	Alaska	89	Montana
81	Arizona	49	Nebraska
79	Arkansas	89	Nevada
92	California	19	New Hampshire
81	Colorado	22	New Jersey
11	Connecticut	81	New Mexico
59	Delaware	21	New York
51	District of Columbia	57	North Carolina
55	Florida	49	North Dakota
54	Georgia	31	Ohio
99	Hawaii	79	Oklahoma
89	Idaho	91	Oregon
33	Illinois	23	Pennsylvania
32	Indiana	19	Rhode Island
41	Iowa	57	South Carolina
49	Kansas	49	South Dakota
61	Kentucky	62	Tennessee
71	Louisiana	72	Texas
19	Maine	89	Utah
52	Maryland	19	Vermont
19	Massachusetts	59	Virginia
39	Michigan	99	Washington
41	Minnesota	53	West Virginia
69	Mississippi	39	Wisconsin
		89	Wyoming

Geographic Concepts

Geographic Division--This is an area composed of contiguous States, with Alaska and Hawaii also included in one of the divisions. There are 9 geographic divisions which have been used largely unchanged for the presentation of summary statistics since the 1910 Census.

Region--A unit composed of two or more geographic divisions. There are 4 regions: Northeast, North Central, South, and West. The 9 geographic divisions and 4 regions are presented below:

Northeast RegionNew England Division

Connecticut  
Maine  
Massachusetts  
New Hampshire  
Rhode Island  
Vermont

Middle Atlantic Division

New Jersey  
New York  
Pennsylvania

North Central RegionEast North Central Division

Illinois  
Indiana  
Michigan  
Ohio  
Wisconsin

West North Central Division

Iowa  
Kansas  
Minnesota  
Missouri  
Nebraska  
North Dakota  
South Dakota

South RegionSouth Atlantic Division

Delaware  
District of Columbia  
Florida  
Georgia  
Maryland  
North Carolina  
South Carolina  
Virginia  
West Virginia

East South Central Division

Alabama  
Kentucky  
Mississippi  
Tennessee

West South Central Division

Arkansas  
Louisiana  
Oklahoma  
Texas

West RegionMountain Division

Arizona  
Colorado  
Idaho  
Montana  
Nevada  
New Mexico  
Utah  
Wyoming

Pacific Division

Alaska  
California  
Hawaii  
Oregon  
Washington

Standard Metropolitan Statistical Areas (SMSA's)--The concept of an SMSA has been developed in order to present general-purpose statistics. The geographical boundaries of SMSA's are drawn by the Statistical Policy

Division in the Office of Management and Budget with the advice of representatives of the major Federal statistical agencies.

In 1960, there were 212 SMSA's in the United States. Generally speaking, an SMSA consists of a county or group of counties containing at least one city (or twin cities) having a population of 50,000 or more plus adjacent counties which are metropolitan in character and are economically and socially integrated with the central city. In New England, towns and cities rather than counties are the units used in defining SMSA's. The name of the central city or cities is used as the name of the SMSA. There is no limit to the number of adjacent counties included in the SMSA as long as they are integrated with the central city nor is an SMSA limited to a single State; boundaries may cross State lines, as in the case of the Washington, D.C. - Maryland - Virginia SMSA.

The 19 SMSA's identified in the 1968-1972 Annual Demographic File are as delineated for the 1960 Census. They do not reflect territorial changes resulting from the 1970 Census or redefinitions by the Office of Management and Budget in 1967 and 1972. Likewise, the indication of metropolitan residence in Character F42 refers to residence in SMSA's as defined in 1960.

## ANNUAL DEMOGRAPHIC FILE CONCEPTS

## Index

	<u>Character</u>
Age .....	P29-30
Dividends, interest (on savings or bonds), income from estates or trusts (Source B) .....	F121; P91-96; P116-118
Duration of Unemployment .....	
Earners, No. of .....	F114
Earnings, Education .....	P57-58
Family .....	F53-54 P41-42
Family weight .....	F205-216
Farm self-employment net income .....	F119; F111- 112; P79-84; P129-130
Full-time work .....	P132; P181
Group Quarters .....	F47-48
Head of Household .....	P38; P41-42
Head with no other relatives in household .....	P38
Head with other relatives (incl. wife) in household .....	P38
Hours of Work .....	P153-154
Household .....	F47-48; P41-44
Husband in Armed Forces .....	P38
Income .....	F111-112; F85-90
Industry .....	P133-135; P141-142
Job, but not at work .....	F116; P151
Job leavers .....	P162
Job losers .....	P162
Keeping house .....	F116; F151

Labor Force .....	P147; F113
Layoff .....	P145
Looking for work .....	F116; P151; P145
Marital Status .....	P45
Metropolitan-Nonmetropolitan Residence .....	F42
Mobility Status .....	P36-37
Month-In-Sample .....	P26
Mobile persons or Movers .....	P36-37
Never Worked .....	P175
New entrants .....	
Nonfarm self-employment net income .....	P73-78; P129-130
Nonmovers (nonmobile persons) .....	P36-37
Nonrelative of head with no own relatives in household ....	P38
Nonrelatives of head with own relatives (including wife) in household .....	P38
Not year round work .....	P132
Occupation .....	P172-174; P179-180
Other nonworkers .....	F116; P151
Other relative of head .....	P38; P41-44
Own child .....	F59-67
Part-time, Economic reasons .....	P181
Part-time, Other reasons .....	P182
Part-time work .....	P132
Persons abroad .....	P36-37
Population coverage .....	
Poverty Definition .....	F103-108
Primary families and individuals .....	F27-28; P27-28; P39; P43-44

Primary individual .....	F27-28; P27-28; P39; P43-44
Private pensions, annuities, alimony, regular contri- butions from persons not living in the household, net royalties, and other periodic income (Source E) .....	F124; P109-114; P124-127
Public assistance or welfare payments (Source C) .....	F122; P97- 102; P119
Race .....	F33; P33
Receipts not counted as income .....	P61-66
Reentrants .....	
School .....	F116; P151
Secondary family .....	P27-28; P39; P41-44
Secondary individual .....	P27-28; P39; P41-44
Self employed .....	P139; P175
Social Security (Source A) .....	F120; P85- 90; P115; P129-130
Stretches of unemployment .....	P148
Subfamily .....	F27-28; P27-28; P40
Total money Income .....	F73-78; F91-102; P61-66
Unable .....	F116; P151
Unemployed .....	P148
Unemployment compensation, government employee pensions, or veterans payments (Source D) .....	F123; P103-108; P120-123





Current Population Survey  
Annual Demographic File  
Concepts

Age--The age classification is based on the age of the person at his last birthday. (P29-30)

Duration of Unemployment--Duration of unemployment represents the length of time (through the current survey week) during which persons classified as unemployed had been continuously looking for work. For persons on layoff, duration of unemployment represents the number of full weeks since the termination of their most recent employment. A period of 2 weeks or more during which a person was employed or ceased looking for work is considered to break the continuity of the present period of seeking work. Average duration is an arithmetic mean computed from a distribution by single weeks of unemployment.

Earners, Number of--This number includes all persons in the household with \$1 or more in wages and salaries, or \$1 or more or a loss in net income from farm or nonfarm self-employment. (F114)

Earnings--See "Income."

Education--See "Years of School Completed."

Family--The term "Family," as used in this report, refers to a group of two or more persons related by blood, marriage, or adoption and residing together; all such persons are considered as members of the same family. Thus, if the son of the head of the household and the son's wife are in the household, they are treated as part of the head's family. On the other hand, a lodger and his wife not related to the head of the household or an unrelated servant and his wife are considered as additional families, and not a part of the household head's family. (F53-54) (P41-42)

Family Weight--The weight used for tabulating family characteristics from family records. The family weight is the same as the person weight of the head of the family or secondary family or of unrelated individuals. (F205-216)

Farm Self-employment Net Income--This is defined as net money income (gross receipts minus operating expenses) from the operation of a farm by a person on his own account, as an owner, renter, or share-cropper. Gross receipts include the value of all products sold, government crop loans, money received from the rental of farm equipment to others, and incidental receipts from the sale of wood, sand, gravel, etc. Operating expenses include cost of feed, fertilizer, seed, and other farming supplies, cash wages paid to farmhands,

depreciation charges, cash rent, interest on farm mortgages, farm building repairs, farm taxes (not State and Federal income taxes), etc. The value of fuel, food, or other farm products used for household living is not included as part of net income. Inventory changes were considered in determining net income only when they were accounted for in replies based on income tax returns or other official records which reflect inventory changes; otherwise, inventory changes were not taken into account. (F111-112; F119; P79-84; P129-130)

Full-time Work--Persons who worked 35 hours or more in the survey week are designated as working "full time." (P132; P181)

Group Quarters--Group quarters are living arrangements for institutional inmates regardless of the number of inmates, or for other groups containing five or more persons unrelated to the person in charge. (F47-48)

Head of Household--One person in each household was designated as the "head." The number of heads, therefore, is equal to the number of households. The head of a household is usually the person regarded as the head by members of the household. Women are not classified as heads if their husbands are resident members of the household at the time of the survey. Married couples related to the head of a household are included in the head's household and are not classified as separate households. (P38)

Head With No Other Relatives in Household--A household head who has no relatives living in the household. This would be the entry for a person living alone. Another example would be the designated head of an apartment shared by two or more unrelated persons. (P38)

Head With Other Relatives (incl. wife) in Household--The person designated as head of the household if he has one or more relatives (including his wife) living in the household. (P38)

Highest Grade of School Attended--See "Years of School Attended."

Hours of Work--Hours of work statistics relate to the actual number of hours worked during the survey week. For example, a person who normally works 40 hours a week but who was off on the Veterans Day holiday would be reported as working 32 hours even though he was paid for the holiday.

For persons working in more than one job, the figures relate to the number of hours worked in all jobs during the week. However, all the hours are credited to the major job. (P153-154)

Household--A household consists of all the persons who occupy a house, an apartment, or other group of rooms, or a room, which constitutes a housing unit. A group of rooms or a single room is regarded as a

housing unit when it is occupied as a separate living quarters; that is, when the occupants do not live and eat with any other persons in the structure, and when there is either (1) direct access from the outside or through a common hall, or (2) a kitchen or cooking equipment for the exclusive use of the occupants. The count of households excludes persons living in group quarters, such as rooming houses, military barracks, and institutions. (F47-48; P41-44)

Husband in Armed Forces—When a woman was reported as married but her husband was not enumerated as a member of the same household, an additional question was asked to determine whether her husband was in the Armed Forces. Women who were reported as separated were not asked the additional question. (P38)

Income—For each person in the sample 14 years old and over, questions were asked on the amount of money income received from each of the following sources: (1) Money wages or salary; (2) net income from nonfarm self-employment; (3) net income from farm self-employment; (4) Social Security, Source A; (5) dividends, interest (on savings or bonds), income from estates or trusts or net rental income, Source B; (6) public assistance or welfare payments, Source C; (7) unemployment compensation, government employee pensions, or veterans' payments, Source D; (8) private pensions, annuities, alimony, regular contributions from persons not living in this household, net royalties, and other periodic income, Source E.

The amounts received represent income before deductions for personal taxes, Social Security, bonds, etc. If any amount was \$10,000 or more, it was recorded as a specific amount whenever possible. When the respondent did not know the specific amount but reported it within specified limits, the midpoint of the amount was coded (i.e., "\$10,000 to \$15,000" was coded as "12,500"). If an indefinite amount was reported such as "over \$10,000," the information was coded as "15,100." It should be noted that although the income statistics refer to receipts during the preceding year, the characteristics of the person, such age, labor force status, etc., and the composition of households refer to March. The income of the household does not include amounts received by persons who were members of the family during all or part of the preceding calendar year if these persons no longer resided with the family at the time of enumeration. On the other hand, household income includes amounts reported by related persons who did not reside in the household during the prior year but who were members of the family at the time of enumeration. Data on consumer income collected by the Bureau of the Census cover money income (exclusive of certain money receipts such as capital gains) prior to deductions for taxes. The fact that many farm households receive part of their income in the form of rent-free housing and goods produced and consumed on the farm, rather than in money, should be taken into consideration in comparing the

income of farm and nonfarm residents. It should be noted that nonmoney incomes are also received by some nonfarm residents. They often take the form of business expense accounts, use of business transportation and facilities, full or partial compensation by business for medical and educational expenses, etc. In analyzing size distributions of income, it should be recognized that capital gains tend to be concentrated more among higher income units than among lower ones. (F111-112; F85-90)

Source A--Social Security or Railroad Retirement--This is defined as Social Security pensions and survivors' benefits, and permanent disability insurance payments made by the Social Security Administration prior to deductions for medical insurance and railroad retirement insurance checks from the U.S. Government. (A) (F120; P85-90; P115; P129-130)

Source B--Dividends, interest (on savings or bonds), income from estates or trusts, or net rental income--This category includes dividends from stockholdings or membership in associations, interest on savings or bonds, periodic receipts from estates or trust funds, net income from rental of a house, store, or other property to others, and receipts from boarders or lodgers. (B) (F121; P91-96; P116-118)

Source C--Public assistance or welfare payments--This category includes public assistance payments such as old-age assistance, aid to families with dependent children, and aid to the blind or totally disabled. (C) (F122; P97-102; P119)

Source D--Unemployment compensation, government employee pensions, or veterans' payments--This category includes: (1) Unemployment compensation received from government unemployment insurance agencies or private companies during periods of unemployment and any strike benefits received from union funds; (2) government employee pensions received from retirement pensions paid by Federal, State, county, or other governmental agencies to former employees (including members of the Armed Forces) or their survivors; (3) money paid periodically by the Veterans' Administration to disabled members of the Armed Forces or to survivors of deceased veterans, subsistence allowances paid to veterans for education and on-the-job training, as well as so-called "refunds" paid to ex-servicemen as GI insurance premiums; also includes (4) workmen's compensation received periodically from public or private insurance companies for injuries incurred at work. The cost of this insurance must have been paid by the employer and not by the person. (D) (F123; P103-108; P120-123)

Source E--Private pensions, annuities, alimony, regular contributions from persons not living in the household, net royalties, and other periodic income--The following types of income are included in this group: (1) Private pensions or retirement benefits paid to a retired person or his survivors by a former employer or by

(a former employer or by) a union, either directly or through an insurance company; (2) periodic receipts from annuities or insurance; (3) alimony and child support; (4) contributions received periodically from persons not living in the household; (5) net royalties; and (6) other periodic income such as military family allotments, net gambling winnings, and other kinds of periodic income other than earnings. (E) (F124; P109-114; P124-127)

Industry--See codes in Industry Section.

Job, But Not at Work--All those who were not working but who had jobs or businesses from which they were temporarily absent because of illness, bad weather, vacation, labor-management dispute, or personal reasons, whether or not they were paid by their employers for the time off, and whether or not they were seeking other jobs. (F116; P151)

Job Leavers--Job leavers are persons who quit or otherwise terminated their employment voluntarily and immediately began looking for work. (P162)

Job Losers--Job losers are persons whose employment ended involuntarily who immediately began looking for work and persons on layoff. (P162)

Keeping House--Engaged in own housework. (F116; F151)

Labor Force--Persons are classified as in the labor force if they were employed as civilians, unemployed, or in the Armed Forces during the survey week. The "civilian labor force" is comprised of all civilians classified as employed or unemployed. (P147; F113)

Layoff--Being laid off from a job, but not actually looking for a job because one expects to be called back to work. (P145)

Looking for Work--Trying to get work or trying to establish a business or profession. (F116; P151; P145)

Marital Status--The marital status classification identifies four major categories: Single, married, widowed, and divorced. These terms refer to the marital status at the time of enumeration.

The category "married" is further divided into "married, spouse present," "separated," and "other married, spouse absent." A person was classified as "married, spouse present" if the husband or wife was reported as a member of the household even though he or she may have been temporarily absent on business or on vacation, visiting, in a hospital, etc., at the time of the enumeration. Persons reported as "separated" included those with legal separations, those living apart with intentions of obtaining a divorce, and other persons permanently or temporarily estranged from their spouses because of marital discord. The group "other married, spouse absent" includes

married persons employed and living for several months at a considerable distance from their homes, those whose spouses were absent in the Armed Forces, in-migrants whose spouses remained in other areas, husbands or wives of inmates of institutions, and all other married persons (excepted those reported as separated) whose places of residence were not the same as that of their spouses.

For the purpose of this report, the group "other marital status" includes "widowed and divorced," "separated," and "other married, spouse absent." (P45)

Metropolitan-Nonmetropolitan Residence--The population residing in standard metropolitan statistical areas constitute the metropolitan population. Except in New England a standard metropolitan statistical area is a county or group of contiguous counties which contains at least one city of 50,000 inhabitants or more. In addition to the county, or counties, containing such a city or cities, contiguous counties are included in a standard metropolitan statistical area if according to certain criteria they are essentially metropolitan in character and socially and economically integrated with the central city. In New England, standard metropolitan statistical areas have been defined on a town rather than county basis. Standard metropolitan statistical areas of this report are identical with the standard metropolitan statistical areas of the 1960 Census and do not include any subsequent additions or other changes. (F42)

Mobility Status--The population of the United States has been classified according to mobility status on the basis of a comparison between the place of residence of each individual at the survey date and the place of residence 1 year earlier. This comparison restricts the classification in terms of mobility status to the population 1 year old and over at the survey date.

The information on mobility status was obtained from the responses to a series of inquiries. The first of these was "Was ... living in this house March 1 a year ago?" If the answer was "No," the enumerator asked, "Was ... living in this same county on March 1 a year ago?" If the response was "No" again, the enumerator asked, "What State (or foreign country) was ... living in on March 1 a year ago?" In the classification three main categories are distinguished: Nonmovers; Movers; Persons abroad. (P36-37)

Month-In-Sample--The number of times a unit has been interviewed. Each unit will be interviewed eight times during the life of the sample. (Also see discussion of sample design.) (P26)

Movers--Mobile persons are subdivided in terms of type of mobility into the following two major groups:

1. Same county (intracounty)--Those persons living in a different house but in the same county at the beginning and end of the specified period.

2. Migrants, or different county (intercounty movers)--This group consists of persons living in a different county in the United States at the beginning and end of the period.

Migrants are further classified by type of migration on the basis of a comparison of the State of residence at the end of the period with the State of residence at the beginning of the period.

1. Migrants within a State (intrastate migrants), excludes intracounty movers.
2. Migrants between States (interstate migrants).

Mobile persons or movers--This group consists of all persons who were living in a different house in the United States at the end of the period than at the beginning of the period. (P36; P37)

Never Worked--One who never before held a full-time civilian job lasting two consecutive weeks or more. (P175)

New Entrants--Are persons who never worked at a full-time job lasting two weeks or longer.

Nonfarm Self-employment Net Income--This is defined as net money income (gross receipts minus expenses) from his own business, professional enterprise, or partnership. Gross receipts include the value of all goods sold and services rendered. Expenses include costs of goods purchased, rent, heat, light, power, depreciation charges, wages and salaries paid, business taxes (not personal income taxes), etc. In general, inventory changes were considered in determining records do reflect inventory changes; however, when values of inventory changes were not reported, net income figures exclusive of inventory changes were accepted. The value of salable merchandise consumed by the proprietors of retail stores is not included as part of net income. (P73-78; P129-130)

Nonmovers (nonmobile persons)--This group consists of persons who were living in the same house at the end of the period as at the beginning of the period. (P36-37)

Nonrelative of Head With No Own Relatives in Household--A nonrelative of the head who has no relative(s) of his own in the household. This category includes such nonrelatives as a foster child, a ward, a lodger, a servant, or a hired hand, who has no relatives of his own living with him in the household. (P38)

Nonrelative of Head With Own Relatives (including wife) in Household--Any household member who is not related to the head but has relatives of his own in the household. For example, a lodger, his wife, and their son. (P38)

Not Year Round Work--Less than 40 weeks work. (P132)

Occupation, Last Week--Occupation, industry, and class-of-worker for the employed apply to the job held in the survey week. Persons with two or more jobs are classified in the job at which they worked the greatest number of hours during the survey week. The unemployed are classified according to their latest full-time civilian job lasting two weeks or more. The occupation and industry groups used in data derived from the CPS household interviews are defined as in the 1960 Census of Population. (P172-174)

Other Nonworkers--The "Other" group includes for the most part retired persons, those reported as too old to work, the voluntarily idle, and seasonal workers for whom the survey week fell in an "off" season and who were not reported as unemployed. (F116; P151)

Other Relative of Head--Any relative of the household head other than his wife; for example, his child, father, mother, grandson, daughter-in-law, etc. (P38; P41-44)

Own Child--Child related by blood, marriage, or adoption to the family head.

Part-time, Economic Reasons--"Economic reasons" include: Slack work, material shortages, repairs to plant or equipment, start or termination of job during the week, and inability to find full-time work. (P181)

Part-time, Other Reasons--"Other reasons" include: Labor dispute, bad weather, own illness, vacation, demands of home housework, school, no desire for full-time work, and full-time worker only during peak season. (P182)

Part-time Work--Persons who worked between 1 and 34 hours are designated as working "part time." (P132)

Persons Abroad--This group consists of persons, either citizens or aliens, whose place of residence was outside the United States at the beginning of the period, that is, in an outlying area under the jurisdiction of the United States or in a foreign country. These persons are distinguished from "movers" who are defined here as persons who moved from one place to another within the United States. (P36-37)

Population Coverage--The population covered includes the civilian population of the United States plus approximately 1,161,000 members of the Armed Forces in the United States living off post or with their families on post, but excludes all other members of the Armed Forces. This excludes inmates of institutions and persons residing in group quarters.



Poverty Definition--Poverty statistics published in previous Census Bureau reports were based on the poverty index developed by the Social Security Administration (SSA) in 1964.<sup>1</sup> This index provided a range of poverty income cutoffs adjusted by such factors as family size, the sex of the family head, the age of family members, and place of residence. At the core of this definition of poverty was a nutritionally adequate food plan ("economy" plan) designated by the Department of Agriculture for "emergency or temporary use when funds are low." Annual revisions of the poverty income cutoffs were based on price changes of the items in the economy food budget.

In determining the proportion of total family income that should be consumed by food requirements, the SSA observed that the percentage of income expended for necessities, in particular food, reflects the relative well-being of both individuals and the society in which they live. In general, families that need to use about the same proportion of their income for a given level of food expenditure are considered to share the same level of living.

For families of three or more persons the poverty level was set at three times the cost of the economy food plan. This was the average food cost-to-family income relationship reported by the Department of Agriculture on the basis of a 1955 survey of food consumption.<sup>2</sup> For smaller families and persons residing alone, the cost of the economy food plan was multiplied by factors that were slightly larger to compensate for the relatively higher fixed expenses of these smaller households. The SSA poverty cutoffs also took account of differences in the cost of living between farm and nonfarm families.

As a result of its deliberations the committee accepted the following two recommendations: (1) that the SSA poverty thresholds for nonfarm families be retained for the base year 1963, but that the annual adjustments in the levels be based on the changes in the Consumer Price Index (CPI) rather than on changes in the cost of food included in the economy food plan; and (2) that the farm poverty thresholds be raised from 70 to 85 percent of the corresponding nonfarm levels. The combined impact of these two modifications resulted in a net increase of 360,000 poor families and of 1.6 million poor persons in 1967. (F103-108)

---

<sup>1</sup>For a detailed discussion of the SSA poverty standards, see Mollie Orshansky, "Counting the Poor: Another Look at the Poverty Profile," Social Security Bulletin, January 1965; and "Who's Who Among the Poor: A Demographic View of Poverty," Social Security Bulletin, July 1965.

<sup>2</sup>See U.S. Department of Agriculture, Food Consumption and Dietary Levels of Households in the United States, (ARS 626), August 1957.

Primary Families and Individuals--The term "primary family" refers to the head of a household and all other persons in the household related to the head by blood, marriage, or adoption. If nobody in the household is related to the head, then the head himself constitutes a "primary individual." A household can contain one and only one primary family or primary individual. The number of "primary" families and individuals is identical with the number of households. (F27-28; P27-28; P39; P43-44)

Primary Individual--A primary individual is a household head living alone or with nonrelatives only. (F27-28; P27-28; P39; P43-44)

Race--The population is divided into three groups on the basis of race: White, Negro, and "Other races." The last category includes Indians, Japanese, Chinese, and any other race except white and Negro. In most of the tables "other races" are shown in combination with the Negro population. (F33; P33)

Receipts Not Counted as Income--Receipts from the following sources were not included as income: (1) Money received from the sale of property, such as stocks, bonds, a house, or a car (unless the person was engaged in the business of selling such property, in which case the net proceeds would be counted as income from self-employment); (2) withdrawals of bank deposits; (3) money borrowed; (4) tax refunds; (5) gifts; and (6) lump-sum inheritances or insurance payments. (P61-66)

Reentrants--Are persons who previously worked at a full-time job lasting two weeks or longer but who were out of the labor force prior to beginning to look for work.

Related Children--Children related to the family head by blood, marriage, or adoption.

School--A person who spent most of his time during survey week attending any kind of public or private school, including trade or vocational schools in which students receive no compensation in money or kind. (F116; P151)

Secondary Family--A secondary family is a family that does not include among its members the head of a household. Members of secondary families may include persons such as guests, lodgers, or resident employees and their relatives living in a household.

Persons living with relatives in group quarters were formerly considered as members of secondary families. However, the number of such families became so small (37,000 in 1967) that beginning with the data for 1968 (and beginning with the census data for 1960) the Bureau of the Census includes persons in these families in the count of secondary individuals. (F27-28; P39; P41-44)

Secondary Individual--A secondary individual is a person in a household or group quarters such as a guest, lodger, or resident employee (excluding primary individuals and inmates of institutions) who is not related to any other person in the household or group quarters. (P27-28; P39; P41-44)

Self-employed--Self-employed persons are those who work for profit or fees in their own business, profession, or trade, or operate a farm. (P139; P175)

Stretches of Unemployment--A continuous stretch is one that is not interrupted by the person getting a job or leaving the labor market to go to school, to keep house, etc. A period of two weeks or more during which a person was employed or ceased looking for work is considered to break the continuity of the period of seeking work. (P148)

Subfamily--A subfamily is a married couple with or without children, or one parent with one or more own single children under 18 years old, living in a household and related to, but not including, the head of the household or his wife. The most common example of a subfamily is a young married couple sharing the home of the husband's or wife's parents. Members of a subfamily are also members of a primary family. The number of subfamilies, therefore, is not included in the number of families. (F27-28; P27-28; P40)

Total Money Income--This is defined as the arithmetic sum of money wages and salaries, net income from self-employment, and income other than earnings. The total income of a household is the arithmetic sum of the amounts received by all income recipients in the household. (F73-78; F91-102; P61-66)

Unable--"Unable to work" because of long-term physical or mental illness, lasting six months or longer. (F116; P151)

Unemployed--Unemployed persons are those civilians who, during the survey week, had no employment but were available for work and (1) had engaged in any specific jobseeking activity within the past four weeks, such as registering at a public or private employment office, meeting with prospective employers, checking with friends or relatives, placing or answering advertisements, writing letters of application, or being on a union or professional register; (2) were waiting to be called back to a job from which they had been laid off; or (3) were waiting to report to a new wage or salary job within 30 days. (P148)

Unpaid Family Workers--Are persons working without pay for 15 hours a week or more on a farm or in a business operated by a member of the household to whom they are related by blood or marriage. (P139; P175)

Unrelated Individuals--Are persons (other than inmates of institutions) who are not living with any relatives. An unrelated individual may be (1) a household head living alone or with nonrelatives only, (2) a lodger or resident employee with no relatives in the household, or (3) a group quarters member who has no relatives living with him. Thus, a widow who occupies her house alone or with one or more other persons not related to her, a roomer not related to anyone else in the housing unit, a maid living as a member of her employer's household but with no relatives in the household, and a resident staff member in a hospital living apart from any relatives are all examples of unrelated individuals. (P39)

Veteran Status--If a person served at any time during the three major wars of this century, the code for the most recent wartime service is entered. The following codes are used:

1. Korean War - June 1950-January 1955
  2. World War II - September 1940-July 1947
  3. World War I - April 1917-November 1918
  4. Peace time "PA" - Peacetime service only, any of which was after January 1955--includes Vietnam war service
  5. Peacetime "PB" - Peacetime service only, any of which was before June 1950
  6. Nonveterans - Persons who never served on active duty
- (P55)

Wage and Salary Workers--Receive wages, salary, commission, tips, or pay in kind from a private employer or from a governmental unit. (P139; P175)

Wages or Salary--This is defined as the total money earnings received for work performed as an employee during the calendar year. It includes wages, salary, Armed Forces pay, commissions, tips, piece-rate payments, and cash bonuses earned, before deductions were made for taxes, bonds, pensions, union dues, etc. (F79-84; F111-112; F117; P67-72; P129-130)

Wife of Head--The wife of the household head. There can be only one wife of the head, even if there are two or more married couples living in the same unit. (P38)

Work--All those who during the survey week did any work at all as paid employees, in their own business, profession, or farm, or who worked 15 hours or more as unpaid workers in an enterprise operated by a member of the family. (F116; P131; P151)

Year Round Work--Forty weeks or more work. (P132)

Years of School Completed--Data on years of school completed were derived from the combination of answers to questions concerning the highest grade of school attended by the person and whether or not that grade

was finished. Educational attainment applies only to progress in "regular" schools. Such schools include graded public, private, and parochial elementary and high schools (both junior and senior high), colleges, universities, and professional schools, whether day schools or night schools. Thus, regular schooling is that which may advance a person toward an elementary school certificate or high school diploma, or a college, university, or professional school degree. Schooling in other than regular schools was counted only if the credits obtained were regarded as transferable to a school in the regular school system. (P57-58)

## ANNUAL MARCH DEMOGRAPHIC SUPPLEMENT FILE CONTROL COUNTS FOR MARCH 1972

## FAMILY PERSON CHARACTERISTICS

UNWEIGHTED COUNTS • WEIGHTED COUNTS

## TYPE OF FAMILY

## TOTAL FAMILIES

01 - PRIMARY FAMILY CONTAINING NO SUBFAMILY  
 02 - PRIMARY FAMILY CONTAINING ONE OR MORE SUBFAMILIES  
 03 - SECONDARY FAMILY  
 04 - SUBFAMILY  
 UNRELATED INDIVIDUAL  
 05 - PRIMARY INDIVIDUAL  
 06 - SECONDARY INDIVIDUAL 14+ IN A HOUSEHOLD  
 07 - SECONDARY INDIVIDUAL 14+ IN GROUP QUARTERS  
 08 - SECONDARY INDIVIDUAL UNDER 14 IN A HOUSEHOLD  
 09 - SECONDARY INDIVIDUAL UNDER 14 IN GROUP QUARTERS

48253

35506

840

91

855

9066

1465

220

137

73

7114707690

510424238

121230664

13317106

125733367

1351291931

235521060

44315972

18010014

9735338

## POPULATION STATUS

## TOTAL PERSONS

1 - CIVILIAN 14+  
 2 - ARMED FORCES (ALL ARE 14+)  
 3 - PERSONS UNDER 14

140432

112659

749

3724

20484005636

15024300119

119 65943

5280635676

\* INCLUDES TWO UNDERSTOOD DECIMAL PLACES

NUMBER OF RECORDS WRITTEN IN LAST BLOCK= 5

NUMBER OF BLOCKS WRITTEN ON REEL 1= 2750

NUMBER OF BLOCKS WRITTEN ON REEL 2= 2750

NUMBER OF BLOCKS WRITTEN ON REEL 3= 2750

NUMBER OF BLOCKS WRITTEN ON REEL 4= 1185

ESTIMATION OF SAMPLING ERRORS FOR THE CURRENT  
POPULATION SURVEY -- ANNUAL DEMOGRAPHIC  
FILE (1968-1971)

This appendix describes two methods of estimating sampling errors for U.S. data collected from the Current Population Survey, Annual Demographic File, for the years 1968-1971. The first source is tables of generalized sampling errors of estimated U.S. totals and percentages already derived by the Census Bureau from the CPS estimates of selected characteristics. The second source is a procedure for directly computing rough approximations to the sampling errors from the CPS data files; this process requires the use of certain codes and weights which are provided. The direct computation of sampling errors should be resorted to only for items unrelated to any of the sampling errors presented in the tables or for those items whose sampling errors can not be easily generalized (e.g., aggregate total income or mean income). A detailed description of the present sample design, the monthly CPS weighting procedure, and the additional March supplemental weighting procedure is given to aid in the understanding and utilization of these two methods.

The CPS sample has been redesigned to employ 1970 Census data in the sample selection and estimation processes. The changes in the sample brought about by the redesign were instituted gradually beginning in December of 1971 and were completed as of March 1973. The tables of sampling errors provided in this appendix apply to the sample design in effect for data collected in March 1968 through March 1971. Although at this time an equivalent set of tables appropriate for the new design have not yet been constructed, it is expected that they would closely resemble the set included in this appendix. If it is necessary to compute sampling errors for data collected from a March survey for 1972 or a later year, the procedures given in this appendix will not apply.

Also, a section (attachment C) is included which deals with the problem of producing state and SMSA tabulations from the Current Population Survey - Annual Demographic File, (1968-1971). This section presents recommended guidelines to follow when producing these tabulations as well as standard errors which are applicable to the resulting estimates.

Historical summary

The sample design of the CPS has had many changes since its inception. The number of strata and the number of housing units designated for the sample have been increased periodically since late in 1943 when the program was taken over by the Census Bureau.

Initially, the sample was drawn by stratifying the population of the country into 68 strata and selecting one primary sampling unit (PSU) out of each stratum. The first stage sampling units (counties or groups of counties) were restratified and the sample units were selected from within 230 strata and introduced into the CPS in February 1954. In May 1956, the sample was expanded to 330 areas and to 333 areas in January 1960, after Hawaii and Alaska achieved statehood.

Design used March 1968-1971

Beginning in March of 1963, the sample used was selected out of 357 strata comprising 801 counties and independent cities with coverage in each of the 50 states and the District of Columbia. The sample of about 35,000 occupied units selected from these 357 PSU's is referred to as the "A sample." In January 1967, a "C sample", one-half of the A sample in size, was added to the A sample, bringing the total sample to about 52,500 occupied units.

Including the C sample also results in increasing the number of PSU's. Of the 357 strata within which the A sample is selected, 112 consist of a single PSU, which is necessarily in sample. The sample PSU's from these strata are called self-representing (SR) and are made up of the larger SMSA's. The other 245 strata of the A sample contain more than one PSU each, and the sample PSU's from these strata are called non-self-representing (NSR), since a sample PSU also represents other PSU's in the same stratum. Each of these 245 NSR strata contains an A sample PSU which has been selected with probability proportionate to the 1960 Census population of the PSU.

The additional PSU's in the C sample were selected from these areas as follows: The 245 strata were grouped into 122 pairs of strata with one stratum left over. From each pair of strata, one stratum was picked at random (each stratum having equal probability of selection). From the selected stratum, one additional PSU was chosen for the C sample with probability proportionate to the size of the PSU. The selection was made independent of the selection of the original A sample PSU in the stratum. In 30 strata, the C sample PSU's chosen were the same as the A sample PSU's and in 92 cases the sample PSU's were different. In the one stratum left over after the 122 pairs were formed, an additional PSU was independently chosen and both independent choices of sample PSU's for this stratum were the same. Within each of these sample PSU's a sample of housing units was designated such that the over-all probability of selection was one-half that used for the A sample. In addition, the 112 SR PSU's.



For the period after January 1967, the complete CPS sample can be treated in two identifiable parts, an A and a C sample. Either sample alone is a national probability sample available for surveys where the designated households in the combined A and C samples are more than desired. The A sample is spread over 357 sample PSU's and the C sample is spread over 235 sample PSU's. The combination of the A and C sample used after January 1967 is spread over 449 different PSU's, 112 of which are SR and the balance NSR.

#### Rotation of the CPS Sample

Each month, one-eighth of the households in a CPS sample is replaced by an equivalent set of units in sample for the first time. Each of these subsamples of one-eighth is called a "rotation group." This rotation scheme for CPS has the following features:

1. Each rotation group is included in CPS for four months, excluded (rested) for eight months, and returned for an additional four months after which it is permanently retired from the CPS. Thus, one entirely new rotation group (one-eighth of the sample) and one rotation group which has been at rest for eight months are introduced into the survey each month.
2. A complete CPS sample (A and C combined) consists of a systematic sample of roughly 10,000 clusters (segments) each of about six housing units. The complete list of sample segments has been systematically sampled into eight rotation groups. When the segments in a given rotation group are retired from the sample, they are replaced by an equivalent number of new segments each of which is made up of housing units chosen to be geographically adjacent to the units in the retired segment.
3. For any month, the sample units in six of the eight rotation groups were also in the survey the previous month (i.e., there is a 75-percent month-to-month overlap of the sample). This feature improves the reliability of estimated month-to-month change over what would be produced by an equivalent number of independently selected units--especially for those characteristics having a high correlation over time.
4. For any month, four of the eight rotation groups were also in the survey the same month one year ago (i.e., there is a 50-percent year-to-year overlap in the sample). This improves estimates of year-to-year change.
5. Each rotation group constitutes a one-eighth systematic subsample of the full monthly sample with A-sample representation in all 357 A-sample PSU's and C-sample representation in all 235 C-sample PSU's. This permits the use of a single or a combination of rotation groups.

as national samples of smaller sizes. This feature, as indicated elsewhere, is also useful in the estimation of sampling errors.

### Rotation of PSU's

After each decennial census, the CPS sample design is reviewed and changed, where appropriate, to take advantage of the more current census information. A major part of the review is a reexamination of the stratification of PSU's and a reselection of new samples of PSU's.

The CPS design provides that, in a given decade, a housing unit once interviewed its quota of eight times is not eligible for further assignment to another CPS sample. All SR and most NSR PSU's are large enough to provide the required number of sample housing units needed until the next review of the design. In some cases, however, sample PSU's will be exhausted before a new redesign, and a new PSU must be introduced to provide the necessary housing units for the sample. The introduction of such new PSU's is accomplished in an ordered system which combines small PSU's with larger ones and rotates the sample among the combination so that an unbiased sample is always possible--that is, the proper number of small PSU's and large PSU's is always in sample.

## WEIGHTING OF THE ANNUAL DEMOGRAPHIC FILE

### I. Monthly Weighting Procedures

Since the CPS sample is basically a probability sample, simple unbiased estimates could be prepared by multiplying the sample counts by the reciprocal of the sample fraction. However, the reliability of the sample estimates is increased by making use of available auxiliary data. These procedures include an adjustment for non-response, two stages of ratio estimation, and a "composite estimate" as described below.

#### A. Adjustment for Nonresponse

In a given month's sample, there are a few sample units (typically totaling about four percent of the units eligible for interview) at which the CPS interviewer is unable to obtain a response because no one is at home, the respondent refuses to cooperate or for some other reason. The weights assigned to the units for which a response was obtained are adjusted to account for these cases. The procedure used to make this adjustment is as follows:

1. Noninterview clusters (groups of strata) are formed such that the population and labor force characteristics of the strata in the cluster are similar.

2. For each of the noninterview clusters, the number of interviewed and noninterviewed households are tabulated separately for each of the following six race-residence categories:

Urban-White  
 Urban-Nonwhite  
 Rural-nonfarm-White  
 Rural-nonfarm-Nonwhite  
 Rural-farm-White  
 Rural-farm-Nonwhite

3. For each of the six categories in each cluster, the ratio:

$$\frac{\text{Interviewed households} + \text{Noninterviewed households}}{\text{Interviewed households}}$$

is computed.

4. The ratios are applied to all data for interviewed households in the corresponding categories except where the ratio exceeds two. In such cases, provision is made for the combination of the categories in a specified order so as to reduce the ratio before it's applied to the data for the interviewed household.

#### B. Ratio Estimation

The distribution of the population selected for the sample may differ somewhat, by chance, from that of the Nation as a whole in such basic characteristics as race, sex, farm-nonfarm residence and age categories. These particular population characteristics are closely correlated with labor force participation and other principal measurements made from the sample. Some of the sample estimates are improved substantially when, by appropriate weighting of the original returns, the population in the sample is brought into agreement with the known distribution of the entire population with respect to these characteristics. This weighting is accomplished through the following two stages of ratio estimation:

##### 1. First Stage Ratio Estimate

The purpose of the first stage ratio estimate is to reduce the contribution to the variance arising from the sampling of PSJ's--i.e., to reduce the variance that would still be associated with estimates even if the survey each month could use complete census data for all households in every sample PSJ.

The first stage ratios are based on 1960 Census data and are applied only to the sample non-self-representing (NSR) PSU's.

For the NSR PSU's in each of the four census regions, a ratio is computed for each of six race-residence categories (the same categories as used in the nonresponse adjustments) as follows:

1960 Census population in the race-residence category for  
all NSR strata in a census region

---

Estimate of the population category using complete 1960  
Census population counts for sample PSU's in the census  
region

## 2. Second Stage Ratio Estimate Adjustment

The second stage ratio estimate adjusts the sample estimates of population made from the CPS (the estimates employ the noninterview and first-stage ratio adjustments) to independently derived current estimates of the U.S. population for each of 68 age-sex-race groups. These independent estimates are prepared each month by carrying forward data from the most recent census, taking account of subsequent aging of the population, current figures for mortality, births, migration between the U. S. and other countries, and persons in institutions and in the Armed Forces. The CPS sample returns, after application of the noninterview adjustment and first-stage ratios, are actually used to determine the percentage distribution of the population within each age-sex-race group for the characteristics of interest. Totals are obtained by applying the CPS estimated percentages to the independently obtained control totals for the appropriate age-sex-race group.

Beginning with the March 1968 estimates, the second stage factors have been computed in two phases. Each phase is carried out for each of the eight rotation groups separately.

In the first phase, factors are computed for persons of Negro and Other Races only. Factors are computed for 34 age-sex categories for Negroes and for 14 age-sex categories for other races. The numerator of each factor is the independently derived estimate and the denominator is the CPS sample estimate adjusted by the noninterview and first stage factors. The factors are then applied to the weights for persons of Negro and other races after application of first stage and noninterview factors. The categories in this phase are as follows:

## Negroes, by sex, separately for ages:

14-15	22-24	40-44	60-61
16-17	25-29	45-49	62-64
18-19	30-34	50-54	65-69
20-21	35-39	55-59	70-74
			75 and over

## Other races, by sex, separately for ages:

14-17	25-34	45-54	65 and over
18-24	35-44	55-64	

In the second phase, 68 age-sex-race factors are computed to cover the entire population. The groupings used in this phase are indicated below:

## Total population by sex, race (white, non-white), separately for ages:

14-15	22-24	40-44	60-61
16-17	25-29	45-49	62-64
18-19	30-34	50-54	65-69
20-21	35-39	55-59	70-74
			75 and over

The results of the noninterview adjustment plus the two ratio estimate adjustments are applied to the base weight (the reciprocal of the sampling fraction) and the final result of these computations is placed on the record for each person in the sample.

### 3. Composite Estimates

Composite estimates are routinely applied to data tabulated from the monthly CPS and, as indicated in Section II below, become involved in a special weighting process performed on March Supplement data. Composite estimates are not performed on data produced in the CPS Annual Demographic File.

The composite estimate for a given item as estimated from the monthly CPS is a weighted average of two estimates for the current month. The first of these two estimates is the result of the two stages of ratio estimation described above. The second estimate consists of the composite estimate for the preceding month to which has been added an

estimate of the change from the preceding month to the present month based on the six rotation groups common to the two months. The composite estimate differs from the estimator previously described in that the weights assigned to the CPS sample records are not affected; the composite estimator operates on estimated totals.

For most statistics there is a high correlation over time for data from the same segments. The composite estimate takes advantage of this by using accumulated information from earlier samples, as well as the information from the current sample.

In general, for such a composite estimate to be unbiased, the weights for the two components must add to one; however, they need not necessarily be equal. In CPS, the weights used for combining these two components are each one-half. Equal weights satisfy the condition that for most items the composite estimate will be somewhat more reliable than the two-stage ratio estimate. The gains in reliability from the use of the composite estimate are greatest in estimates of month-to-month change, although gains are also usually realized in estimates of level for a given month or in change from year to year or over other intervals of time.

## II. Additional Weighting for the CPS Annual Demographic File

The main purpose of the additional weighting for the CPS Annual Demographic File is to achieve agreement between the regular March CPS labor force tabulations (including the effect of the composite estimate) and the CPS Annual Demographic File tabulations. Because the additional information in the supplement is collected only in March, a composite estimate is not utilized. However, the supplement results are adjusted to be consistent with the regular March CPS data, including the effects of the composite estimate as routinely performed on CPS data.

In summary, this objective is reached by computing factors for various age-race-employment-sex categories for different sectors of the population. The numerators of the factors are estimates from the regular March CPS including the composite estimator and the denominators are estimates after the two stages of ratio estimation from the March Supplement. The appropriate factor is then multiplied by the existing weight on the March Supplement Record (the weight after two stages of ratio estimation), and the product becomes the final supplemental weight.

Similar consistency in household or family tabulations is accomplished by the use of a principal person weighting procedure, which assumes that the number of females married, spouse present should equal the number of males married, spouse present. In this procedure, the weight used for families and households is the one assigned the "principal person" for the family or household. The "principal person" is defined as the wife for a husband-wife family and the head for other families. This weighting for households affects the additional weighting for persons in the manner described below. Throughout these weighting procedures, provision is made for collapsing of cells to avoid problems of zero numerators or denominators in the computation of the ratio estimate cells. In addition, if the operation yields an estimate of three or greater, provision is again made for combining cells in a fixed pattern for recomputation.

A. Ratio Estimate to Negro and Other Races Controls

(The age groups used in this section are the same as those used in Phase I of the second stage ratio estimate adjustment in the regular CPS weighting.)

The initial step is a ratio estimate to a set of independently established controls for noninstitutional Negroes and Other Races, aged 14 and over. For each of 48 cells; 17 age groups by sex for Negro and 7 age groups by sex for Other Races; the following ratio estimate factor is formed:

Independent Negro (or Other Races) control figure  
Negro (or Other Races) tally for March Supplement

The numerators are the same as those determined for Phase I (paragraph I.B.2) of the second stage ratio estimate in regular CPS, and the denominators are obtained by tabulating the Negro (or Other Races) March Supplement records using the weights established after the two stages of ratio estimation in CPS. The ratio estimate factor is then multiplied by the weight established after the two stages of ratio estimation in CPS and used in the subsequent weighting below.

B. Civilian Noninstitutional Population 14 and Over

(The age groups used in this section are the same as those used in Phase II of the second stage ratio estimate adjustment in the regular CPS weighting.)

1. Females

The following ratio estimate factor is formed for each of 136 cells; 17 age groups by two race categories (White, Negro and Other Races) by four employment status categories (Non-agricultural Employed, Agricultural Employed, Unemployed, and Not in Labor Force):

Total for the age-race-employment status cell from the regular March CPS including the composite estimator

$Rare = \frac{1}{\text{Total for the age-race-employment status cell obtained by tabulating the March Supplement records using the weights after the two stages of ratio estimation in CPS.}^2/}$

The existing weight on the record (the weight after two stages of ratio estimation) is then multiplied by the appropriate ratio  $Rare$  and this product becomes the final weight.

2. Males, Married Spouse Present

The weight already determined for the female partner is assigned to the male.

3. Other Male Heads (OMH)

The following ratio estimate factor is formed for each of the 136 cells:

Total of the male married, spouse present cases for the age-race-employment status cell using the weight developed for the male, married spouse present in 2

$Sare = \frac{\text{Total of the male, married spouse present cases using the weight established after the two stages of ratio estimation in CPS.}^2/}$

The final weight for other male heads is the product of the factor  $Sare$  and the weight for the OMH cases established after the two stages of ratio estimation in the course of the regular CPS estimation process.

4. All Other Males

The ratio estimate factors,  $Tare$ , are computed for each of the 136 cells. The numerator of  $Tare$  is found by subtracting the second and third of the following values from the first. 3/

- a. The 136 values for total males from the regular March labor force tabulations including the composite estimator.

1/ are, in the context of this section, is an abbreviation for age-race-employment status.



- b. The 136 values of males married, spouse present produced by tabulating males married, spouse present using the weights determined in 2.
- c. The 136 values of other male heads produced by tabulating other male heads using the final weight established in 3.

The denominators of  $T_{are}$  are obtained by tabulating the records for other males using the weights established after the two stages of ratio estimation in CPS. The final weight for other males will be the product of the factor  $T_{are}$  and the CPS weight after two stages of ratio estimation.

#### C. Noninstitutional Children Under 14

Ratio estimate factors for this group and the following group involve categories by age, sex, and race. The formulation of each of the ratio estimation factors requires a target number (the numerator) and a tally which is the denominator. In each case, the final weight is the product of the ratio estimate factor and the weight used in establishing this tally.

1. First, a ratio estimate for noninstitutional Negro and Other Races children is carried out in each of 34 cells - for each sex separately by the following 12 age cells for Negroes and 5 age cells for Other Races.

Negro: Under 1 year	6
1	7
2	8
3	9
4	10-11
5	12-13

Other Races: 2 and Under
3-4
5-6
7-9
10-13

- a. The target numbers are independently established estimates provided by the Population Division of the Bureau of the Census.
- b. The tallies are obtained using the principal person's weight for the household in which the child resides.

2. A second ratio estimate for all noninstitutional children is carried out in each of 48 ratio-estimate cells; sex by race by 12 age groups (same as those used for Negro in 1. of this section).
  - a. Target numbers are independently established estimates provided by the Population Division of the Bureau of the Census.
  - b. Tallies for Negro and Other Races are obtained using the weights established in 1. of this section.

#### D. Institutional Population of All Ages

1. First, a ratio estimate for Negro and Other Races is carried out in each of 18 cells - for each sex by the following 8 age groups for Negroes and 1 age group for Other Races.

Negro: 13 and under	35-44
14-17	45-54
18-24	55-64
25-34	65 and over

- a. Target numbers for these 18 cells are independently established estimates by Population Division.
- b. Tallies are made using the base March Supplement weight, adjusted appropriately for duplication control, noninterview, and first stage ratio estimate factors.

2. A second ratio estimate is carried out in each of 52 cells; sex by race by the following 18 age groups for whites and 8 age groups (same as those used for Negro in 1. of this section) for Negro and Other Races.

White: 6 and under	25-29	60-64
7-9	30-34	65-69
10-13	35-39	70-74
14-15	40-44	75 and over
16-17	45-49	
18-19	50-54	
20-24	55-59	

- a. Target numbers are independently established estimates provided by Population Division.
- b. Tallies for Negro and Other Races are made using the weights determined in D.1. above.

- c. Tallies for Whites are made using the base March Supplement weight, adjusted for duplication control, noninterview and first-stage ratio estimate factors.

F. Armed Forces

Members of the Armed Forces living off post or living with their families on post are included in the March Supplement, while all other Armed Forces are excluded. An Armed Forces Male Married, Spouse Present is given the weight of his wife as described before, and Armed Forces children are included in the weighting of noninstitutional children. Other Armed Forces are given the basic March CPS weight.

## CPS SAMPLING ERRORS ESTIMATED AT THE BUREAU OF THE CENSUS

Estimating sampling errors for a survey such as CPS, which employs complex estimation procedures, is a complicated undertaking. An analytical statement of the variance of the CPS can be expressed as the sum of several variance components - one for each stage of sampling in the CPS. Thus, a variance component is associated with each of the following:

1. The selection of one of the strata in each pair of NSR strata formed in the selection of the C sample (the "between stratum" component).
2. The selection of a sample of PSU's out of each NSR stratum (the "between PSU" component).
3. The selection and interview of only a sample (rather than all) of the housing units within each sample PSU (the "within PSU" component).
4. The choice of the interviewer and the respondent (the "respondent-interviewer" component).

In addition, the variance of the CPS also involves the effect of each of the estimation steps, which were introduced with the intention of reducing the variance of the CPS estimates. The following generalizations about the variance components usually apply.

1. The within-PSU component is a very large variance component.
2. The between-PSU component arises from the sampling of PSU's--i.e., the variance that would still be associated with the estimates even if a complete census of all households in every sample PSU could be included in the survey. The first-stage ratio estimate is intended to reduce the magnitude of this component.
3. The respondent-interviewer component does not directly result from the sampling itself, but rather from the actual interviewing process of the survey. Because of the variance estimation procedure used at the Census Bureau, these components are left out of the variance estimates for ER PSU's but are partially included in the variance estimates for NSR strata. For some characteristics this component may be as large or larger than the within-PSU component.

### Variance estimation method

The variance estimation method currently used for CPS is based on a proposal by Keyfitz <sup>4/</sup> which has been more recently generalized by Tepping <sup>5/</sup>. Keyfitz and Tepping showed that consistent estimates of the variance for complex ratio estimates are provided by relatively simple quadratic functions of the observations in each stratum. Strictly speaking, the method applies only when two primary units are selected from each stratum; however, useful approximations can be obtained for other sample designs by grouping or subdividing strata as required.

The figures presented in the following tables are approximations to the standard errors of various estimates from the March CPS tabulations. The standard errors reflect the CPS first and second stage ratio estimates but not the composite estimator. The effect of the composite estimate is omitted since the user can not reproduce composite estimates from the purchased CPS tape. These standard errors do not fully reflect the supplemental weighting procedures used in March. The additional weighting operations, however, were introduced to achieve consistency with tabulations produced from the regular March CPS and to improve the internal consistency of family and household tabulations. The sampling errors provided in the appendix are considered to be close approximations to the figures appropriate to data produced from the CPS Annual Demographic File.

The standard error (the square root of the variance) is primarily a measure of sampling variability--that is, of the variations that occur by chance because a sample rather than the whole of the population is surveyed. The chances are about 68 out of 100 that an estimate from the survey differs from a complete census figure by less than the standard error. The chances are about 95 out of 100 that the difference would be less than twice the standard error.

In order to derive standard errors that would be applicable to a wide variety of items and could be prepared at a moderate cost, a number of approximations were required. As a result, the tables of standard errors provided are an indication of the order of magnitude rather than the precise standard error for any specific item.

---

<sup>4/</sup> Keyfitz, Nathan, "Estimates of Sampling Variance Where Two Units Are Selected for Each Stratum," Journal of the American Statistical Association. 52:503-51. (1957).

<sup>5/</sup> Tepping, Benjamin J., "Variance Estimation in Complex Surveys," Proceedings of the Social Statistics Section, American Statistical Association, 1968:11-18.

### Sampling Error Tables

Table I.A shows standard errors of estimated totals for persons and table II.A for families, households, or unrelated individuals. Tables I.B.1-I.B.10 and tables II.B.1-II.B.8 show standard errors of estimated percentages as computed from CPS tabulations for different subjects appearing in the CPS Annual Demographic File (1968-1971) as shown in the following outline.

To approximate sampling errors for estimates from the "A" sample alone, multiply the figures in table I.A-II.B.8 by 1.23. The factor of 1.23 is needed to account for the smaller sample size used in the "A" sample. The figure 1.23 is the square root of the ratio of the sample size of the complete CPS sample and the "A" sample. To approximate sampling errors for estimates from the "C" sample alone, multiply the figures in tables I.A.-II.B.8 by 1.73, since the ratio of sample sizes is 3.

The reliability of an estimated percentage computed by using sample data for both numerator and denominator, depends upon both the size of the percentage and size of the total upon which the percentage is based. Estimated percentages are relatively more reliable than the corresponding absolute estimates of the numerator of the percentage, particularly if the percent is 50 percent or more.

The standard error tables for percentages (i.e., tables I.B.1-I.B.10 and II.B.1-II.B.8) were generated from standard error tables for estimated totals using the following formula:

Standard error of the percent  $\frac{x}{y} \cdot 100$

$$= 100 \sqrt{\left(\frac{x}{y}\right)^2 \left[ \left(\frac{\sigma_x}{x}\right)^2 - \left(\frac{\sigma_y}{y}\right)^2 \right]}$$

where:  $x$  = numerator of the percent

$y$  = denominator of the percent

$\sigma_x$  = standard error of the numerator

$\sigma_y$  = standard error of the denominator

# I. Standard Errors for Persons

## A. Estimated Number of Persons (Table I.A)

### Column

- 1 Total or White Persons by Household and Family Characteristics
- 2 Negro and Other Races by Household and Family Characteristics
- 3 Total or White Persons by Educational Attainment
- 4 Negro and Other Races by Educational Attainment
- 5 Total or White Persons by Income
- 6 Negro and Other Races by Income
- 7 Total or White Persons in Low-Income or Poverty Households
- 8 Negro and Other Races in Low-Income or Poverty Households
- 9 Persons by Employment Characteristics
- 10 Persons by Unemployment Characteristics
- 11 Women by Fertility Characteristics
- 12 Persons by Mobility Characteristics

## B. Estimated Percentages

### Table

- I.B.1 Total or White Persons by Household and Family Characteristics
- I.B.2 Negro and Other Races by Household and Family Characteristics
- I.B.3 Total or White Persons by Educational Attainment
- I.B.4 Negro and Other Races by Educational Attainment
- I.B.5 Persons by Income for Total and by Race
- I.B.6 Persons in Low-Income or Poverty Households for Total and by Race

- I.B.7 Persons by Employment Characteristics
- I.B.8 Persons by Unemployment Characteristics
- I.B.9 Women by Fertility Characteristics
- I.B.10 Persons by Mobility Characteristics

II. Standard Errors for Families, Households or Unrelated Individuals

A. Estimated Totals (Table II.A)  
Column

- 1 SMSA or Non-SMSA Estimates of Families, Households or Unrelated Individuals by Household and Family Characteristics
- 2 Other Estimates of Families, Household or Unrelated Individuals by Household and Family Characteristics
- 3 Total or White Families and Households by Income and Low-Income
- 4 Negro and Other Races Families and Households by Income and Low-Income
- 5 Total or White Unrelated Individuals by Income
- 6 Negro and Other Races Unrelated Individuals by Income
- 7 Total or White Unrelated Individuals by Low-Income or Poverty
- 8 Negro and Other Races Unrelated Individuals by Low-Income or Poverty

B. Estimated Percentages  
Table

- II.B.1 SMSA or Non-SMSA Estimates of Families, Households or Unrelated Individuals by Households and Family Characteristics
- II.B.2 Other Estimates of Families, Households or Unrelated Individuals by Household and Family Characteristics
- II.B.3 Total or White Families and Households by Income and Low-Income
- II.B.4 Negro and Other Races Families and Households by Income
- II.B.5 Total or White Unrelated Individuals by Income



- II.B.6 Negro and Other Races Unrelated Individuals by Income
- II.B.7 Total or White Unrelated Individuals by Low-Income or Poverty
- II.B.8 Negro and Other Races Unrelated Individuals by Low-Income or Poverty

TABLE 1.A -- STANDARD ERRORS OF ESTIMATED NUMBER OF PERSONS  
FOR SELECTED CPS DATA COLLECTED IN THE  
CPS ANNUAL DEMOGRAPHIC FILE (1968-1971)

(68 chances out of 100)

Size Estimate (in thousands)		Household and family charact.		Educational Attainment		Income		Persons in low-inc. or poverty h.h.		Em- ploy- ment	Unem- ploy- ment	Fertility (number of women)	Mobil- ity
		Total or White	Negro & Other Races	Total or White	Negro & Other Races	Total or White	Negro & Other Races	Total or White	Negro & Other Races				
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
		9	11	7	6	6	6	12	12	8	6	7	12
		13	16	10	12	8	8	16	16	10	9	9	17
		19	22	14	17	12	12	24	24	15	13	12	25
		30	34	22	26	20	18	40	36	24	20	20	39
		42	48	30	37	28	26	56	52	33	29	28	54
1,	0	59	68	45	51	39	36	78	72	47	40	39	77
2,	0	93	104	71	76	61	54	122	108	74	64	61	124
5,	0	131	138	100	96	86	69	172	138	103	90	82	180
10,	0	182	169	138	96	119	72	238	144	143	-	115	266
25,	0	277	-	204	-	178	-	356	-	210	-	160	472
50,	0	362	-	253	-	224	-	448	-	265	-	189	771

TABLE I.B.1 - STANDARD ERRORS OF ESTIMATED PERCENTAGES FOR PERSONS  
HOUSEHOLD & FAMILY CHARACTERISTICS  
Total or White

(68 chances out of 100)

Estimated Percentage	Base of percentage. (000)								
	100	250	500	1000	2500	5000	10,000	25,000	50,000
2 or 98	2.6	1.7	1.2	0.8	0.5	0.4	0.3	0.2	0.12
5 or 95	4.1	2.6	1.8	1.3	0.8	0.6	0.4	0.3	0.2
10 or 90	5.6	3.5	2.5	1.8	1.1	0.8	0.6	0.4	0.3
25 or 75	8.1	5.1	3.6	2.6	1.6	1.1	0.8	0.5	0.4
50	9.4	5.9	4.2	3.0	1.9	1.3	0.9	0.6	0.4

TABLE I.B.2 - STANDARD ERRORS OF ESTIMATED PERCENTAGES FOR PERSONS  
HOUSEHOLD AND FAMILY CHARACTERISTICS  
Negro and Other Races.

(59 chances out of 100)

Estimated Percentage	Base of percentage (000)						
	100	250	500	1,000	2,500	5,000	10,000
2 or 98	3.1	1.9	1.4	1.0	0.6	0.4	0.3
5 or 95	4.8	3.0	2.1	1.5	1.0	0.7	0.5
10 or 90	6.6	4.2	2.9	2.1	1.3	0.9	0.7
25 or 75	9.5	6.0	4.2	3.0	1.9	1.3	0.9
50	10.9	6.9	4.9	3.5	2.2	1.5	1.1

TABLE I.B.3 - STANDARD ERRORS OF ESTIMATED PERCENTAGES FOR PERSONS  
EDUCATIONAL ATTAINMENT  
Total or White

(68 chances out of 100)

Estimated Percentage	Base of percentage (000).									
	100	250	500	1,000	2,500	5,000	10,000	25,000	50,000	100,000
2 or 98	2.0	1.3	0.9	0.6	0.4	0.3	0.2	0.1	0.1	0.1
5 or 95	3.1	2.0	1.4	1.0	0.6	0.4	0.3	0.2	0.1	0.1
10 or 90	4.3	2.8	1.9	1.4	0.9	0.6	0.4	0.3	0.2	0.1
25 or 75	6.2	4.0	2.8	2.0	1.2	0.9	0.6	0.4	0.3	0.2
50	7.2	4.5	3.2	2.3	1.4	1.0	0.7	0.5	0.3	0.2

TABLE I.B.4 - STANDARD ERRORS OF ESTIMATED PERCENTAGES FOR PERSONS  
EDUCATIONAL ATTAINMENT  
Negro and Other Races

(68 chances out of 100)

Estimated Percentage	Base of percentage (000)							
	50	100	250	500	1,000	2,500	5,000	10,000
2 or 98	3.3	2.3	1.5	1.0	0.7	0.5	0.3	0.2
5 or 95	5.2	3.6	2.3	1.6	1.2	0.7	0.5	0.4
10 or 90	7.1	5.0	3.2	2.2	1.6	1.0	0.7	0.5
25 or 75	10.2	7.2	4.6	3.2	2.3	1.4	1.0	0.7
50	11.8	8.4	5.3	3.7	2.6	1.7	1.2	0.8

TABLE I.B.5 - STANDARD ERRORS OF ESTIMATED PERCENTAGES FOR PERSONS  
FOR TOTAL AND DISPOSABLE  
INCOME

(68 chances out of 100)

Estimated Percentage	Base of percentage (000)								
	100	250	500	1,000	2,500	5,000	10,000	25,000	50,000
for 98	1.7	1.1	0.8	0.5	0.3	0.2	0.2	0.1	0.1
for 95	2.7	1.7	1.2	0.9	0.5	0.4	0.3	0.2	0.1
for 90	3.7	2.3	1.7	1.2	0.7	0.5	0.4	0.2	0.2
for 75	5.4	3.4	2.4	1.7	1.1	0.8	0.5	0.3	0.2
50	6.2	3.9	2.8	2.0	1.2	0.9	0.6	0.4	0.3

TABLE I.B.6 — STANDARD ERRORS OF ESTIMATE PERCENTAGES FOR PERSONS  
 PERSONS IN LOW-INCOME OR POVERTY HOUSEHOLDS  
 For Total and By Race  
 (68 chances out of 100)

Estimated percentage	Base of percentage (000)								
	100	250	500	1,000	2,500	5,000	10,000	25,000	50,000
or 98	3.1	2.2	1.6	1.0	0.6	0.4	0.4	0.2	0.2
or 95	5.4	3.4	2.4	1.8	1.0	0.8	0.6	0.4	0.2
or 90	7.4	4.6	3.4	2.4	1.4	1.0	0.8	0.4	0.4
or 75	10.8	6.8	4.8	3.4	2.2	1.6	1.0	0.6	0.4
50	12.4	7.8	5.6	4.0	2.4	1.8	1.2	0.8	0.6



TABLE I.B.7 - STANDARD ERRORS OF ESTIMATED PERCENTAGES FOR PERSONS  
EMPLOYMENT

(68 chances out of 100)

Estimated percentage	Base of percentage (000)							
	250	500	1,000	2,500	5,000	10,000	25,000	50,000
2 or 98...	1.4	1.0	.7	.4	.3	.2	.1	.1
5 or 95...	2.2	1.6	1.1	.7	.5	.4	.2	.1
10 or 90...	3.0	2.1	1.5	1.0	.7	.5	.3	.2
25 or 75...	4.4	3.1	2.2	1.4	1.0	.7	.4	.3
50.....	5.1	3.5	2.5	1.6	1.1	.8	.5	.4

TABLE I.B.8 - STANDARD ERRORS OF ESTIMATED PERCENTAGES FOR PERSONS  
UNEMPLOYMENT

(68 chances out of 100)

Estimated percentage	Base of percentage (000)								
	100	250	500	1,000	5,000	10,000	25,000	50,000	100,000
2 or 98	1.8	1.2	0.8	0.6	0.3	0.2	0.1	0.1	0.1
5 or 95	2.8	1.8	1.2	0.9	0.4	0.3	0.2	0.1	0.1
10 or 90	3.9	2.5	1.7	1.2	0.6	0.4	0.3	0.2	0.1
25 or 75	5.8	3.7	2.6	1.8	0.8	0.6	0.4	0.3	0.2
50	7.1	4.6	3.2	2.3	1.0	0.7	0.4	0.3	0.2

TABLE I.B.9 - STANDARD ERRORS OF ESTIMATED PERCENTAGES FOR PERSONS  
WOMEN BY FERTILITY CHARACTERISTICS

(68 chances out of 100)

Estimated Percentage	Base of percentage (000)					
	500	1,000	5,000	10,000	25,000	50,000
2 or 93	0.7	0.4	0.2	0.1	0.1	0.1
5 or 95	1.0	0.7	0.3	0.2	0.1	0.1
10 or 90	1.4	1.0	0.4	0.3	0.2	0.1
25 or 75	2.0	1.4	0.6	0.4	0.3	0.2
50	2.3	1.6	0.7	0.5	0.3	0.2

TABLE I.B.10 - STANDARD ERRORS OF ESTIMATED PERCENTAGES FOR PERSONS  
MOBILITY

(68 chances out of 100)

Estimated Percentage	Base of Percentage (000)							
	250	500	1,000	2,500	5,000	10,000	25,000	50,000
2 or 98	2.1	1.5	1.1	0.7	0.5	0.3	0.2	0.2
5 or 95	3.3	2.4	1.7	1.1	0.8	0.5	0.3	0.2
10 or 90	4.6	3.2	2.3	1.5	1.0	0.7	0.5	0.3
25 or 75	6.6	4.7	3.3	2.4	1.5	1.1	0.7	0.5
50	7.6	5.4	3.8	3.0	1.7	1.2	0.8	0.5

TABLE II.A - STANDARD ERRORS OF ESTIMATED NUMBER OF FAMILIES, UNRELATED INDIVIDUALS OR HOUSEHOLDS FOR SELECTED CPS DATA COLLECTED IN THE CPS ANNUAL DEMOGRAPHIC FILE (1968 - 1971)

(68 chances out of 100)

Size of Estimate (in thousands)	Household and Family Characteristics		Families or Households Income and Low-Income (or Poverty)		Unrelated Individuals			
	SMSA or Non-SMSA Estimates	Other Estimates	Total or White	Negro and Other Races	Income		Low-Income or Poverty	
					Total or White	Negro and Other Races	Total or White	Negro and Other Races
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
25	8	6	6	5	6	6	12	12
50	11	8	9	8	9	8	18	16
100	16	12	13	11	13	11	26	22
150	25	18	20	18	20	18	40	36
200	36	26	28	25	28	25	56	50
300	50	36	40	35	40	36	80	72
400	79	57	62	55	65	57	130	114
500	111	79	86	76	94	--	188	--
1 000	155	107	117	103	139	--	278	--
2 000	231	147	157	--	--	--	--	--
5 000	292	139	129	--	--	--	--	--

TABLE II.B.1 - STANDARD ERRORS OF ESTIMATED PERCENTAGES FOR FAMILIES,  
HOUSEHOLDS OR UNRELATED INDIVIDUALS

HOUSEHOLD AND FAMILY CHARACTERISTICS

SMSA or Non-SMSA Estimates

(68 chances out of 100)

Estimated Percentage	Base of percentage (000)								
	100	250	500	1,000	2,500	5,000	10,000	25,000	50,000
2 or 98	2.2	1.4	1.0	0.7	0.4	0.3	0.2	0.14	0.10
5 or 95	3.5	2.2	1.6	1.1	0.7	0.5	0.3	0.2	0.2
1 or 90	4.8	3.0	2.1	1.5	1.0	0.7	0.5	0.3	0.2
2 or 75	6.9	4.4	3.1	2.2	1.4	1.0	0.7	0.4	0.3
50	8.0	5.1	3.6	2.5	1.6	1.1	0.8	0.5	0.4

TABLE II.B.2 - STANDARD ERRORS OF ESTIMATED PERCENTAGES FOR FAMILIES,  
HOUSEHOLDS OR UNRELATED INDIVIDUALS

HOUSEHOLD AND FAMILY CHARACTERISTICS

Other Estimates

(68 chances out of 100)

Estimated percentage	Base of percentage (000)								
	100	250	500	1,000	2,500	5,000	10,000	25,000	50,000
for 98	1.6	1.0	0.7	0.5	0.3	0.2	0.2	0.10	0.07
for 95	2.5	1.6	1.1	0.8	0.5	0.4	0.3	0.2	0.11
for 90	3.5	2.2	1.6	1.1	0.7	0.5	0.3	0.2	0.2
for 75	5.0	3.2	2.2	1.6	1.0	0.7	0.5	0.3	0.2
50	5.8	3.7	2.6	1.8	1.2	0.8	0.6	0.4	0.3

TABLE II.B.3 - STANDARD ERRORS OF ESTIMATED PERCENTAGES FOR  
FAMILIES OR HOUSEHOLDS

INCOME AND LOW-INCOME

Total or White

(Percentages out of 100)

Estimated percentage	Base of percentage (000)								
	100	250	500	1,000	2,500	5,000	10,000	25,000	50,000
or 98	1.8	1.1	0.8	0.6	0.4	0.3	0.2	0.11	0.08
or 95	2.8	1.8	1.2	0.9	0.6	0.4	0.3	0.2	0.12
or 90	3.8	2.4	1.7	1.2	0.8	0.5	0.4	0.2	0.2
or 75	5.4	3.4	2.4	1.7	1.1	0.8	0.5	0.3	0.2
50	6.4	4.0	2.9	2.0	1.3	0.9	0.6	0.4	0.3



TABLE II.B.4 - STANDARD ERRORS OF ESTIMATED PERCENTAGES FOR  
FAMILIES OR HOUSEHOLDS

INCOME AND LOW-INCOME

Negro and Other Races

(68 chances out of 100)

Estimated Percentage	Base of percentage (000)						
	100	250	500	1,000	2,500	5,000	10,000
2 or 98	1.6	1.0	0.7	0.5	0.3	0.2	0.2
5 or 95	2.5	1.5	1.1	0.8	0.5	0.3	0.2
10 or 90	3.4	2.1	1.5	1.1	0.7	0.5	0.3
25 or 75	4.8	3.0	2.1	1.5	1.0	0.7	0.5
50	5.6	3.6	2.5	1.8	1.1	0.8	0.6

TABLE II.B.5 - STANDARD ERRORS OF ESTIMATED PERCENTAGES FOR  
UNRELATED INDIVIDUALS

INCOME

Total or White

(68 chances out of 100)

Estimated percentage	Base of percentage (000)						
	100	250	500	1,000	2,500	5,000	10,000
2 or 98	1.8	1.1	0.8	0.6	0.4	0.2	0.2
5 or 95	2.7	1.7	1.2	0.9	0.5	0.4	0.3
1 or 90	3.8	2.4	1.7	1.2	0.8	0.5	0.4
2 or 75	5.3	3.4	2.4	1.7	1.1	0.8	0.5
50	6.3	4.0	2.8	2.0	1.3	0.9	0.6

TABLE II.B.6 - STANDARD ERRORS OF ESTIMATED PERCENTAGES  
FOR UNRELATED INDIVIDUALS

INCOME

Negro and Other Races

(68 chances out of 100)

Estimated Percentage	Base of percentage (000)				
	100	250	500	1,000	2,500
2 or 98	1.6	1.0	0.7	0.5	0.3
5 or 95	2.4	1.5	1.1	0.8	0.5
10 or 90	3.3	2.1	1.5	1.1	0.7
25 or 75	4.7	3.0	2.1	1.5	1.0
50	5.6	3.5	2.5	1.8	1.1

TABLE II.B.7. - STANDARD ERRORS OF ESTIMATED PERCENTAGES FOR  
UNRELATED INDIVIDUALS

LOW-INCOME OR POVERTY

Total or White

(68 chances out of 100)

Estimated Percentage	Base of percentage (000)						
	100	250	500	1,000	2,500	5,000	10,000
2 or 98	3.6	2.2	1.6	1.2	0.8	0.4	0.4
5 or 95	5.4	3.4	2.4	1.8	1.0	0.8	0.6
10 or 90	7.6	4.8	3.4	2.4	1.6	1.0	0.8
25 or 75	10.6	6.8	4.8	3.4	2.2	1.6	1.0
50	12.6	8.0	5.6	4.0	2.6	1.8	1.2

TABLE II.B.8 - STANDARD ERRORS OF ESTIMATED PERCENTAGES FOR  
UNRELATED INDIVIDUALS

LOW-INCOME OR POVERTY

Negro and Other Races

(68 chances out of 100)

Estimated Percentage	Base of percentage (000)				
	100	250	500	1,000	2,500
2 or 98	3.2	2.0	1.4	1.0	0.6
5 or 95	4.8	3.0	2.2	1.6	1.0
10 or 90	6.6	4.2	3.0	2.2	1.4
25 or 75	9.4	6.0	4.2	3.0	2.0
50	11.2	7.0	5.0	3.6	2.2

Illustration of the use of tables of standard errors

Table 1 of the Bureau of the Census report, "Characteristics of the Low-Income, Population:1970", Series P-60, No. 81 shows that in 1970 there were 12,879,000 persons in low-income or poverty families with a male head. Interpolation in column 7 of table 1.A shows the standard error for an estimate of this size to be approximately 261,000. The chances are 68 out of 100 that the estimate would have shown a figure differing from a complete census figure by less than 261,000. The chances are 95 out of 100 that the estimate would have shown a figure differing from a complete census figure by less than 522,000 (twice the standard error), i.e., this 95 percent confidence interval would be from 12,357,000 to 13,401,000.

Of these 12,879,000, 3,061,000 or 23.8 percent were in families with a Negro male head. Interpolation in table 1.B.6 of this document shows the standard error on 23.8 percent on a base of 12,879,000 to be approximately 0.9 percentage points. Consequently, chances are 68 out of 100 that the 23.8 percent would be within 0.9 percentage points of a complete census figure, and chances are 95 out of 100 that the estimate would be within 1.8 percentage points of a complete census figure, i.e., this 95 percent confidence interval would be from 22.0 to 25.6 percent.

## ESTIMATION OF CPS SAMPLING ERRORS BY COMPUTATION

Approximations to the CPS sampling errors can be derived by direct computation from the CPS sample records. The procedure, presented below, should be utilized for estimation of sampling errors of data for which generalized values are not shown in the tables in the previous section. In general, the problems and effort associated with direct computation of sampling errors suggest this method be used only for estimated aggregates, means, indices, or other statistics for which sampling errors cannot be imputed from the generalized tables provided. For all other items, imputing the sampling errors from the generalized tables in the previous section is likely to produce a more satisfactory result than direct computation and with substantially less effort. There are two major reasons for this. First, the complexity of the sample design is reflected in the problem of estimating sampling errors. Each stage of sampling in the CPS produces an increment in the sampling error and each step in the estimation procedure (introduced to reduce the sampling error) cause additional complications in the estimation of the sampling error. The Census Bureau has developed systems to measure the net effect of essentially all of these sampling and estimation steps, but the processes are much more involved and expensive to execute than the procedure offered in this document. Second, estimated sampling errors are themselves sample statistics and, therefore, subject to the sampling errors of their own. For CPS data periodically collected, the sampling errors presented in the previous section reflect, where possible, the averaging of sampling errors over statistics with a similar variance behavior and where possible are also averaged for observations over time. These estimates, therefore, more nearly represent correct values than could be expected from the measurement process described below.

The procedure presented for computing approximate sampling errors accounts for all of the stages of sampling in the CPS; but it does not completely reflect the impact of the various steps of estimation or the supplemental weighting procedures. The procedure essentially attempts to measure the sampling errors one would expect from the "unbiased estimator" - i.e., estimates resulting from multiplying the CPS sample results by the inverse of their probabilities of selection. As a result, this procedure will generally produce overestimates of the actual sampling errors appropriate to the CPS. However, the sampling errors can be made to reflect a simple single-stage ratio estimate to total population. Even though such an estimator is not a part of the actual CPS estimation, it does reflect some of the gains in the actual CPS estimator, as well as generating sampling errors which are somewhat smaller overestimates.

If the user requires sampling error estimates which more precisely reflect all stages of estimation for characteristics not covered by the sampling error tables, it may be possible to have the Census Bureau compute them. Users wishing to avail themselves of this service should contact the Chief of the Demographic Surveys Division at the Census Bureau to discuss the problem.

## Codes and Weights (F2 through F25 and P2 through P25)

A number of codes and weights are employed in the variance estimator. They appear in the layout of the data record described elsewhere. The codes and weights used for the variance computation process outlined in this section are as follows. There are a number of other factors appearing on the data record that are not needed for this operation

### 1. Noninterview Cluster (F2-3 and P2-3)

The noninterview clusters are used in the variance estimation for SR PSU's. They range from 01 to 30 for SR PSU's.

### 2. Random Cluster (F6-10 and P6-10)

The first three digits of the random cluster code determine the cluster. The fifth digit determines the PSU within the cluster. A cluster beginning with a 0 indicates a SR PSU, a 1 or 2 indicates a NSR PSU, and a 9 indicates an impossible PSU. The fourth digit shows the type of sample, i.e., an entry of 0 or 2 signifies the "A" sample and an entry of 1 signifies the "C" sample for the NSR PSU's, whereas an entry of 0 signifies the "A" sample and an entry of 1 signifies the "C" sample for SR PSU's. The first three digits of these clusters range from 001 to 030 for SR PSU's and from 101 to 222 for NSR PSU's.

An impossible PSU occurs if the PSU code appearing on the CPS schedule is found to be nonexistent. For a nonexistent PSU code, say XYZ, the first, second, third, and fifth digits of the random cluster code on the CPS computer data record will appear as 9XYZ, and the fourth digit will be 0 or 1 to indicate the "A" or "C" sample. A tape record with a random cluster code beginning with a 9 should be included when preparing tabulations (they are ordinarily included in Census Bureau tabulations), but should be omitted when variance estimations are formed.

### 3. Serial Number (F11-15 and P11-15)

The serial number (F11-15) in conjunction with the random cluster (F6-10) uniquely identify each family record; whereas, the serial number (P11-15), random cluster (P6-10), and line number (P34-35), uniquely identify each person's record.

### 4. "A" Weights (F16-20 and P16-20)

The "A" weights are used in the variance estimation for NSR PSU's.

## Estimating Variances for the A + C and A Sample Designs

A further explanation and derivation of the variance formulas mentioned in the following paragraphs can be found in the Census Bureau Records having impossible PSU codes should not be included in these processes.



I. Variances for One Month's Data - Unbiased Estimate (A + C Sample Design)

A. SR PSU's

1. Arrangement of Data

Each record in SR PSU's is considered in terms of two codes - a noninterview cluster code (01 to 30), F2-3 and P2-3, and a rotation group identification (1 to 8), F26 and P26. Sort the SR PSU data records by cluster code and within each cluster code by rotation group code. For each item for which variances are to be estimated, produce 240 weighted totals (30 noninterview clusters by 8 rotation groups).

The CPS data from SR PSU's should be sorted as in the following example:

Noninterview Cluster, Rotation Group	Items
Cluster 01	
Rotation Group 1 : [At this point, compute	$x(1,01,1), x(2,01,1), \dots, x(h,01,1)$ $x^2(h,01,1), \text{ for } h = 1, 2, \dots, h]$
Rotation Group 8 : [At this point, compute	$x(1,01,8), \dots, x(h,01,8)$ $\sum_{k=1}^8 x^2(h,01,k) \text{ and } \sum_{k=1}^8 x(h,01,k)]$
Cluster 02	
Rotation Group 1	
Rotation Group 8	
Cluster j	
Rotation Group k	$\dots x(h,j,k)$
Cluster 30	
Rotation Group 1	
Rotation Group 8	

$x(h,j,k)$  is the weighted total for characteristic  $h$  in the  $k^{\text{th}}$  rotation group of the  $j^{\text{th}}$  cluster. This output of data will provide all the information needed for the computation of the SR contribution to the total variances.

## 2. Variance Computations.

The following formula (formula 16 in attachment A) should be used in estimating the SR component of the total variance of a given characteristic h:

$$\sigma^2[x(h)] = \frac{1}{r-1} \sum_{j=1}^{30} \left\{ r \sum_{k=1}^r x^2(h,j,k) - \left[ \sum_{k=1}^r x(h,j,k) \right]^2 \right\} \quad (16)$$

(where r is the number of rotation groups).

### B. NSR PSU's

#### 1. Arrangement of Data.

First, sort the CPS records in NSR PSU's by the random cluster code (the first three digits of F6-10 and P6-10) and within each cluster by the three different PSU's in the cluster (i.e., 0, 1, or 2, the fourth digit of F6-10 and P6-10). Tabulate the records and produce PSU totals for each item for which variances are to be estimated. The result of this will be three weighted PSU totals for each of the 122 random clusters or a grand total of 366 weighted totals for each item for which variances are to be estimated. The data from NSR should be sorted as follows:

Random cluster, PSU	Items
Random cluster 101	
PSU 0	y(1,101,0), ..., y(h,101,0)
PSU 1	y(1,101,1), ..., y(h,101,1)
[At this point, compute	$\frac{y(h,101,0) + y(h,101,1)}{2}$
and y(h,101,0) - y(h,101,1)]	<sup>2</sup>
PSU 2	y(1,101,2), ..., y(h,101,2)
[At this point, compute	$A_{s0} y(h,101,2),$
$(A_{s2}) \left\{ \frac{y(h,101,0) + y(h,101,1)}{2} \right\}$	and $(A_{s2})^2 \left\{ y(h,101,0) - y(h,101,1) \right\}^2$
Random cluster 102	
:	
Random cluster s	
PSU i	..... y(h,s,i)
:	
Random cluster 222	
PSU 0	

$y(h,s,i)$  is the weighted total for characteristic  $h$  from the  $i^{\text{th}}$  PSU of the  $s^{\text{th}}$  random cluster code.  $A_{s0}$  is the "A" weight (F16-20 and P16-20) for PSU 0 and  $A_{s2}$  is the "A" weight (F16-20 and P16-20) for PSU 2. This output of data will provide all the information needed for computation of the NSR contribution to the total variance.

## 2. Variance Computations

The following formula (formula 15 in attachment A) should be used in estimating the NSR component of the total variance for a given characteristic  $h$ :

$$\begin{aligned} \sigma^2[y(h)] = & \sum_{s=101}^{222} \left[ A_{s2} \left\{ \frac{y(h,s,0) + y(h,s,1)}{2} \right\} - A_{s0} y(h,s,2) \right]^2 \\ & + \frac{21}{4} \sum_{s=101}^{222} (A_{s2})^2 [y(h,s,0) - y(h,s,1)]^2 \end{aligned} \quad (15)$$

## C. SR and NSR PSU's

$$\sigma^2[t(h)] = \sigma^2[x(h)] + \sigma^2[y(h)]$$

(Total variance)

$$v^2[t(h)] = \frac{\sigma^2[t(h)]}{[x(h) + y(h)]^2}$$

(Total relvariance).

C. SR and NSR PSU's

$$\sigma^2[t(h)] = \sigma^2[\hat{x}(h)] + \sigma^2[\hat{y}(h)]$$

(Total variance)

$$v^2[t(h)] = \frac{\sigma^2[t(h)]}{[\hat{x}(h) + \hat{y}(h)]^2}$$

(Total relvariance)

III. Variance for One Month's Data - Ratio Estimate (A + C or A Sample Design)

Approximations can be made to reflect the variance of a single stage ratio estimate to total population. The steps in this approximation are as follows:

A. Calculate the total relvariance for a given characteristic h, using the methods described in part I or II of this section.

B. Calculate the total relvariance for the estimate of total population, using the methods described in part I or II of this section.

C. Subtract the relvariance for B from the relvariance in A.

D. Multiply the difference determined in C by the square of the estimate of characteristic h.

If variances are computed for items for which it is possible to generalize variance behavior, the operations of attachment B of this document may be applied to obtain generalized standard error tables.

# VARIANCE ESTIMATORS FOR UNBIASED ESTIMATES, A+C SAMPLE AND A SAMPLE DESIGNS

This attachment considers estimators of the variance for unbiased estimates based on the A+C and A Sample Designs.

## THE A+C SAMPLE DESIGN AND ITS VARIANCE

This section shows the form of the unbiased estimate used in the A+C sample design and derives the variance for both nonself-representing (NSR) and self-representing (SR).

### I. Nonself-representing

#### A. Notation

Consider the following diagram representing two NSR strata of the A sample PSU design; stratum U and stratum V, which have been paired to produce the third PSU which along with the A sample PSU's in stratum U and V make up the A+C sample design, e.g., the diagram could describe cluster number 101. The five-digit random cluster code 10100 represents the A sample PSU selected out of stratum U; this sample PSU is indicated as 0 in the diagram to conform to the fourth digit of the cluster. Similarly, the random cluster codes 10111 and 10122 define the C sample PSU in stratum U and the A sample PSU in stratum V respectively.

We adopt the convention of assigning the identification of the A sample PSU to the stratum from which it is selected; thus, in the diagram below, stratum U and V are also referred to as stratum 0 and 2 respectively.

	<u>A Sample</u>	<u>C Sample</u>	
Stratum U	0	1	Stratum 0
Stratum V	2		Stratum 2

Let  $y_0$  and  $y_2$  be the estimates made up of the A sample PSU totals from the paired strata as inflated by the weights appropriate to the combined A and C samples. Thus in the diagram,  $y_0$  is the inflated sample estimate obtained from interviews conducted in the A sample PSU, indicated as 0,  $y_1$  is a similar estimate from the C sample PSU, and  $y_2$  is a similar estimate from the A sample PSU indicated as 2.

### B. Estimates Based on the A Sample Alone

1. An estimate of a total for the two strata combined based on data interviewed in

$$\theta_A = \frac{3}{2} y_0 + \frac{3}{2} y_2 \quad (1)$$

The factor of  $\frac{3}{2}$  is necessary as the inflated values  $y_0$  and  $y_2$  involve weights which assume the third PSU is included.

2. Given that sampling in the two A sample strata is independent, the variance of  $\theta_A$  can be shown to be

$$\text{Var}(\theta_A) = \frac{9}{4} [\text{Var}(y_0) + \text{Var}(y_2)] \quad (2)$$

### C. Estimates Based on the C Sample

1. An estimate of a total for the two strata combined based on data interviewed in the C sample alone is given by

$$\theta_c = 3y_1 \quad (3)$$

2. The variance of  $\theta_c$  is given by

$$\text{Var}(\theta_c) = 2\left(\frac{9}{4}\right) [\text{Var}(y_0) + \text{Var}(y_2)] + (Y_0 - Y_2)^2 \quad (4)$$

where

$$Y_0 = E\left(\frac{3}{2} y_0\right) = E\left(\frac{3}{2} y_1\right)$$

$$Y_2 = E\left(\frac{3}{2} y_2\right)$$

The operator, E, in the above paragraph, denotes the expected value. Thus, the terms  $Y_0$  and  $Y_2$  represent the expected values over all of the possible selections of sample PSU's and all possible selections of sample housing units within the sample PSU's in strata 0 and 2 respectively.

3. In comparing the variances (2) and (4), the separate terms of (4) can be rationalized as follows: The variance of  $\theta_A$  (see (2)) includes a between-PSU variance within strata 0 and 2. The estimate  $\theta_c$  should have a between-PSU variance twice that of  $\theta_A$  since  $\theta_c$  is accomplished with one (rather than two) sample PSU's. A similar statement is also appropriate for the variance arising because a sample rather than all housing units are interviewed within the sample PSU's. The second term on the right of (4) represents the between-stratum variance

probability and an independent selection of an additional PSU has had to represent the pair of strata.

#### D. Estimates Based on a Weighted Average of the A and C Samples

1. If the estimators  $\theta_A$  and  $\theta_C$  are combined using as averaging factors the proportion of the total sample represented by each estimator, we have:

$$\begin{aligned}\theta &= \frac{2}{3} \theta_A + \frac{1}{3} \theta_C \\ &= \frac{2}{3} \left[ \frac{3}{2} (y_0 + y_2) \right] + \frac{1}{3} (3) y_1 \\ &= y_0 + y_1 + y_2\end{aligned}\quad (5)$$

2. The variance of  $\theta$  follows from (2) and (4) as the variance we wish to estimate. Since expression (6) is appropriate for one pair of NSR strata, the operation can be repeated and summed over all pairs of strata to express the variance for all of the NSR strata.

$$\begin{aligned}\text{Var } \theta &= \left(\frac{2}{3}\right)^2 \text{Var}(\theta_A) + \left(\frac{1}{3}\right)^2 \text{Var}(\theta_C) \\ &= \frac{2}{2} \left[ \text{Var}(y_0) + \text{Var}(y_2) \right] + \frac{1}{9} (y_0 - y_2)^2\end{aligned}\quad (6)$$

#### E. Variances Estimated from Squared Differences Among Paired Strata

It is possible to construct variance estimators ("Bershad Estimators") which are based on squared differences of the estimates for paired strata. 1/

1. Examine the squared difference

$$\alpha_1 = 4 \left[ \frac{3}{2} \left( \frac{y_0 + y_1}{2} \right) A_2 - \frac{3}{2} y_2 A_0 \right]^2 \quad (7)$$

$$= 9 \left[ \left( \frac{y_0 + y_1}{2} \right) A_2 - y_2 A_0 \right]^2 \quad (8)$$

1/ The estimators in this section assume the following conditions hold true:

(1) The sampling in the two A sample strata is done independently.

(2)  $E(A_2 y_0) = E(A_2 y_1) = E(A_0 y_2)$



where  $y_0$ ,  $y_1$ , and  $y_2$  are defined as above and

$$A_0 = \frac{T_0}{T_0 + T_2}$$

$$A_2 = \frac{T_2}{T_0 + T_2} \quad \text{and}$$

$T_0$  and  $T_2$  are the 1960 Census populations of stratum 0 and stratum 2, respectively.

It can be shown that the expected value of  $\alpha_1$  is

$$E\alpha_1 = 9 \left( \frac{3}{4} \right) \left[ (A_2)^2 \text{Var}(y_0) + (A_0)^2 \text{Var}(y_2) \right] + 4 (A_2 y_0 - A_0 y_2)^2 \quad (9)$$

The equality sign in formula (9) will hold true if  $A_0 = A_2 = \frac{1}{2}$  which very nearly holds true in our situation.

2. Examine the squared difference

$$\begin{aligned} \alpha_2 &= 4 (A_2)^2 \left[ \frac{3}{2} y_0 - \frac{3}{2} y_1 \right]^2 \\ &= 9 (A_2)^2 [y_0 - y_1]^2 \end{aligned}$$

The expected value of this squared difference is

$$E\alpha_2 = 9 \left[ (A_2)^2 \text{Var}(y_0) + (A_0)^2 \text{Var}(y_2) \right] \quad (10)$$

The equality sign in formula (10) will hold true if  $A_2 = A_0 = \frac{1}{2}$ , which very nearly holds true in our situation.

3. Consider a variance estimator made up of a weighted sum of the two estimators  $\alpha_1$  and  $\alpha_2$ .

$$\alpha = r\alpha_1 + s\alpha_2 \quad (11)$$

Combining (9) and (10) with weights of  $r$  and  $s$ , we have

$$E\alpha = 9 \left[ \frac{3}{4} r + s \right] \left[ (A_2)^2 \text{Var}(y_0) + (A_0)^2 \text{Var}(y_2) \right] \quad (12)$$

The effect of the  $A_0$  and  $A_2$  in expression (12) is to adjust for the differences in the estimates for the two strata brought about by the differences in the size of the strata.

If  $A_0 = A_2 = \frac{1}{2}$ , then (12) becomes:

$$E\alpha = \frac{2}{4} \left( \frac{3}{4} r + s \right) \left[ \text{Var}(y_0) + \text{Var}(y_2) \right] + r \left[ y_0 - y_2 \right]^2 \quad (13)$$

Equating expression (13) and (6) and solving for  $r$  and  $s$ , we have

$$r = \frac{1}{9}$$

$$s = \frac{7}{12}$$

so that

$$\alpha = \left[ \frac{y_0 + y_1}{2} A_2 - y_2 A_0 \right]^2 + \frac{21}{4} (A_2)^2 \left[ y_0 - y_1 \right]^2 \quad (14)$$

#### F. Generalizing the Variance Estimator for All NSR Strata

The above discussion dealt with a single pair of NSR strata, the  $s^{\text{th}}$  "random cluster." The notation is further modified so that

$y(h,s,i)$  is the weighted total for characteristic  $h$  in the  $i^{\text{th}}$  PSU of the  $s^{\text{th}}$  random cluster where

$s = 101, 102, \dots, 222$  represents the random clusters in all of NSR.

$i = 0, 2$  represents the two NSR PSU's in the A sample in a given random cluster, and

$i = 1$  the C sample PSU in the random cluster, and

$$y(h) = \sum_{s=101}^{222} \left[ y(h,s,0) + y(h,s,1) + y(h,s,2) \right]$$

A restatement of (14) in the revised notation for all NSR is:

$$\text{Var} [y(h)] = \sum_{s=101}^{222} \left\{ \frac{y(h,s,0) + y(h,s,1)}{2} A_{s2} - y(h,s,2) A_{s0} \right\}^2 + \frac{21}{4} \sum_{s=101}^{222} \left\{ y(h,s,0) - y(h,s,1) \right\}^2 A_{s2} \quad (15)$$

## II. Self-Representing

Since the entire sample for each SR stratum is selected from the one PSU which makes up the stratum, the SR variance for a given characteristic  $h$  can be estimated using the following formula:

$$\sigma^2 [x(h)] = \frac{1}{(r-1)} \sum_{j=1}^{20} \left\{ r \sum_{k=1}^r x^2(h,j,k) - \left[ \sum_{k=1}^r x(h,j,k) \right]^2 \right\} \quad (16)$$

where:  $x(h,j,k)$  is the weighted total for characteristic  $h$  in the  $k^{\text{th}}$  rotation group in the  $j^{\text{th}}$  noninterview cluster of the SR PSU's.

$r$  is the number of rotation groups.

$$x(h) = \sum_{j=1}^{20} \sum_{k=1}^r x(h,j,k)$$

It should be noted that formula (16) partially reflects the systematic sample selection of households within the SR PSU's.

## THE SAMPLE DESIGN AND ITS VARIANCE

This section shows the form of the unbiased estimate used in the A sample design and derives the variance for both NSR and SR.

### 1. NSR

#### A. Notation

Consider the following notation associated with the diagram representing two NSR strata:

Stratum 0

A SAMPLE

0
2

Let  $\hat{y}_0$  and  $\hat{y}_2$  be the estimates made up of the stratum 0 and stratum 2 PSU

weights used in the estimation are  $1/2$  each since only the A and C samples are considered. Thus, to convert to the notation employed for the A and C combined samples,  $\hat{y}_0 = 3/2 y_0$  and  $\hat{y}_2 = 3/2 y_2$ .

B. Estimator Based on the Stratum 0 and Stratum 2 Samples

$$1. \theta = \hat{y}_0 + \hat{y}_2 \quad (17)$$

$$2. \text{Var } \theta = \text{Var } (\hat{y}_0) + \text{Var } (\hat{y}_2) \quad (18)$$

C. Variance Estimated from Squared Differences Among Paired Strata

It's possible to construct variance estimators ("Bershad Estimator") which are based on squared differences of the estimates for paired strata. 2/

1. Examine the squared difference.

$$\alpha = 4 \left[ \hat{y}_0 A_2 - \hat{y}_2 A_0 \right]^2 \quad (19)$$

where  $\hat{y}_0$  and  $\hat{y}_2$  are defined as above, and

$$A_0 = \frac{T_0}{T_0 + T_2}$$

$$A_2 = \frac{T_2}{T_0 + T_2}$$

$T_0$  and  $T_2$  are the total population of stratum 0 and stratum 2, respectively.

It can be shown the expected value of  $\alpha$  is

$$E\alpha = 4 \left[ (A_2)^2 \text{Var } (\hat{y}_0) + (A_0)^2 \text{Var } (\hat{y}_2) \right] \quad (20)$$

D. Generalizing the Variance Estimator for All NSR Strata

The above discussion dealt with a single pair of NSR strata, the  $s^{\text{th}}$  "Stratum Combination." If the notation is further modified so that:

$\hat{y}(h, s, i)$  is the weighted total for characteristic  $h$  in the  $i^{\text{th}}$  PSU of the  $s^{\text{th}}$  random cluster, where:

2/ The estimator mentioned above assumes the following conditions hold true:

$$1. E(A_2 \hat{y}_0) = E(A_0 \hat{y}_2)$$

2. The sampling in two A sample strata is done independently.

$s = 101, 102, \dots, 222$  represent the random clusters for all of NSR.

$i = 0, 2$  represent the two NSR PSU's in the A sample in a given random cluster.

$$\hat{y}(h) = \sum_{s=101}^{222} [\hat{y}(h,s,0) + \hat{y}(h,s,2)]$$

Then the restatement of (19) in the revised notation for all NSR is:

$$\text{Var} [\hat{y}(h)] = 4 \sum_{s=101}^{222} \left[ A_{s2} \hat{y}(h,s,0) - A_{s0} \hat{y}(h,s,2) \right]^2 \quad (21)$$

## II. SR

The formula for estimating SR variances for the A sample design for a given characteristic  $h$  is the same as that used in the A+C sample design, which is as follows:

$$\sigma^2 [\hat{x}(h)] = \frac{1}{(r-1)} \sum_{j=1}^{30} \left\{ r \sum_{k=1}^r \hat{x}^2(h,j,k) - \left[ \sum_{k=1}^r \hat{x}(h,j,k) \right]^2 \right\} \quad (22)$$

where:  $\hat{x}(h,j,k)$  is the weighted total for characteristic  $h$  in the  $k^{\text{th}}$  rotation group in the  $j^{\text{th}}$  noninterview cluster of the SR PSU's.

$r$  is the number of rotation groups.

$$\hat{x}(h) = \sum_{j=1}^{30} \sum_{k=1}^r \hat{x}(h,j,k)$$

## Generalizing Variances

If the user has computed variances directly from the CPS sample records for items from a common subject matter area, then it is possible to fit a curve for the relvariance estimates for these items to produce generalized standard error tables (such as tables IA through IIB.2). It's assumed that the reader has the estimates and corresponding relvariances for  $k$  items, which are fairly representative for this subject matter.

The major reasons for employing the curve fitting approach are; first, curve fitting is a form of averaging observations for items having similar variance behavior and, therefore, induces an added dimension of stability (i.e., curve-fitting reduces the effect of the variance on the variance estimates). Secondly, there are time and money savings realized if a generalized variance curve can be made applicable to several items based on computation from a few statistics.

In curve fitting, it is assumed that the variance of an estimate is a function of the proportion of the sample having the desired characteristic, and that this is the only factor affecting the magnitude of the variances. All other variation in the variance estimates not explained by this factor are assumed to be the result of the lack of reliability of the estimates.

## The Curve Fitting Procedure

The curve fitting procedure fits a curve of the form  $V_x^2 = a + b/x$  to a set of  $k$  estimates  $x_i$  and their estimated relvariances  $V_{x_i}^2$ . This procedure minimizes the sum of squared differences between the observed relvariances  $V_{x_i}^2$  and the predicted relvariances  $(a + b/x_i)$ , divided by the predicted relvariance - i.e., the quantity

(1) 
$$\sum_{i=1}^k \left[ \frac{V_{x_i}^2 - a - b/x_i}{a + b/x_i} \right]^2$$
 is minimized. Since the values of  $a$  and  $b$  are not known before minimization, an iterative method is necessary. Thus, we begin by minimizing the quantity:

(2) 
$$\sum_{i=1}^k \left[ \frac{V_{x_i}^2 - a_1 - b_1/x_i}{V_{x_i}^2} \right]^2$$
 This minimization is produced by differentiating (2) with respect to  $a_1$  and equating

to zero, differentiating (2) with respect to  $b_1$  and equating to zero and solving these two equations simultaneously for  $a_1$  and  $b_1$ . The second approximation is obtained:

$$(3) \sum_{i=1}^k \left[ \frac{v_{x_i}^2 - a_2 - b_2/x_i}{a_1 + b_1/x_i} \right]^2$$

by differentiating (3) with respect to  $a_2$  and  $b_2$ , equating to zero and solving these two equations simultaneously for  $a_2$  and  $b_2$ . The process continues by substituting the computed values of  $a_2$  and  $b_2$  for  $a_1$  and  $b_1$  in (3) and solving for  $a_3$  and  $b_3$ . This iterative process is carried out until  $a_{i+1}$  and  $b_{i+1}$  do not differ materially from  $a_i$  and  $b_i$ . (We recommend that the 10th iteration be used as the final fitted curve). With this final curve a table of generalized standard errors may be derived by multiplying the relvariance obtained from the curve by the estimate squared and then taking the square root of this number.

#### A Curve Fitting Computer Program

The attached computer program may be used for the above computations. The first part of this program fits a curve to the set of points (i.e., it produces a final "a" and "b"); the second part of the program produces tables of generalized standard errors using the "a" and "b", for either estimated totals or percentages. This program, if it cannot be employed in an available computer, can serve as a guide in preparing a new curve fitting program. The attached program is written in FORTRAN IV for a Digital PDP10 Computer.

```

DIMENSION P(17), V2(157), VM(157), VM2(157)
DIMENSION VM2(157), SUM(157), LABEL(15)
DIMENSION X(57), TAB1(57), TAB2(57,17)
DIMENSION M(5)
DIMENSION XR(4), TAB3(6,57), N5(5)
DIMENSION PRAT(57)
501  FORMAT(5A7)
502  TYPE 502
503  FORMAT(' DO YOU NEED TO COMPUTE A AND B?'/)
504  TYPE 504
505  FORMAT(' ANSWER 1 FOR YES, 0 FOR NO'/)
537  ACCEPT 537, IANS
538  FORMAT(I)
539  IF(IANS.NE.1) GO TO 20
23  TYPE 502
502  FORMAT(' ENTER NUMBER OF CHARACTERISTICS FOR CURVE'/)
503  ACCEPT 537, NITEM
504  TYPE 503
505  FORMAT(' ENTER 0 FOR VARIANCE, 1 FOR RELVARIANCE'/)
506  ACCEPT 537, NTYPE
507  TYPE 504
508  FORMAT(' ENTER ESTIMATE, VARIANCE OR RELVARIANCE'/)
509  TYPE 505
510  FORMAT(' ONE CHARACTERISTIC AT A TIME'/)
511  DO 50 I=1, NITEM
512  ACCEPT 538, SUM(I), V2(I)
513  FORMAT(2F)
514  CONTINUE
515  IF(NTYPE.EQ.1) GO TO 3
516  DO 2 MJ=1, NITEM
517  V2(MJ)=V2(MJ)/SUM(MJ)**2
518  G=0
519  H=0
520  XI=0
521  XK=0
522  XL=0
523  DO 30 J=1, NITEM
524  VM(J)=1./V2(J)**2
525  G=G+VM(J)
526  H=H+VM(J)/SUM(J)**2
527  XI=XI+VM(J)/SUM(J)
528  XK=XK+1./V2(J)*SUM(J)
529  XL=XL+1./V2(J)
530  CONTINUE
531  D=G*H-XI**2
532  A=(XI*H-XI**2)/D
533  B=(XK**2-XI**2)/D
534  TYPE 506
535  FORMAT(' ENTER NUMBER OF ITERATIONS DESIRED'/)
536  ACCEPT 537, NITER
537  DO 34 ICT=1, NITER
538  DO 32 J=1, NITEM
539  VM2(J)=A+B/SUM(J)
540  G2=0
541  H2=0
542  XI2=0
543  XM=0
544  XN=0
545  DO 36 J=1, NITEM
546  VM2(J)=1./VM2(J)**2
547  G2=G2+VM2(J)
548  H2=H2+VM2(J)/SUM(J)**2
549  XI2=XI2+VM2(J)/SUM(J)
550  XM=XM+V2(J)*VM2(J)
551  XN=XN+(V2(J)*VM2(J))/SUM(J)
552  CONTINUE
553  D2=G2*H2-XI2**2
554  A=(H2*XN-XI2**2)/D2
555  B=(G2*XN-XI2**2)/D2
556  CONTINUE
557  FORMAT(' ')
558  TYPE 507
559  TYPE 508, A, B

```



```

508 FORMAT(' A = ',F,' B = ',F)
TYPE 507
TYPE 507
GO TO 21
20 TYPE 509
509 FORMAT(' ENTER A AND B'//)
ACCEPT 538, A,B
TYPE 510
510 FORMAT(' DO YOU WANT TO COMPUTE (1) TABLES, (2) PCTS, '//)
TYPE 511
511 FORMAT(' (3) NEW CURV, (4) PERCENTAGE TABLES ONLY'//)
TYPE 512
512 FORMAT(' OR RATIO ESTIMATE TABLES(5)'//)
TYPE 513
513 FORMAT(' ANSWER BY NUMBER'//)
ACCEPT 537, IANS
GO TO (22,24,23,22,22), IANS
22 TYPE 514
514 FORMAT(' ENTER NUMBER OF ESTIMATES OR BASES - MAX 50'//)
ACCEPT 537, NEST
TYPE 515
515 FORMAT(' ENTER ESTIMATES DIVIDED BY 1000'//)
ACCEPT 539, (X(I), I=1, NEST)
539 FORMAT(10F)
IF(IANS.EQ.5) GO TO 270
TYPE 516
516 FORMAT(' ENTER NUMBER OF PERCENTAGES-MAXIMUM 6'//)
TYPE 517
517 FORMAT(' ENTER 0 IF NO PERCENTAGES DESIRED'//)
ACCEPT 537, NPCT
IF(NPCT.EQ.0) GO TO 160
TYPE 518
518 FORMAT(' ENTER PERCENTAGES- EXAMPLE 1 OR 99 AS .01'//)
TYPE 519
519 FORMAT(' MULTIPLE INPUT - EXAMPLE .01,.05,...'//)
ACCEPT 539, (P(I), I=1, NPCT)
160 CONTINUE
DO 40 J = 1, NEST
K(J) = X(J) * 1000.
XTEMP = A + B/X(J)
KXT = 0
IF (XTEMP.LT.0) KXT = 1
TAB1(J) = X(J) * SQRT(ABS(XTEMP))
IF(KXT.EQ.1) TAB1(J) = -TAB1(J)
40 CONTINUE
IF(NPCT.EQ.0) GO TO 161
DO 41 J = 1, NPCT
DO 41 I = 1, NEST
DX = P(J) * X(I)
VD2 = A+B/DX
VX2 = A+B/X(I)
XTEMP = P(J) ** 2 * (VD2 - VX2)
KXT = 0
IF(XTEMP.LT.0) KXT = 1
TAB2(I,J) = SQRT(ABS(XTEMP))
IF (KXT.EQ.1) TAB2(I,J) = -TAB2(I,J)
41 CONTINUE
161 CONTINUE
TYPE 520
520 FORMAT(' ENTER LABEL - MAX 60 CHARACTERS'//)
DO 51 I=1,5
TYPE 527
ACCEPT 811, (LABEL(I), I=1, 15)
811 FORMAT(15A4)
IF(IANS.EQ.4) GO TO 170
TYPE 527
TYPE 527
TYPE 521
FORMAT(' SIZE OF ESTIMATE STANDARD ERROR'//)
FORMAT(' ')
TYPE 512, (X(I), TAB1(I), I=1, NEST)
DO 52 I=1,5
TYPE 527
52 FORMAT(' ')

```

```

812      FORMAT(F12.4,F12.2)
      IF(NPCT.EQ.0) GO TO 162
1479     CONTINUE
      TYPE 522
522      FORMAT(' ENTER FORMAT - (E10.4,NF10.6) WHERE N IS '/')
      TYPE 523
523      FORMAT(' THE NUMBER OF PERCENTAGES')
      ACCEPT 523, (M(I),I=1,5)
      DO 61 I=1,5
61       TYPE 527
      TYPE 813, (F(I),I=1,NPCT)
813      FORMAT(5H BASE OF,2X,3H ESTIMATED PERCENTAGE/
      11H PERCENTAGE,F10.3,5F10.3)
      TYPE 527
      TYPE 1A, (X(I), (TAB2(I,J), J=1,NPCT), I=1,NEXT)
254     FORMAT(1X,I,F,527(F,))
      DO 61 I=1,5
61       TYPE 527
872     FORMAT(5A4)
162     CONTINUE
873     FORMAT(F10.2)
283     CONTINUE
      TYPE 525
525     FORMAT(' ENTER(1) FOR MORE TABLES,(2) FOR INDIVIDUAL')
      TYPE 526
526     FORMAT(' PCTS,(3) FOR NEW A AND B,(4) TO STOP')
      TYPE 527
527     FORMAT(' (4) ADDITIONAL PERCENTAGE TABLES')
      TYPE 528
528     FORMAT(' OR RATIO ESTIMATE TABLES (5)')
      TYPE 529
529     FORMAT(' ENTER 0 TO STOP')
      ACCEPT 527,IANS
      IF(IANS.EQ.7) IANS=4
      GO TO (22,2,23,24,25,3/4),IANS
24     TYPE 530
530     FORMAT(' ENTER P AND ESTIMATE/1777 - EXAMPLE .01,500')
      ACCEPT 530,PI,XI
      XI=XI*1777
      DX=PI*XI
      VD2=A+B/DX
      VX2=A+B/XI
      XTEMP=PI*2 * (VD2 - VX2)
      KXT=0
      IF(XTEMP.EQ.0) KXT=1
      TAB=SQRT(ABS(XTEMP))
      IF(KXT.EQ.1) TAB=-TAB
      TYPE 527
      TYPE 813, TAB
      TYPE 527
810     FORMAT(F10.6)
      TYPE 531
531     FORMAT(' MORE PCT COMPUTATIONS - 1 FOR YES, 0 FOR NO')
      ACCEPT 531,IANS
      IF(IANS.EQ.1) GO TO 24
      TYPE 532
532     FORMAT(' ENTER 1 FOR TABLES, 2 FOR NEW CURVE, 0 TO STOP')
      ACCEPT 532,IANS
      IF(IANS.EQ.1) GO TO 22
      IF(IANS.EQ.2) GO TO 23
24     TYPE 533
533     FORMAT(' ENTER NUMBER OF XR S-MAX 6')
      ACCEPT 533,NUMXR
      TYPE 534
534     FORMAT(' ENTER YRS/1777')
      ACCEPT 534, (M(I),I=1,NPCT)
      DO 241 J=1,NEXT
      VYZ=A+B/(X(J)*1777)
      DO 241 I=1,NUMXR
      VX2=A+B/(XR(I)*1777)

      IF(XTEMP.EQ.0) KXT=1
      TAB3(I,J)=XR(I)*SQRT(XTEMP)

```

```

271      CONTINUE
      TYPE 535
535      FORMAT(' ENTER FORMAT-(MIP.4,NFIP.3) WHERE N IS')/
      TYPE 536
      FORMAT(' THE NUMBER OF XR')/
536      READ 971, (NF(I), I=1,5)
      TYPE 971, (XR(I), I=1,NUMBER)
971      FORMAT(5H BASE OF,17H,GENERATIO ESTIMATES (777)/
      & 10H RATIO EST
      TYPE 521, 15, (X(J), (TAB3(I,J), I=1,NUMBER), J=1,NEST)
      DO 272 I=1,5
      TYPE 507
272      CONTINUE
      GO TO 273
307      STOP
      END

```

## STATE AND SMSA TABULATIONS

This attachment deals with problems in tabulating states, SMSA's and combinations of states. National estimates will have the lowest relative sampling errors of any of the area tabulations made from the CPS records. It is possible to produce unbiased estimates for subordinate areas but the sampling errors associated with such estimates will be relatively larger. There are two major reasons for this and care should be exercised lest these considerations combine to produce meaningless results for small areas.

First, the Current Population Survey was designed with the primary objective of maximizing the reliability of national and regional estimates; the reliability of subordinate areas was not considered as an ingredient of the design. As a consequence of this ordering of priorities, MSR strata are often comprised of PSU's from more than one state (although all MSR PSU's in a stratum are from the same region). In such strata, the sample PSU's will represent data from more than one state. State estimates constructed by a summation of estimated stratum totals for those strata having the sample PSU in a given state will include an estimate for PSU's outside the state of interest. Furthermore, some of the PSU's in the state of interest may be represented by a sample PSU in a different state. Although such estimates are unbiased when considered over all possible samples of PSU's, they do introduce a substantial component of sampling error in estimates for a state, especially when the state has a large proportion of its population in MSR strata.

Secondly, the CPS is designed as a self-weighting sample such that each sample case has the same overall probability of selection of about 1-in-1,300. Thus, the sample size for states, SMSA's or other areas will be proportional to the population of the area. The reliability of a sample estimate is a function of the number of sample cases employed in creating the estimate, and as the number of sample cases decreases, the reliability of the estimates will deteriorate. The reliability problem is further aggravated for estimates involving detailed cross-tabulations of the sample cases within an area.

Estimates for subordinate tabulation areas may be made by tallying the weights for records identified with the tabulation area. Sampling errors expected for estimates prepared in this way should be considered in deciding the area for which useful results may be expected. Table III is offered as an aid in determining such tabulation areas. The table presents a range of factors representing the approximate increment in the standard errors of tables I and II expected for tabulations produced for selected subordinate areas. As the factors are available only as rough approximations, they are presented as ranges and, in this form, may be used to speculate on the upper and lower bounds of standard errors appropriate for a tabulation area.

As an example, consider the subordinate area: Arizona-Colorado-New Mexico. Table III shows a range of the factors of 1.9-2.4 for this area. This means that standard errors expected for estimates from this area range from about 1.9 times to about 2.4 times as large as the standard errors given in tables I or II for U.S. estimates (this applies to tabulations for all three states combined, not each state separately). For an estimate of 50,000 white persons residing in households of a given type, column (1) of table IA shows a standard error of 13,000 for the U.S. estimate. For the subordinate area consisting of the three states, the standard error is expected to be between 25,000 and 31,000. Using the lower limit of this range, the 95 percent confidence interval for this estimate would be from 0 to 100,000. Estimated totals for subsets of persons in this category would have even larger relative sampling errors.

Table III - Factors to be Applied to Tables I and II <sup>1/</sup>  
 Approximate Standard Errors for Subordinate Areas

Subordinate Area	Approximate Range of Factors
<u>Census Regions:</u>	1.0 - 1.5
<u>Census Divisions</u>	
1. Middle Atlantic	1.0 - 1.5
2. Pacific	1.0 - 1.5
3. East North Central	1.0 - 1.5
4. West South Central	1.0 - 1.5
5. New England	1.3 - 1.8
6. South Atlantic	1.3 - 1.8
7. West North Central	1.3 - 1.8
8. East South Central	1.3 - 1.8
9. Mountain	1.6 - 2.1
<u>Groups of States</u>	
1. Pennsylvania-New Jersey	1.3 - 1.8
2. Ohio-Indiana	1.3 - 1.8
3. Illinois-Mich.-Wisc.	1.3 - 1.8
4. Mont.-Idaho-Wyoming- Colorado-N. Mexico-Ariz.- Utah-Wash.-Oregon-Alaska- Hawaii	1.3 - 1.8
5. Delaware-Md.-D.C.-Va.- West Virginia	1.6 - 2.1
6. N.C.-S.C.-Ga.-Fla.	1.6 - 2.1
7. Ariz.-Colo.-N. Mexico	1.9 - 2.4
8. Mich.-Wisc.	1.9 - 2.4

<sup>1/</sup> Refers to standard error tables IA, IB1-IB10, IIA and IIB1-IIB3.

(more)

Table III — cont'd.

Individual States

1. New Jersey	1.0 - 1.5
2. California	1.0 - 1.5
3. New York	1.0 - 1.5
4. Maryland	1.3 - 1.8
5. Pennsylvania	1.3 - 1.8
6. Illinois	1.6 - 2.1
7. Ohio	1.6 - 2.1
8. Florida	1.6 - 2.1
9. Conn.	1.9 - 2.4
10. Missouri	1.9 - 2.4
11. Texas	1.9 - 2.4
12. Tennessee	1.9 - 2.4
13. Other States	2.5 or more
<u>Individual SMSA</u>	1.0 - 1.5

The reliability of estimates of totals, prepared as indicated above, may be improved by introducing an additional stage of ratio estimation. This process requires an independent estimate of the total civilian non-institutional population of the tabulation area in question. The additional estimation stage will improve estimates of levels but it will not affect the reliability of estimates of proportions. For each tabulation area, the following ratio should be computed:

$$\frac{\text{Independent estimate of the total civilian noninstitutional population for the area}}{\text{CPS estimate of the total civilian noninstitutional population for the area}}$$

The independent estimates of the total civilian noninstitutional population for each area in Table III are available, <sup>2</sup>on request, from the Population Division of the Bureau of the Census. The CPS estimates of the total civilian noninstitutional population for each subordinate area should be computed from the CPS records on the Annual Demographic File. For each area, the sum of the existing weights on the records for the persons in the area should be used as the CPS estimate of total population for that area. The additional stage of ratio estimation is applied by multiplying the existing weight on each record in the area by the appropriate ratio for that area and the revised weights should then be used when tabulating the records in the area. Alternatively, the estimated totals produced using the existing weights may be adjusted by applying this factor.

The sampling errors of estimated totals produced by this revised estimator are derived by following the instructions given in Section III, page 48, where the "variance of a single stage ratio estimate to total population" is treated.

<sup>2</sup> Actually, the independent estimates are available for each of 50 states and 19 SMSA's separately.