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CENSUS TRACTS IN AMERICAN CITIES

Origin and history of the census tract. - More than 30 years ago Dr. Walter Laidlaw, working with population statistics in New York, became convinced that in order to study neighborhoods it was absolutely necessary to have population data for local areas smaller than boroughs or wards, and to establish these areas so that they would remain unchanged from census to census. To him, therefore, goes the credit for initiating the idea of the census tract, or, as he called it, the "sanitary district."

In current practice the census tracts are small areas, having a population usually between 3,000 and 6,000, into which a city is subdivided, more or less arbitrarily, for statistical and local administrative purposes. The tracts are permanently established, so that comparisons may be made from year to year and from census to census; they are laid out with a view to approximate uniformity in population and with some regard for uniformity in size; and each is designed to include an area fairly homogeneous in population characteristics. In cities where the ward lines are infrequently changed, the tracts form subdivisions of the wards; in other cities they are laid out without regard to the ward boundaries.

Prior to the census of 1910, Dr. Laidlaw divided the city of New York into 40-acre tracts, arranged for the tabulation of census data for these areas, and persuaded the Bureau of the Census to extend the plan of tract tabulations to the 7 other cities having at that time a population of 500,000 or more. These cities were Chicago, Philadelphia, Cleveland, St. Louis, Baltimore, Boston and Pittsburgh. While the tabulation was made by tracts for these 7 cities, no immediate use was made of the figures except for New York City.

The 1920 census data were likewise tabulated by tracts for the same list of cities. The figures for New York were taken off shortly after the completion of the tabulation, and were published by Dr. Laidlaw. In 1925, Dr. Ernest W. Burgess became interested in the Chicago tract tabulations and made arrangements for taking off the figures for both 1920 and 1910. These figures were published in 1931. In 1926, Mr. Howard Whipple Green made arrangements to obtain the tract tabulations

for Cleveland, obtaining the data likewise for both 1920 and 1910, and supplementing the tract figures for the city of Cleveland with certain data for adjacent areas. These figures were published in 1927. Between 1927 and 1930 several other cities became interested in the census tract idea to the extent of laying out tentative tracts and obtaining the approval of these tracts from the Director of the Census.

The census tracts were laid out in each of these cities by a committee representing local organizations and working in cooperation with the Bureau of the Census. These committees also undertook to provide funds for paying the cost of the extra work involved in making the tabulation of the data by tracts, rather than by wards or for the city as a whole, and in compiling the tract data for publication. The new cities added to the list were Los Angeles, Buffalo, Washington, Cincinnati, Indianapolis, Columbus, Nashville, Berkeley, Syracuse, and Yonkers, the last two being added at the solicitation of Dr. Laidlaw rather than through the interest of any local organization.

Selected items from the 1930 population census were therefore tabulated by tracts for 18 cities. In a few of the cities the local organizations lost interest in the data or found themselves unable to raise the funds necessary to pay the cost of making up the final tables; but organizations or individuals in most of the cities obtained from the Bureau of the Census all or a considerable part of the statistics covered by the special tract tabulations. In many of these cities arrangements were made to publish the tract statistics; and in the others copies have been made available to local organizations having need for them.

Since 1930 36 cities have been laid out in tracts, and a few more are under consideration. The statement on the next page indicates what data have been furnished to those cities which were on the tract list in 1930, and to a few which have received limited 1930 data through special tabulations for tracts laid out since that date; and gives certain information about the cities whose tracts have been approved more recently.

STATUS OF CENSUS TRACT CITIES

City	No. of census tracts	Average population per tract	Year tracts laid out	1930 census data by census tracts		Street index by tracts		Tract street map published	Name and address of key person
				Tables obtained	Copies made	Available	Form		
Akron, Ohio .....	57	4,474	1935	1½	-	Yes	-	Yes	Dr. H. O. DeGraff University of Akron
Atlanta, Ga. ....	75	3,605	1936	-	-	Yes	Printed	Yes	Frank K. Shaw Chamber of Commerce
Atlantic City, N.J.	23	2,878	Pending approval	-	-	Yes	On cards	-	V. H. Paulsen State Housing Authority, Newark
Baltimore, Md. ....	157	5,127	1910 Rev. 1926 and 1935	1 & 2½	2	Yes	Mimeo	In process	W. Thurber Fales City Health Department
Berkeley, Calif. ...	6	13,685	Prior to 1930	1-11	-	-	-	-	Carl L. Alberg Stanford University
Birmingham, Ala. ...	52	4,994	Pending approval	-	-	In process	-	In process	Judson D. Dowling City and County Health Department
Boston, Mass. ....	128	6,103	1910 Rev. before 1930	1-11	15	Yes	Printed	Yes	Mary A. Clapp Council of Social Agencies
Buffalo, N. Y. ....	72	7,959	Before 1930	1-11	16	Yes	Mimeo	Yes	Sara Kerr Buffalo Foundation
Camden, N. J. ....	24	4,946	Pending approval	-	-	-	-	-	V. H. Paulsen State Housing Authority, Newark
Chicago, Ill. ....	935	3,611	1910 Rev. before 1930	1-11	300	Yes	Printed	-	Ernest W. Burgess Univ. of Chicago
Cincinnati, Ohio ...	107	4,216	1929	1-11	4	Yes	Mimeo	-	Earle Bubank Univ. of Cincinnati
Cleveland, Ohio ....	206	4,371	1910	1-11*	1,000	Yes	Printed	Yes	Howard Whipple Green Cleveland Health Council
Columbus, Ohio ....	55	5,283	Before 1930	1-11	700	Yes	Mimeo	-	Mary Louise Mark Ohio State Univ.
Dallas, Tex. ....	57	4,570	1935	-	-	Yes	Mimeo	-	Walter T. Watson Southern Methodist University
Dayton, Ohio ....	53	3,792	1936	-	-	Yes	Mimeo	-	Harold E. Winay Dayton Bureau of Community Service
Denver, Colo. ....	44	6,542	1935	-	-	Yes	Type-written	-	F. L. Carmichael Univ. of Denver
Detroit, Mich. ....	369	4,251	1935	(#)	-	Yes	Printed	-	Lent D. Upson Detroit Bu. of Governmental Res.
Duluth, Minn. ....	38	2,670	1935	(#)	-	Yes	Type-written	Yes	Calvin F. Schmid Univ. of Minnesota, Minneapolis
Elizabeth, N. J. ...	21	5,457	Pending approval	-	-	-	-	-	V. H. Paulsen State Housing Authority, Newark
Flint, Mich. ....	41	3,817	1936	-	-	Yes	Mimeo	-	E. S. Guckert Flint Community Fund, Inc.
Hartford, Conn. ....	41	4,002	Pending approval	-	-	-	-	-	Russell E. Davis Council of Social Agencies
Indianapolis, Ind. .	107	3,403	Before 1930	1-11	200	Yes	Printed	Yes	Raymond Clapp Indianapolis Community Fund

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## STATUS OF CENSUS TRACT CITIES

City	No. of census tracts	Average population per tract	Year tracts laid out	1930 census data by census tracts		Street index by tracts		Tract street map published	Name and address of key person
				Tables obtained	Copies made	Available	Form		
Jersey City, N. J. . .	63	5,027	Pending approval	-	-	-	-	-	V. H. Paulsen State Housing Authority, Newark
Kansas City, Mo. . . .	92	4,345	1934	-	-	Yes	Type-written	-	Edward W. Harding Civic Research Institute
Long Beach, Calif. . .	26	5,463	Pending approval	-	-	-	-	-	Guy E. Marion Chamber of Commerce Los Angeles, Calif.
Los Angeles, Calif.	115	10,765	Before 1930	9-11**	-	-	-	-	Guy E. Marion Chamber of Commerce
Louisville, Ky. . . . .	89	3,458	1935	-	-	Yes	Mimeo	Yes	H. W. Alexander City Planning & Zoning Commission
Macon, Ga. . . . .	18	2,991	Pending approval	-	-	-	-	-	Frank E. Shaw Chamber of Commerce Atlanta, Ga.
Memphis, Tenn. . . . .	50	5,063	Since 1930	(***)	-	-	-	-	-
Milwaukee, Wis. . . . .	153	3,779	1935	-	-	In process	-	-	Richard E. Krug Municipal Reference Library
Minneapolis, Minn. . .	121	3,838	1934	(#)	-	Yes	Printed	Yes	Calvin F. Schmid Univ. of Minnesota
Nashville, Tenn. . . .	167	921	Before 1930	1,6,7,9,10	3	Yes	Mimeo	-	E. T. Krueger Vanderbilt Univ.
Newark, N. J. . . . .	98	4,514	Pending approval	-	-	-	-	-	V. H. Paulsen State Housing Authority
New Haven, Conn. . . .	33	4,929	Since 1930	(***)	-	Yes	Mimeo	Yes	J. H. Watkins Yale School of Medicine
New Orleans, La. . . .	153	3,449	1935	-	-	Yes	Card index	No	Harlan W. Gilmore Tulane University
New York City . . . . .	3431	2,020	1910	1-4,7,9,10 & pt. of 11	1,000	Yes	Printed	Health areas	Neva R. Deardorff Welfare Council of New York City
Oakland, Calif. . . . .	72	3,945	1935	-	-	Yes	-	Yes	Raynor E. Anderson Chamber of Commerce
Pateron, N. J. . . . .	32	4,329	Pending approval	-	-	-	-	-	V. H. Paulsen State Housing Authority, Newark
Philadelphia, Pa. . . .	404	4,829	1910 Rev. before 1930	1-3,8-11	10	Yes	Printed	No	Merrill A. Kercher Bell Telephone Co. of Pennsylvania
Pittsburgh, Pa. . . . .	193	3,477	1910 Rev. before 1930	1-11	300	Yes	Printed	Yes	Ralph Carr Fletcher Bureau of Social Research
Providence, R. I. . . .	49	5,163	1935	1½	-	Yes	Mimeo	-	Robert E. Faris Brown University
Richmond, Va. . . . .	47	3,892	1935	-	-	Yes	Not printed	Yes	Miriam H. Dettelbach Richmond Council of Soc. Agencies
Rochester, N. Y. . . . .	86	3,729	1935	-	-	Yes	Mimeo	-	G. Luther Fry Univ. of Rochester
St. Louis, Mo. . . . .	128	6,422	1910 Rev. 1926	1-11	50	Yes	Printed	-	Roy Wenzlick Real Estate Analysts, Inc.

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STATUS OF CENSUS TRACT CITIES

City	No. of census tracts	Average population per tract	Year tracts laid out	1930 census data by census tracts		Street index by tracts		Tract street map published	Name and address of key person
				Tables obtained	Copies made	Available	Form		
St. Paul, Minn. ....	76	3,574	1934	(#)	-	Yes	Printed	Yes	Calvin F. Schmid Univ. of Minnesota Minneapolis, Minn.
San Francisco, Calif.	118	5,376	1935	-	-	Yes	Printed	-	R. B. Koeber Chamber of Commerce
Savannah, Ga. ....	31	2,743	Pending approval	-	-	-	-	-	Frank K. Shaw Chamber of Commerce Atlanta, Ga.
Seattle, Wash. ....	79	4,628	1935	-	-	Yes	Type-written	-	Norman S. Hayner Univ. of Washington
Syracuse, N. Y. ....	61	3,432	Before 1930 Rev. 1936	1,2(pt) 3,7,9,10	140	Yes	Mimeo	-	W. C. Lehmann Syracuse University
Toledo, Ohio ....	55	5,286	1935	-	-	Yes	Type-written	Yes	Charles E. Hatch City Planning Commission
Trenton, N. J. ....	22	5,607	1936	-	-	-	-	-	V. H. Paulsen State Housing Authority, Newark
Washington, D. C. ...	96	5,072	Rev. in 1935 and 1937	(##)	-	Yes	Mimeo	Yes	Grete Falk Wash. Council of Social Agencies
Yonkers, N. Y. ....	79	1,704	Before 1930	-	-	-	-	-	-

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% Also special table - size of family, children under 10 years, value and rental of non-farm homes by color and nativity of head - all for the 78 tracts of the 1926 revision.

\* Tables 9, 10, and 11 published for entire Metropolitan District and Cuyahoga county.

# No tract tabulations, but table 1 1/2 for 1930 enumeration districts.

\*\* Special compilation of family data only, made for M. L. Applegate of Hearst Newspapers, Seattle, Washington.

\*\*\* Tracts same as wards. Table 1 1/2 printed in Vol. III of 15th Census Reports on Population.

## Table 1 1/2 for new tracts. Data for old tracts (30) published in Vol. III of 15th Census Reports on Population.

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Possible additions to tract city list. - There are still 2 cities of more than 250,000 population - Houston, Texas, and Portland, Oregon - for which definite arrangements for tract subdivisions have not yet been made. Such arrangements, however, may be perfected before the 1940 Census. Another city, Augusta, Georgia, is also considering tract subdivisions.

Census tracts in suburban areas. - Except in the case of Cleveland where the regular series of census tracts was extended to cover several adjacent suburban cities, the tract tabulations have been confined to the corporate limits of the city concerned, though supplemental data for the available political subdivisions in certain adjacent territory were furnished in the cases of St. Louis, Indianapolis, Pittsburgh, and Columbus. Unless the use of census tracts is thoroughly established in the current statistical work of the city, it seems hardly fitting that the Bureau of the Census be requested to expend the additional effort necessary to prepare the special tabulations even at the expense of the local community.

Enumeration districts. - Incidentally, it may be said that certain fundamental population characteristics were tabulated in 1930 for enumeration districts, that is, for the relatively small areas (population 1,500 to 2,000), into which every city or county is subdivided for the purpose of making the census count. In outlining the enumeration districts every political unit, whether incorporated place, township, or election district, is kept separate, each being made up of one or more enumeration districts. From this tabulation, which shows sex, color and nativity, age, and number of families, it is possible to furnish these statistics at any time for any of the areas referred to above or for the enumeration districts themselves. Much use has been made of the results of this tabulation, especially for cities not laid out in tracts, and it is quite probable that the tabulation by enumeration districts may be expanded at the next census to include more population characteristics. These figures cannot be used for comparisons between one census and the next, however, as no attempt is made by the Census Bureau to keep the enumeration districts constant from one census to another, changes being made at each census in order that the new enumeration districts may be as nearly uniform in population as possible.

Method of laying out tracts. - The census tracts should represent areas of a convenient size and conformation for the presentation of statistics, for the compilation of local records, and for administrative purposes. The size of the tracts will necessarily vary in different parts of the city, but the areas should be laid out so that no tract in the built-up part of the city will ever have a population appreciably greater than 8,000. On the other hand, no tract should ordinarily have a population less than 3,000, since the various classifications cannot be well shown for numbers that are too small, nor can satisfactory rates be computed for unduly small aggregations of population. In sparsely settled sections of the city which are expected ultimately to increase considerably in population, the tracts may include relatively large areas, even though it may be necessary to subdivide these areas at some future time, after the population increase has materialized.

In shape the tracts should be compact, with some regard for consistency and uniformity.

The length should ordinarily not be more than three times the width.

It is important that the boundary lines of the tracts which are established should be definite. These boundary lines should ordinarily be the centers of streets, though rivers, and possibly railroad tracks, where the latter form a definite and permanent dividing line between one section of the city and another, may be used where occasion requires. So far as practicable, each tract should contain a population reasonably homogeneous both as to racial characteristics and as to economic status or type of living accommodations, though it is recognized that such homogeneity may not be maintained as decades go by. In any case, one tract should not contain areas widely dissimilar. It would be unfortunate, for example, to have a part of a census tract located on a high hill and the remainder in a valley, since this would render needlessly difficult the use of the tract as an administrative district by the health department, the board of education, or others.

The physical starting point for laying out tracts in a given city is a map of the city drawn on a fairly large scale, say 400 feet to the inch, showing, of course, the names of all the streets, and preferably, the numbers in each block. A copy of the map of the city showing enumeration districts used in 1930, which may be obtained from the Census Bureau, will be of service in many respects. It may be possible to lay out some of the tracts so that they will be made up of groups of the 1930 enumeration districts, in which case it will be possible to obtain a limited amount of 1930 data which will be useful for comparison with the figures obtained at the next census. No attempt should be made, however, to have the census tracts conform to existing enumeration districts at a sacrifice to well formed census tracts. The figures available for the 1930 enumeration districts include the number of families and the population classified by sex, by color and nativity, and by age.

It will be desirable to study copies of all recent city maps, on whatever scale they may be drawn, especially maps showing the characteristics of different parts of the city area, such as property values, and the location of parks, cemeteries, railroad property, industrial establishments, retail stores, and apartment houses. City maps may often be secured not only from the city engineer's office or the official planning commission, but also from social agencies, academic research departments, and commercial sources.

Cooperation. - The work of establishing tracts in a city and making provision for their use in the compilation of local data includes three more or less distinct processes. The first, which is the most important and usually the most arduous, consists in getting together representatives of the different organizations which are likely to find the tract data useful and reaching some agreement as to the actual subdivisions which will serve the various purposes represented. If active participation of a number of organizations in this part of the work can be secured, it will doubtless be necessary to effect a good many compromises as between the needs of one organization and those of another. This work should be assigned to some person with a considerable degree of tact and diplomacy and one who has himself a rather wide knowledge of conditions in the city and of the work of the various interested organizations. The satis-

factory working out of this process is likely to consume a considerable amount of time, and under ordinary circumstances no attempt should be made to hasten it unduly, since such haste may result in tract subdivisions that will later prove to be unsatisfactory. Of the 18 cities on the tract city list in 1930, 5 have been obliged to revise their tracts because they proved unsatisfactory.

Preparation of tract map. - The second stage of the work is the actual preparation of the map showing the proposed tract boundaries, for submission to the Bureau of the Census. This map should show also all streets, parks, cemeteries, railroads, etc. The city engineer's office or the city planning commission will frequently be in a position to render valuable assistance in the preparation of the map.

Street index. - The third stage of the work, to be undertaken only after the tract map has been approved by the Census Bureau, is the preparation of a street index. This index shows the tract in which any street number is located and is used for allocating by tracts such items as births, deaths, cases of contagious disease, cases of juvenile delinquency, and various kinds of business data, which are available by street address.

As the first step in constructing this index, a card should be made up for each street, avenue, boulevard, or other thoroughfare, and the range of the numbers within each census tract listed on the card against the census tract designation. In the case of a street which forms the boundary between two tracts, it should be clearly indicated in which tract the even numbers fall and in which tract the odd numbers. The street index is made up from these cards arranged in alphabetical order. A suggested form, indicating the method of distinguishing between the odd and even numbers for the boundary streets, is as follows:

Montgomery Ave.  
1200-1399 C-6  
Even 1400-1498 C-7  
Odd 1401-1499 C-8  
1500-1699 D-1  
1700-1999 D-4  
Even 2000-2108 D-5  
Odd 2001-2199 D-8  
2200-2499 D-9

This material can be printed in narrow columns, 4 or 5 columns to the page. In using the index it will be assumed that where there is no designation as "Even" or "Odd", all the numbers within the range indicated go into the specified tract.

Uses of census tract data. - The census figures as presented for a city divided into tracts provide material in themselves for a social or sociological analysis of the population which would be impossible without this detailed geographic presentation. These figures are also used directly in many ways both by city departments and welfare organizations and by commercial concerns, such as newspapers, utility companies, and selling organizations. Their greatest value, however, is probably brought out when they are made to serve as a background for material collected locally, such as the records of deaths, contagious diseases, juvenile delinquency, etc. When it is shown, for example, that the death rate from tuberculosis in a given tract or group of tracts is four or five times as high

as in other parts of the city, this fact can be related to physical conditions existing in the high-rate area. The tracts are also invaluable under present conditions in compiling statistics of unemployment, relief, and other emergency activities.

The wide range of usefulness of the tract data is indicated by the following statement which lists the different organizations and concerns which have made actual use of tract data in one or more of the existing tract cities:

State, county, and city government:

Child welfare boards; city councils; city planning commissions; committees on unemployment; county tax assessor's offices; fire departments; housing commissions; juvenile courts; police departments; recreation commissions; safety departments; public welfare departments; State commissions on probation; State commissions on unemployment insurance.

Educational:

Art museums; boards of education; bureaus of business and social research; theological schools; universities.

Social Welfare:

Associated charities and other relief organizations; big brothers and sisters organizations; boy scouts; councils of social agencies and welfare federations; community funds and chests; girl scouts; humane societies; settlements; Y.M.C.A.'s; Y.W.C.A.'s.

Health:

City health departments; health councils, federations, and leagues; hospitals; tuberculosis associations; visiting nurse associations.

Miscellaneous, private and civic:

Chambers of commerce; federations of churches and local churches; foundations; housing associations; institutes for juvenile research; national council of religious research; public libraries; real estate boards; real property inventories; regional planning associations.

Commercial:

Advertising companies; banks; chain drug and grocery stores; concerns selling Real estate, automobiles, tires, radios, gasoline and oil, vacuum cleaners, refrigerators, washing machines, milk; house-to-house sales organizations; insurance companies; newspapers; utility companies, including electric, gas, telephone, and street railway.

Census data furnished by tracts. - From the 1930 census, eleven standard tract tables were furnished. The content of these tables is indicated by the titles, which are as follows:

1. Population by color, nativity, sex, and age
- 1½. Population by color and nativity, by sex, and by age (not in correlation)
2. Foreign-born white population by country of birth and sex
3. Native white population of foreign or mixed parentage, by country of birth of parents and by sex

4. Population 21 years of age and over by color, nativity, and sex
5. Foreign-born white population 21 years of age and over by citizenship and sex
6. Population 10 years of age and over by color, nativity, and illiteracy
7. Population 15 years of age and over by color, nativity, sex, and marital condition
8. Gainful workers 10 years of age and over, by industry groups and sex
9. Families by color and nativity of head, and by size
10. Homes by tenure and value or monthly rental
11. Families, radios, dwellings, and quasi-family groups

Simpler tabulations recommended. - It is believed, however, that a much briefer presentation than this will serve the outstanding requirements in most cities, and it is proposed to adopt for the next census a much simpler tract tabulation - preferably one which will require only one run of the cards by tracts in place of the four runs which were made for most of the cities in 1930. Four tables, for which outlines are given below, are submitted for consideration, as follows:

1. Age (17 periods) by sex, color, and nativity
2. Foreign-born white by country of birth
3. Families by tenure of home, color, and nativity
4. Families by equivalent rental of home, color, and nativity

These tables are made on the assumption that the family data in 1940 will be on the same punch card with the population data.

Table 1. - POPULATION BY COLOR, NATIVITY, SEX, AND AGE, FOR CENSUS TRACTS

Census tract and age	All classes			Native white		
	Total	Male	Female	Total	Male	Female
Tract C-1						
Under 1 yr	Similar data will also be shown for foreign-born white, Negro and other races. This table is like table 1 of the 1930 series, except that it does not show the native white by parentage.					
1 to 4 yrs						
5 to 9 yrs						
10 to 14 yrs						
15 to 17 yrs						
18 & 19 yrs						
20 to 24 yrs						
25 to 29 yrs						
Etc. to						
65 and over						
Unknown						

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Table 2. - FOREIGN-BORN WHITE BY COUNTRY OF BIRTH

Country of Birth	Tract 1	Tract 2	etc
All countries ....			
England .....			
Scotland .....			
Wales .....			
Northern Ireland ....			
Irish Free State ....			
Norway .....			
Sweden .....			
Germany .....			
Poland .....			
Russia .....			
Italy .....			
Canada .....			
Mexico .....			
All other .....			

Table 3. - FAMILIES BY TENURE OF HOME, COLOR, AND NATIVITY

Tenure of home	All classes	Nat. white	For. born white	Negro	Other races
	T r a c t 1				
All families	Tracts 2 and 3 will follow on the same line with tract 1.				
Owners .....	Tracts 4, 5, and 6 will occupy the "second deck", etc.				
Tenants .....					
Tenure unknown .					

Table 4. - FAMILIES BY EQUIVALENT RENTAL OF HOME, COLOR, AND NATIVITY

Equivalent monthly rental*	All classes	Nat. white	For. born white	Negro	Other races
	T r a c t 1				
All families .	*Owned homes with value \$3000 to \$4999, for example, are combined with rented homes reporting monthly rental \$30 to \$49, to make the group designated "Equivalent monthly rental \$30 to \$49."				
Under \$15 .....					
\$15 to \$29 .....					
\$30 to \$49 .....					
\$50 to \$74 .....					
\$75 to \$99 .....					
\$100 and over ..					
Unknown .....					

