

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 8,000, 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 and for St. Louis.

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 these cities by a committee representing local organizations and working in cooperation with the Bureau of the Census. This committee 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 for the city as a whole. 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.

It is possible that in connection with the next census the Census Bureau may publish the tract maps and a limited number of tables showing statistics by tracts, though it is not possible of course to make or obtain any definite commitments with respect to this service so far in advance.

The statement on the next page indicates what data have been furnished 16 of the tract cities, and gives other information of interest. No tables have been made up for Syracuse or Yonkers, and relatively little material for Baltimore or Los Angeles.

Status of 1930 Census Tract Material

City	Census tracts	Popu- lation		Tables fur- nished*	Copies in Exist- ence	Street index pub- lished
		Number	Average per tract			
Baltimore, Maryland	78	304,874	10,319	1 and 2**	1	No
Berkeley, California	6	82,109	13,685	1-11	---	---
Boston, Massachusetts ...	128	781,188	6,103	1-11	15	Yes
Buffalo, New York	72	573,076	7,959	1-11	18	Yes
Chicago, Illinois	935	3,376,438	3,611	1-11	300	Yes
Cincinnati, Ohio	127	451,160	4,216	1-11	4	Yes
Cleveland, Ohio	201	900,429	4,480	1-11***	1000	Yes
Tract data also for Lakewood, Cleveland Heights, East Cleveland, and Shaker Heights						
Columbus, Ohio	55	290,564	5,283	1-11	350	Yes
Indianapolis, Indiana ...	107	364,161	3,403	1-11	200	Yes
E.D. data for 33 districts in Marion county outside Indianapolis						
Los Angeles, California .	115	1,238,048	10,766	Total popn; 9 & 10#	---	---
Nashville, Tennessee	40	153,866	3,847	1,6,7,9,10	3	No
New York City	3407	6,930,446	2,034	E.D.Data ##	1000	No
Philadelphia, Penna	404	1,950,961	4,829	1-3,8-9,10-11	10	In process
Pittsburgh, Penna	189	669,817	3,544	1-11***	300	Yes
E.D. data for the whole of Allegheny county, including Pittsburgh						
St. Louis, Missouri	128	821,960	6,422	1-11 ###	50	No
E.D. data for St.Louis metropolitan area and special family tabulations for suburban territory						
Washington, D. C.	30	486,869	16,229	Data published in Census Re- ports		

* A list of the titles of the standard tables will be found on page 8.

** Also special table giving size of family, children under 10, and value and rental of non-farm homes by color and nativity of head

*** Also unemployment in 1930 and, for Cleveland, unemployment in 1931

Tables 9 and 10 made up for Hearst Newspapers; no tabulations ordered by Los Angeles Committees

Parts of Tables 9 and 10, comprising families by color and nativity and homes by value or rental made up complete. Work in progress now (December 1934) on other standard tables

Also special table on school attendance

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, and Pittsburgh. Until the use of census tracts in the current statistical work of any city is thoroughly established, it seems best that the tract tabulations be thus limited to the city proper, though at a later date proposals may be entertained for extending the series of tracts into suburban territory.

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.

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, and juvenile delinquency. If it can be shown 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 assessors' 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 inventory committee
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

Possible additions to tract city list. - There were 23 cities with a population of 250,000 or more in 1930 which were not laid out in census tracts. These cities could well use the census tract as a means of analyzing their populations in order to understand their local problems better and copy with them more effectively. Local groups in some of these cities are already planning for census tracts. These 23 cities, arranged in order of their 1930 population, are as follows:

<u>City</u>	<u>Population,</u> <u>1930</u>	<u>City</u>	<u>Population,</u> <u>1930</u>
Detroit, Michigan.....	1,568,662	Houston, Texas	292,352
San Francisco, California	634,394	Toledo, Ohio.....	290,718
Milwaukee, Wisconsin.....	578,249	Denver, Colorado.....	287,861
Minneapolis, Minnesota...	464,356	Oakland, California....	284,063
New Orleans, Louisiana...	458,762	St. Paul, Minnesota....	271,606
Newark, New Jersey.....	442,337	Atlanta, Georgia.....	270,366
Kansas City, Missouri....	399,746	Dallas, Texas.....	260,475
Seattle, Washington.....	365,583	Birmingham, Alabama....	259,678
Rochester, New York.....	328,132	Akron, Ohio.....	255,040
Jersey City, New Jersey..	313,715	Memphis, Tennessee.....	253,143
Louisville, Kentucky.....	307,745	Providence, Rhode	
Portland, Oregon.....	301,815	Island... 252,981	

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 will 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. Further, if the areas are made too numerous they are unwieldy to handle, and this renders the use of the tracts by health officers and other officials unnecessarily burdensome. In sparsely settled sections of the city which are expected ultimately to increase considerably in population, the tracts should be made larger, even though it may be necessary to subdivide these areas at some future time, after the population increase has materialized.

It is important that the boundary lines of the tracts which are established should be definite and should conform to the methods used by the Census Bureau in subdividing the city into enumeration districts. These boundary lines will 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 the use of the tract as an administrative district by the health department, board of education, or others, needlessly difficult.

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 will show, for example, the kind of boundaries that are used in subdividing a city for enumeration purposes; and it may be possible to lay out most 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. 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 may be noted that 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 to make the new districts as nearly uniform in population as possible.)

It will be desirable to secure copies of all recent city maps, on whatever scale they may be drawn, especially of maps showing the characteristics of different parts of the city area, such as property values, 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 satisfactory 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.

Preparation of tract map. - The second stage of the work is the actual preparation of the map showing the proposed tract boundaries, to be submitted to the Bureau of the Census. The city engineer's office or the city planning commission will frequently be in a position to do this work or to render valuable assistance in it.

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, and cases of juvenile delinquency, which are reported 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.

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
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

In addition, data from the E. D. (enumeration district) run were furnished for New York City and for suburban areas around St. Louis, Indianapolis, and Pittsburgh, the items comprising population by sex, by color and nativity, and by age (9 periods).

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. Three sets of condensed tables are submitted for consideration.

Set A provides three tract tables, as follows:

1. Age (13 periods)
2. Color and nativity by sex
3. Foreign stock by country of origin

Table 3 shows separately the foreign born by country of birth and the natives of foreign or mixed parentage by country of birth of parents.

Set B shows, for a city in which the foreign stock is not especially important, more detail in other subjects, as follows:

1. Age (19 periods) by sex
2. Color and nativity by sex
3. Illiteracy (not by sex, color, or nativity)
4. Marital condition by sex

Either of these sets of tables could have been obtained from one run of the 1930 population cards without sorting.

Set C, on the basis of the 1930 cards, would require two sorts preliminary to the tabulation. This is the only practical means, however, of obtaining the detailed figures on age by sex, color, and nativity, which formed Table 1 of the 1930 series, and which are found exceedingly useful, especially by health departments using the census figures as a basis for rates. The tables in this set are as follows:

1. Age (19 periods) by sex, color, and nativity
2. Illiteracy by color and nativity (but not by sex)
3. Country of origin of the foreign white stock

Table 3 shows separately the foreign-born white by country of birth, and the native whites of foreign or mixed parentage by country of birth of parents.

Specific outlines for the tables in each of these sets are presented in the pages following.

If the family data should be carried on the individual population card in the next census, as it was in 1920, the number of families by tenure could probably be added to any one of these sets without an additional tabulation of the cards.

Outlines of Alternative Tables Proposed

Table A-1. - POPULATION BY AGE, FOR CENSUS TRACTS

Census tract	All ages	Under 1	1	5	10	15	20	25	35	45	55	65	75	Un-known
			to 4	to 9	to 14	to 19	to 24	to 34	to 44	to 54	to 64	to 74	and over	
C-1														
C-2														
C-3														
ETC.														

Table A-2. - POPULATION BY COLOR, NATIVITY, AND SEX, FOR CENSUS TRACTS

Census tract	All classes			Native white			Foreign-born white			Negro			Other races				
	Total	Male	Female	Total	M	F	Native parent-age	For. or mixed parent-age	T	M	F	T	M	F	T	M	F
C-1																	
C-2																	
C-3																	
ETC.																	

Table A-3. - FOREIGN STOCK BY COUNTRY OF ORIGIN FOR CENSUS TRACTS

The foreign stock comprises (a) the foreign born, and (b) the native population of foreign or mixed parentage - designated in the table as "foreign parentage." The foreign born are classified by country of birth; the native with both parents foreign born, or with father foreign born and mother native, by country of father; and the native with father native and mother foreign born, by country of birth of mother.

Country of origin	Census Tract C-1			Census Tract C-2		ETC.
	Total	Foreign born	Foreign parentage	Same		
All countries						
England						
ETC. (17 selected countries)						

Table B-1. - POPULATION BY AGE AND SEX FOR CENSUS TRACTS

Age	Tract C-1		Tract C-2	Tract C-3	ETC.
	Total	Male	Female	Same	
All ages					
Under 1 year					
1 to 4 years					
5 to 9 years					
10 to 14 years					
15 to 17 years					
18 and 19 years					
20 to 24 years					
25 to 29 years					
30 to 34 years					
35 to 39 years					
40 to 44 years					
45 to 49 years					
50 to 55 years					
55 to 59 years					
60 to 64 years					
65 to 69 years					
70 to 74 years					
75 and over					
Unknown					

Table B-2. - POPULATION BY COLOR, NATIVITY, AND SEX, FOR CENSUS TRACTS

Census tract	All classes		Native white	Foreign-born	Other	
	Total	Male	Female	white	Negro	racess
				Same	Same	Same
C-1						
C-2						
C-3						
ETC.						

Table B-3. - ILLITERACY IN THE POPULATION 10 YEARS OLD AND OVER BY CENSUS TRACTS

Census tract	Total number	Illiterate	
		Number	Per cent
C-1			
C-2			
C-3			
ETC.			

Table B-4. - MARITAL CONDITION OF THE POPULATION 15 YEARS OLD AND OVER BY SEX AND CENSUS TRACTS

Census tract	M a l e						Female
	Total	Single	Married	Widowed	Divorced	Unknown	Same
C-1							
C-2							
C-3							
ETC.							

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

Census tract and age	All classes		Native white		Foreign-born	Negro	Other
	Total	Male Fe- male	Total	Male Fe- male	white Same	Same	Same

Tract C-1

Under 1 year
 1 to 4 years
 5 to 9 years
 10 to 14 years
 15 to 17 years
 18 and 19 years
 20 to 24 years
 25 to 29 years
 30 to 34 years
 35 to 39 years
 40 to 44 years
 45 to 49 years
 50 to 54 years
 55 to 59 years
 60 to 69 years
 70 to 74 years
 75 and over
 Unknown

This table is similar to Table 1 of the 1930 series except that it does not show the native white subdivided by parentage. The parentage sub-classification could be added (with a card like that of 1930) without making a tremendous increase in the amount of work involved.

Tract C-2

Under 1 year
 1 to 4 years
 ETC.

Tract C-3

SAME

Table C-2. ILLITERACY IN THE POPULATION 10 YEARS OF AGE AND OVER BY COLOR AND NATIVITY, FOR CENSUS TRACTS

Census tract	All classes		Native white	Foreign-born		Other races
	Illiterate			white	Negro	
	Total number	Num-ber	Same	Same	Same	Same
		Per cent				

C-1
 C-2
 C-3
 ETC.

This table is similar to Table 6 of the 1930 series except that it does not show the native white subdivided by parentage. The parentage sub-classification could be added for both this table and Table C-1 without making a tremendous increase in the amount of work involved.

Table C-3. - FOREIGN WHITE STOCK BY COUNTRY OF ORIGIN, FOR CENSUS TRACTS

The foreign white stock comprises (a) the foreign-born white, and (b) the native white of foreign or mixed parentage - designated in the table as "foreign parentage." The foreign-born white are classified by country of birth; the native white with both parents foreign born, or with father foreign born and mother native, by country of birth of father; and the native white with father native and mother foreign born, by country of birth of mother.

Country of origin	Census Tract C-1		Census Tract C-2		ETC.
	Total	Foreign born	Foreign parentage	Same	

Total
 England
 Scotland
 Wales
 ETC. (16 selected countries)

This table corresponds with Tables 2 and 3 of the 1930 series except that the figures are not shown by sex.

- THE END -