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Why Are There Different 1990 Census Counts for the Same Area?

The Nebraska State Data Center often receives inquiries as to why various sources report different 1990 population counts for the same area. The answer is that for many areas the Census Bureau—with good reason—published more than one population number. This report explains why the Census Bureau produces different census counts and offers some guidance on which numbers to use for specific purposes. While we discuss 1990 counts, the principles discussed here also apply to the publication and use of 2000 counts.

Original 1990 Census Counts: Two Types

Census population and housing unit counts for cities and towns, townships, and other areas can vary depending on the report or data file. The 1990 Census collected and published two types of data: 100-percent and sample.

The 100-percent questions, such as age and race, were asked of every household. Sample questions, on the other hand, were asked of some but not all households. Examples of sample questions include income, employment, and housing cost. About one-sixth of all households nationally were asked the sample questions. (In counties, cities, and towns of fewer than 2,500 persons, half the households were asked the sample questions to improve the reliability of results for those small areas.) Raw data from the sample questions were inflated statistically to produce estimates of what would have been obtained had the questions been asked of all households. Thus, the published results from

sample data are subject to sampling error while the results from 100-percent data are not.

Nearly all census data items are produced on either a 100-percent basis or a sample basis, but not both. However, the Census Bureau produced and published two items—total population and total housing units—on both a 100-percent and a sample basis.

For the state, all counties, and almost all cities of more than 2,500 persons (Papillion is the only exception), the 100-percent and sample counts for 1990 are the same. For cities and villages with fewer than 2,500 persons, the 100-percent and sample counts generally are different.

When working with sample-based subject items, such as income and employment, use the sample population and housing unit counts. Note, however, that they may differ from the more accurate 100-percent counts. When working with 100-percent subject items, such as age and race, use the 100-percent counts. To determine whether a census publication contains 100-percent or sample counts, refer to its introduction and appendices.

Corrected 100-percent 1990 Census Counts

At the time of publication, 100-percent counts are the official population and housing unit counts. For some areas, though, the Census Bureau issued corrected population and housing unit counts after the original 100-percent counts and associated data products were published. This was the case for Nebraska, 4 counties, 26 cities and towns, and 6 townships. Corrections were published only as statistical notes, a few at a time, over the course of several months. The Census Bureau did not revise its original publications and data products to reflect the corrected counts.

A corrected count, when issued, becomes an area's new official count. Table 1 shows all the 1990 corrections issued for Nebraska subdivisions.

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Table 1. Corrected 1990 Census Population and Housing Unit Counts

Area name	County	Original Tabulation				Corrected			
		Total Population	Group Quarters Population	Total Housing Units	Vacant Housing Units	Total Population	Group Quarters Population	Total Housing Units	Vacant Housing Units
Nebraska		1,578,385	47,553	660,621	58,258	1,578,417	47,553	660,634	58,258
Howard County		6,055	77	2,598	289	6,057	77	2,599	289
Knox County		9,534	235	4,799	982	9,564	235	4,811	982
Merrick County		8,042	185	3,533	472	8,049	185	3,543	480
Polk County		5,675	160	2,742	519	5,668	160	2,732	511
Beatrice city	Gage	12,354	512	5,532	326	12,352	512	5,531	326
Bellevue city	Sarpy	30,982	129	11,960	531	30,928	129	11,939	531
Cedar Rapids village	Boone	396	--	191	24	438	--	210	26
Center township	Hall	1,018	--	384	28	988	--	375	28
Dixon village	Dixon	87	--	40	4	109	--	49	4
Elba village	Howard	196	--	91	12	221	--	104	16
Falls City city	Richardson	4,769	124	2,314	221	4,823	181	2,312	220
Grand Island city	Hall	39,386	1,115	15,855	611	39,487	1,115	15,892	613
Gross village	Boyd	7	--	2	--	7	--	4	2
Hartington city	Cedar	1,583	72	659	32	1,652	72	684	33
Herman village	Washington	186	--	94	9	256	--	130	10
Lexington city	Dawson	6,601	28	2,838	228	6,600	28	2,837	228
Malcolm village	Lancaster	181	--	55	--	372	--	116	--
Marquette village	Hamilton	211	--	87	10	281	--	115	15
Niobrara township	Knox	420	--	237	45	450	--	249	45
Niobrara village	Knox	376	--	212	38	406	--	224	38
Omaha city	Douglas	335,795	8,174	143,612	9,770	335,719	8,174	143,587	9,770
Palmer village	Merrick	753	37	316	25	434	37	188	17
Papillion city	Sarpy	10,372	116	3,478	106	10,378	116	3,479	106
Plattsmouth city	Cass	6,412	195	2,495	167	6,415	195	2,497	167
Ponca city	Dixon	877	4	403	37	929	56	403	37
Ponca township	Dixon	439	52	145	20	387	--	145	20
Riverside township	Gage	501	4	205	20	503	4	206	20
Rockville village	Sherman	87	--	48	9	122	--	63	12
Scottsbluff city	Scotts Bluff	13,711	316	6,086	498	13,711	316	6,084	496
Seward city	Seward	5,634	686	2,151	142	5,641	686	2,151	138
Silver Creek Township	Merrick	625	--	293	36	632	--	303	44
Silver Creek village	Merrick	625	--	293	36	437	--	216	26
Thurston village	Thurston	98	--	54	5	115	--	60	5
Wakefield city	Total	1,082	59	485	28	1,147	59	505	28
	Dixon	1,006	59	450	26	1,006	59	450	26
	Wayne	76	--	35	2	141	--	55	2
Washington township	Hall	1,752	2	676	30	1,681	2	648	28
York city	York	7,884	436	3,323	193	7,940	436	3,338	192

Note 1: Census counts used for Congressional apportionment and legislative redistricting and 1990 census data products will remain unchanged. The Census Bureau will show the corrections in a supplemental user note.

Note 2: Some of the above areas had been previously revised. This list replaces earlier versions.

Source: U.S. Bureau of the Census

Compiled by: Nebraska State Data Center, Center for Public Affairs Research, University of Nebraska at Omaha

1990 Counts Produced by the Population Estimates Program

In between decennial censuses, the Census Bureau prepares annual population estimates for the state, counties, and cities and towns. The 1990 population counts published by the estimates program differ from the decennial census counts in two respects. First of all, the estimates program published 1990 counts for two points in time, April 1 and July 1. Annual population estimates are always prepared as of July 1, and the July 1, 1990 number is an estimate comparable to those for subsequent years. Secondly, the April 1 number published by the population estimates program is the original 100-percent census count (plus any subsequent correction) *adjusted to incorporate any changes since 1990 to the area's legal boundaries due to annexations, new incorporations, mergers, and so forth.* For most places in Nebraska this number, called the population estimates base, is identical to the original 100-percent census count since only a few areas had their population counts corrected or experienced boundary changes. But if a city or town reported a boundary change after 1990, then its April 1 population estimates base reflects what its 1990 census count would have been had the boundary change occurred prior to the 1990 census.

When the Census Bureau prepares a new set of intercensal estimates, it uses the latest available boundary information for cities and towns. Thus an area's April 1, 1990 population estimates base, along with estimates for subsequent years, may change each time a new year of estimates is added. For example, the latest set of population estimates (1990 to 1999, published in 2000) were all based on 1990 census population totals revised to reflect any legal boundary changes reported in the 1998 Boundary and

Annexation Survey. In that survey, local governments were asked to report their legal boundaries as of January 1, 1998. For the first time since the 1990 Census, the survey included all functioning governmental units. As a result, the 1990 population estimates base for many Nebraska cities and towns changed from the figures reported in the previous set of estimates (1990 to 1998, published in 1999).

Examples of Different Population Counts

Table 2 shows the April 1, 1990 population of selected areas according to the several Census Bureau sources discussed above. These examples are representative of the kinds of differences that occur in Census Bureau population counts from different sources.

Nebraska's official 1990 population is 1,578,417. This reflects a correction issued after the original publications and data files were released. All original 1990 Census Bureau publications and data files report Nebraska's population at 1,578,385. Once issued, the corrected count of 1,578,417 replaced the original 100-percent count as the population base for the estimates program.

Next we look at the population counts published for selected counties: Knox, Polk, and Scotts Bluff. Knox and Polk are two of the four counties for which corrected population counts were issued. The 100-percent and sample counts for these and all other counties are the same. The official population of Knox County increased from 9,534 to 9,564 as the result of correction. The official population of Polk County, on the other hand, decreased from 5,675 to 5,668 due to correction. The corrected counts for Knox and Polk counties are the base for the population estimates program.

Table 2. April 1, 1990 Population of Selected Areas According to Different Census Bureau Sources

Area	Original census counts		Corrected 100-percent count	Estimates program	
	100 percent	Sample		Published 1999	Published 2000
Nebraska	1,578,385	1,578,385	1,578,417	1,578,417	1,578,417
Selected counties					
Knox	9,534	9,534	9,564	9,564	9,564
Polk	5,675	5,675	5,668	5,668	5,668
Scotts Bluff	36,025	36,025	No correction	36,025	36,025
Selected cities and towns					
Bellevue	30,982	30,982	30,928	39,240	39,101
Cedar Rapids	396	382	438	438	464
Grand Island	39,386	39,386	39,487	39,487	39,383
Hartington	1,583	1,562	1,652	1,652	1,665
Omaha	335,795	335,795	335,719	344,463	357,807
Papillion	10,372	10,301	No correction	13,892	13,431

Source: U.S. Bureau of the Census

Compiled by: Nebraska State Data Center, Center for Public Affairs Research, University of Nebraska at Omaha

Scotts Bluff County had no correction, so its original 100-percent population count stands as its official count. Scotts Bluff County retains the original 100-percent count as its population estimates base since no correction was issued.

Finally, we look at selected cities and towns. Population counts for cities and towns vary more among different sources than do counts for the state and counties. There are two reasons for this. First, as noted earlier, 100-percent and sample counts may differ, especially for communities of fewer than 2,500 persons. Second, since cities and towns can change their boundaries over time, their population estimates base likewise can change.

Looking at Bellevue, for example, we see that its original 100-percent and sample counts were identical at 30,982. However, the original count was later corrected to 30,928. This is Bellevue's official 1990 population. When population estimates were updated, Bellevue's 1990 estimates base was revised to reflect the 1990 population according to its most recently reported boundaries. In 1999, Bellevue's 1990 estimates base was set at 39,240. This means that if Bellevue's city limits had been the same in 1990 as they were in 1999, then the 1990 Census would have counted 39,240 persons instead of 30,928. Bellevue's population estimates base was adjusted downward to 39,101 when the next set of estimates was released in 2000.

Both Cedar Rapids and Hartington had differing 100-percent and sample counts, and both communities had corrections issued. Their official 1990 populations were initially reported as 396 (Cedar Rapids) and 1,583 (Hartington). When corrections were issued, their official population counts increased to 438 and 1,652 respectively. The most recent set of population estimates for both communities show change in their 1990 population estimates base as the result of boundary updates.

Grand Island's original 100-percent and sample counts were the same (39,386 persons). The Census Bureau later issued a correction that increased the official population count to 39,487. The most recent set of population estimates showed a change in Grand Island's population estimates base due to boundary updates.

Omaha's original 100-percent and sample counts were both 335,795 persons. This was later corrected slightly downward to 335,719. Annexation in the 1990s resulted in the population estimates base growing to 344,463 in 1999 and 357,807 in 2000.

As mentioned earlier, Papillion was the only city of more than 2,500 to have differing 100-percent and sample counts. Since Papillion had no correction issued, its original 100-percent count of 10,372 stands as its official count. Like Omaha, Papillion's population estimates base grew in the 1990s as the result of annexation.

Which Counts to Use

In summary, nowhere does the Census Bureau publish a single, comprehensive list of official 1990 population counts for all jurisdictions. Instead, it publishes several sets of numbers and leaves it to the data user to find the

appropriate one for a particular purpose. Here are some suggested guidelines on which numbers to use for different purposes.

- To find an area's official 1990 population, use the original 100-percent count unless a correction has been issued. If a correction has been issued, use the corrected count.
- Breakdowns of 1990 census subject items collected on a 100-percent basis (age and race, for example) will always sum to the original 100-percent count. When working with these items, use the original 100-percent counts. Understand that the originally published 100-percent count may no longer be the area's official total because of corrections.
- Breakdowns of 1990 census subject items collected on a sample basis (income, employment, and housing cost, for example) will always sum to the sample count. When working with these items, use the sample counts. Understand that the sample count may not be the area's official total.
- When comparing an area's population from one decennial census to another, use the original 100-percent count unless a correction has been issued. If a correction has been issued, use the corrected count.
- If the most recent available counts are needed, and the population estimates program has published estimates since the last decennial census, use the estimates. Understand that the April 1, 1990 population estimates base may not be the area's official total. Also, understand that each updated set of estimates uses the area's most recently reported boundaries for all years.

Population Counts in Nebraska State Data Center Publications

The Nebraska State Data Center publishes a number of reports and tables that compare state and local population counts between areas and over time. Consistent with the guidelines above, the State Data Center reports use original 100-percent counts unless an official correction has been issued in which case the corrected count is used. The population counts in our publications therefore reflect each jurisdiction's official count given its legal boundaries as reported on Census Day (April 1, 1990).

Other compilers of state and local population data may follow different practices. Data users should always understand which set of numbers they are using and whether it is appropriate for their purpose.

Nebraska State Data Center population reports are available on the Internet at

<http://www.unomaha.edu/~cpar/>.