

OnTheMap: Updating the Base Geography

Local Employment Dynamics

With the release of Version 6, OnTheMap has updated its base geography. The basic unit of OnTheMap's geography is the census block and through Version 5 it has used census blocks defined for the 2000 Decennial Census. Beginning in Version 6, OnTheMap uses the census blocks defined for the 2010 Decennial Census. This document discusses the differences between the two sets of census blocks and explains how the changes affect the OnTheMap application.

2000 vs. 2010

The source of geography for OnTheMap is the U.S. Census Bureau's TIGER/Line data product. For more detailed technical information, see the references section at the end of this document.

The 2000 census blocks (also referred to as "tabulation blocks") were created by the Census Bureau as the smallest geography for which demographic/economic data are reported for the 2000 Decennial Census. Because the tabulation blocks change only once every decade (after each Decennial Census), they serve as a good base for displaying a longitudinal dataset such as in OnTheMap. In 2000 about 8.3 million census blocks were defined for the states and territories.

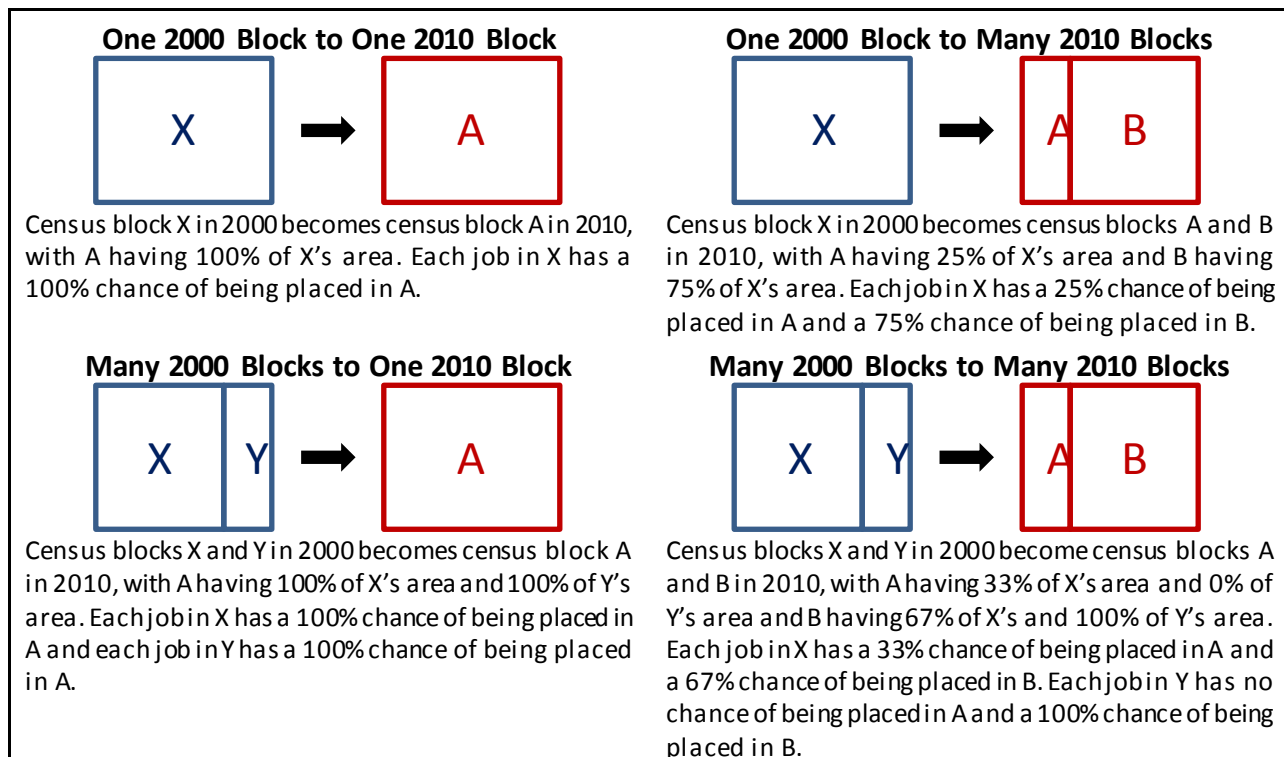
In 2010 – to track the growth and movement of the population – the tabulation blocks were redefined based upon data from the 2010 Decennial Census. The block set expanded by over 30% between 2000 and 2010 to 11.1 million blocks.

In general some changes were very simple. The boundaries of a block could remain the same and only the code by which it was identified would change. Or even more simply, nothing at all might have changed. Some changes could be more complex – a new housing development might cause a large, formerly unpopulated block to split into several or many blocks now filled with people. Formerly populous blocks could also be combined in areas losing population. And in the most complex examples, sets of blocks are transformed into other sets of blocks with no easy splits or combinations. Some basic representations of these changes are diagrammed below.

Transforming the LEHD Origin-Destination Employment Statistics (LODES)

As noted above, the relationships between the 2000 and 2010 census blocks can be complex. LEHD Origin-Destination Employment Statistics (LODES) from 2009 and prior years were originally tabulated in 2000 census blocks. In order to present these older data in 2010 census blocks, a transformation process was applied to the data. In general, the process was based upon the common area between 2000 census blocks and 2010 census blocks. If a 2000 census block was exactly the same as a 2010 census block, then they share 100% of the blocks' area and any jobs in the 2000 census block will have a 100% chance of ending up in the 2010 census block.

But if a 2000 census block was split into two parts, one with 25% of the original area and another with 75%, then any jobs in the 2000 census block will be allocated into the first part with 25% chance and into the second part with a 75% chance. Fractional job counts are not allowed. A few additional examples of this transformation are illustrated below.



A few important points should be made about the results of this transformation: First, the allocation is a statistical process and may not result in a distribution of jobs that exactly matches the areal distribution. If, for example, in the “One-to-Many” case above, block X has 100 jobs, we might expect to see 25 jobs allocated to block A and 75 jobs allocated. This is possible, but so are allocations of 24:76, 27:73, and 0:100, even though the last is extremely unlikely (about 1 chance in 3 trillion).

Second, as part of this transformation jobs cannot be moved between blocks that do not share some areal intersection. For example, if 2010 block C were some distance from A and B, it could inherit *none* of block X's jobs, because it does not overlap block X in any way. Finally, some geographic areas may exhibit a shift in job count when they are compared between OnTheMap Version 5 and OnTheMap Version 6. This could happen for two main reasons:

1. A geographic area has been redefined. Examples of this are census tracts that have been completely redrawn from 2000 to 2010 as well as cities or other political geographies that redefined their boundaries intercensally.
2. In certain cases the redefinition of blocks in 2010 could have cause the allocations of some jobs from a 2000 block to be inside an political/administrative area (city, Congressional District, etc.) and some to be outside of the area. This would cause a different total if that same block in 2000 were allocated wholly into or out of the area. This can only happen if the political/administrative area split a 2000 block into two separate parts.

References

TIGER/Line Homepage: www.census.gov/geo/maps-data/data/tiger-line.html

Contact Geography Division: geo.tiger@census.gov

OnTheMap Feedback: CES.OnTheMap.Feedback@census.gov