How Accurate are ACS Tract and Block Group Totals?
The federal government uses ACS tract totals

Federal Transit Administration

OnTheMap for Emergency Management
Researchers use ACS tract totals

Research on gentrification/displacement

Neighborhood profiles
Cautions about ACS totals abound

The strength of the American Community Survey (ACS) is in estimating characteristic distributions. If you are looking for population totals, we recommend the 2010 Census or Population Estimates Program.

It is also important to keep in mind that all ACS data are estimates. We collect data from a sample of the population in the United States and Puerto Rico rather than from the whole population. To help you interpret the reliability of the estimates, the Census Bureau publishes a margin of error (MOE) for every ACS estimate.
ACS tract estimates

• ACS sample cases are weighted and controlled to **county-level** housing unit and population estimates

• Additional calibration to better reflect subcounty estimates, and to reduce variance in tract-level estimates

• BUT:

  **TIP:** ACS data for small statistical areas (such as census tracts) have no control totals, which may lead to errors in the population and housing unit estimates. In such cases, data users are encouraged to rely more upon noncount statistics, such as percent distributions or averages.
We need to understand how accurate ACS small area totals are.

How?
Metropolitan Council estimates method

How many housing units? → How many households? → How many people?

Housing units in 2010 + Changes to housing stock since 2010 → Occupancy rate → Average household size (Persons per household)
Metropolitan Council estimates calculations

For each census block:

Address-level data on building permits

\[
((\text{Hsg Units}_{2010} + \text{Changes}_{\text{Since} 2010}) \times \text{Occ Rate} \times \text{PPH}) + \text{Group Quarters}
\]

Estimated with 2010 Census + adjustments for new housing

Surveyed every year

Estimated using 2010 Census + trends in USPS vacancy data

Rake to city/township estimates

These are only estimates! Humility is always appropriate.
MC estimates pick up on development sooner

Hennepin County, Tract 1261 (with building permits since 2010)

ACS total is 18% lower
MC estimates better reflect (no) housing changes

Hennepin County, Tract 260.19  
(with building permits since 2010)

ACS total is 19% higher
MC estimates reflect housing markets

Ramsey County, Tract 325 (with building permits since 2010)

Falling vacancy rate

ACS total is 14% lower
ACS 2013-2017 vs Met Council 2017 (Tracts)

ACS is HIGHER than Met Council

- +10% or more: 4%
- +5.0% to +9.9%: 10%
- +2.5% to +4.9%: 10%
- Within 2.5%: 33%
- -2.5% to -4.9%: 16%
- -5.0% to -9.9%: 17%
- -10.0% or more: 10%

ACS is LOWER than Met Council
ACS 2013-2017 vs Met Council 2017 (block groups)

ACS is HIGHER than Met Council

- +10% or more: 21%
- +5.0% to +9.9%: 11%
- +2.5% to +4.9%: 7%
- Within 2.5%: 14%
- -2.5% to -4.9%: 8%
- -5.0% to -9.9%: 12%
- -10.0% or more: 27%

ACS is LOWER than Met Council

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<th>Category</th>
<th>Total population</th>
<th>Households</th>
<th>Housing units</th>
<th>Population in households</th>
<th>Population in group quarters</th>
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<td>10%</td>
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ACS higher

ACS lower
Why do these discrepancies exist?

There’s almost as much variation across years within tracts…

Data show the percent difference between the ACS totals and Met Council estimates (positive values = ACS totals are higher).
Why do these discrepancies exist?

ACS tract totals tend to be higher where:
- Population is more racially diverse
- Children are a higher share of the population
- Household incomes are higher

ACS tract totals tend to be lower where:
- Lots of new development has occurred
- Commercial land uses predominate

But lots of variation in the discrepancies left unexplained…
Can a model help others?

ACS tract population totals
ACS tract characteristics
- Age
- Race
- Recent moves
- Units in structure
- Housing units built since 2010
- Median household income

Use model to predict 2017 Met Council estimates with 2013-2017 ACS data!

Met Council tract estimates (2012-2016)

But predicted estimates still quite far from actual 2017 estimates.
Measures of segregation aren’t affected much

Note: Racial shares are taken as given in the ACS data; the only difference is how the tracts and block groups are weighted.
Measures of segregation aren’t affected much

Poverty rate in the tract of the average person in poverty

Note: This is the isolation index of residential segregation for people in poverty. Poverty rates are taken as given in the ACS data; the only difference is how the tracts and block groups are weighted.
Summing up

Tract and block group totals will be off the mark, and it’s hard to tell where.

Trying to get count data for individual small areas?
  ➢ Consider using other data sources

Trying to use the small areas to develop measures for a larger area?
  ➢ This seems okay in the Twin Cities region, at least
More information

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