

Methodology and Assumptions

Overview:

- Fair Market Rents for fiscal year 2023 from the HUD were used to calculate the housing costs faced by a family living in a specific region at the county and census tract level. The HUD data was available at the ZIP code and county levels.¹

County level:

- The county level data for the NCR shows no variation between counties since the HUD chooses to aggregate all counties in a metropolitan area together for the purposes of county-level data. As a result, we need to average between ZIP code level estimates for the ZIP codes in the county to get more accurate results.
- The Census Bureau releases relationship files between ZCTAs (The Census Bureau's estimation of ZIP codes) and counties² which include the population living in the intersection between the two. The relationship file for the 2020 census was incomplete, so the 2010 one was used.
- To get county level estimates, we then weighted the ZIP-code level (small area) fair market rents of all the ZIP codes in a county by the population of that ZIP code living in the county and averaged across all.
- This estimate for the county level data is thus more accurate the more nearly the assumptions that population growth since 2010 in each ZIP code across a county has trended in roughly the same direction and that housing costs are spread approximately homogeneously across a ZIP code are satisfied.

Tract level:

- Tract level data could not be calculated with the same methodology. The relationship files for 2010 are not usable for tracts due to changes in boundaries which occur each census.
- As such, ZIP codes were simply weighted by their total population instead of by their population intersecting the census tract of interest before averaging across rents for all ZIP codes intersecting a tract.
- In this estimation, the nearer the data is to satisfying the assumption that each ZIP code intersecting a tract has an equal proportion of its population intersecting said tract, the better the estimation will be.
- The code uses county-level data here to fill in any holes in the tract-level data. These would occur if an area does not have small area fair market rent data which is only present for metropolitan areas as designated by the Office of Management and Budget (OMB). These holes do not occur anywhere in the NCR which is entirely within the Washington Metropolitan Area. Nonetheless, this addition allows the code to be adapted to more regions beyond the NCR if desired.

¹ <https://www.huduser.gov/portal/datasets/fmr.html>

² https://www2.census.gov/geo/docs/maps-data/data/rel/zcta_county_rel_10.txt