Estimating Headship Rates after Splitting Overcrowded Households

Brandon Stanaway - Socioeconomic Analyst II, MAPC bstanaway@mapc.org



Housing in Massachusetts is increasingly unaffordable for renters and homeowners alike. In part due to the rising cost of housing the types of housing available, headship rates have fallen over time. More people are living with roommates or other family members. Fewer people are having children and, when they do, it's later in life than previous generations.



CONTEXT

The Metropolitan Area Planning Council (MAPC) is the Regional Planning Agency for 101 cities and towns in Eastern Massachusetts. It provides planning technical support to municipalities as well as other data services and regionalized procurement services.

MAPC's Data Services – Research team provides input data to the Boston Region Metropolitan Planning Organization (MPO) for their travel demand model (TDM) for the MPO's Long-Range Transportation Plan (LRTP) every three years. MAPC's long-range household and employment projections are key features of housing production plans, EEA, water demand forecasting, among other planning projects.









CONTEXT

Massachusetts' Executive Office of Housing and Livable Communities embarked on developing the first statewide housing plan and needs assessment. Aimed at understanding the impediments to housing production across the Commonwealth and policy changes that can alleviate those barriers. MAPC prepared four population and household projections scenarios to estimate the number and type of housing units the state needs to produce based on the number of people moving to the Commonwealth and types of households they form.

Statewide housing plan scenarios:

- Scenario One:
 - Headship Rates from 2017-2021 ACS PUMS.
- Scenario Two + Three:
 - Headship Rates estimated with splitting overcrowded households.
- Scenario Four:
 - Headship Rates estimated with splitting overcrowded households.
 - All families in the state shelter system find stable housing.

A HOME FOR **A HOME FOR** A Comprehen: EVERYONE STATEWIDE HOUSING NEEDS ASSESSMENT MALIRA T HEALE KIM DRISCOLL EDWARD M. AUG ecretary, Executive O MAURA T. HEALEY KIM DRISCOLL lieutenant Governo EDWARD M. AUGUSTUS, JR ry Executive Office of He

LITERATURE REVIEW

What makes a household overcrowded?

- More than two people per bedroom
- Presence of "subfamilies"

What may lead people to prefer forming households that are overcrowded?

- Multigenerational households
- Presence of "subfamilies"
- Presence of children

Classified households by whether they are overcrowded, multigenerational, have children, and/or have subfamilies in the housing unit.

- Subset One: **Non**-multigenerational households with at least one subfamily and at least one child
- Subset Two: Multigenerational households with at least one subfamily, at least one child, and is overcrowded

Variables in PUMS:

- NP
 - Number of people in a household
- AGEP
 - Age of person
- RMSP
 - Rooms in housing unit
- SFN
 - Subfamily number
- BDSP
 - Bedrooms in a household
 - Studios considered onebedroom
- MULTG
 - Defined as households with three generations

Mutated Variables:

- Child_flag
 - Under 18 is considered a child
- Overcrowded.ppb
 - Persons in a household
 (NP) divided by number
 of bedrooms (BDSP)

SPLITTING HOUSEHOLDS

"Split" households reflect both the original household PUMS record and a "new" household(s) which represent the subfamily groups within the PUMS household record.

Creating new "split" household records:

- Assign a binary indicator to each household which is to be "split"
- Create a new SERIALNO for each "subfamily" and the original household
- Reorder persons in "split" households
- Redefine SPORDER and RELSHIPP in "split" households
- Recreate household variables in "split" households
- Randomly sample "split" household records for the time period in which they will form a new household
- Create new PUMS dataframe for each period by "splitting" households in that time period's sample
- Recalculate headship rates



Change in Headship Rates in MAPC ('Split' '17-'21 ACS PUMS - '17-'21 ACS PUMS)





Further research:

- Household formation with subfamilies + relationship of subfamily members.
- How and why do roommate households form?
- Are changes in household formation rates caused by the types of housing units we're building?
- Are recent movers to a PUMA more likely to overcrowd?

Further refinement:

- Broader definition of "multigenerational" households.
- At what age do children "count" towards overcrowding?
- More context for the types of housing units people live in how does "overcrowding" feel in different places?

Thank you!

Questions?