

Housing and Population Counts – Implications for Local Estimates and Projections

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What I Will Be Covering

State produced estimates and Nevada as an example
The impact on the housing unit based-estimate
Examples of using data for policy and public safety
Observations and trade-offs/questions

State Produced Estimates

Nevada is one example of a state that produces its own population estimates over the decade. The data is in the public domain and various users include: State agencies, Local governments and agencies, and non-profits

Number of States Producing Estimates For:		Geographic Level States Produce Data For:	
Total population	19	State	17
Age - Single year	10	County	17
Age - 5 year age group	8	Incorporated Places:	17
Age - other age group	6	Unincorporated Places (Towns or Census designated places that are not federally recognized as general purpose governments.)	7
Sex	11	County Subdivisions (MCDs townships, and Census county subdivisions)	6
Race - 2010 Census categories	8	School District	4
Race - other grouping	4	Census Tract	5
Ethnicity	10		
Housing Units	8		
Households	10		

Federal State Cooperative for Population Estimates Member Survey 2015

Nevada's Estimates and Projections

Program has been in place since 1987 and began as part of allocating revenue among cities.

- Revenue distributed in FY 19 - \$79 million among 82 Government Units
- Governed by state law and administrative code.

Has evolved to respond to data needs over the years and now produces three main products annually:

- Population estimates for counties, cities, and unincorporated towns and judicial township- NRS 360.283
- Total population projections NRS 360.289
- Age, Sex, Race and Hispanic origin (ASRHO) estimates and projections by individual year of ASRHO. NRS 360.289

Examples of Known Uses:

- Vital rate calculations
- Budget cap calculations

The role of Census and local data for the estimates

At the county level the estimate is an average of a housing unit-based estimate and a regression-based estimate

- Local assessor's data provides annual housing unit counts
- The Decennial Census provides data used over the course of the decade:
 - A baseline set of housing counts
 - Occupancy
 - Persons per household
- The Census Bureau's population estimates are considered when running models to find the best regression estimate

Both data sets have some degree of error:

- Local governments with staffing levels, skill sets, and definitional issues
- The Census with geocoding, non-response and imputation

The Impact of Differential Privacy on the Estimates

The occupancy rate data in the Demonstration Products is creating persons per household levels that are less than one. 50,000 seems to be the breakpoint and nationally more than 2,100 counties have less than 50,000 in population.

Comparing Local and Census Housing Counts and Demonstration Occupancy Rates

Local Housing Counts	2010 Census Published Counts			Differential Privacy Occupied	Differential Privacy Occupied	Differential Privacy Less Published
	Total:	Less Local	Occupied			
Elko	18,400	19,566	1,166	17,442	18,193	751
Mineral	1,949	2,830	881	2,240	2,827	587
Washoe	178,238	184,841	6,603	163,445	160,292	-3,153

The Impact of State Code and Statutes

In Nevada, local governments can appeal their estimate. For the City of Elko, their most recent appeal was over 200 persons or 1% of their population.

City	Housing Units	Occupancy Rate			Difference
		SF1	Demostration Product		
Carlin	1,043	84.6%	100.0%	15.4%	
Elko	7,221	93.4%	92.8%	-0.5%	
Wells	641	85.0%	99.8%	14.8%	
West Wendover	1,504	90.0%	97.5%	7.5%	

The changes in occupancy due to differential privacy will have a material impact on revenue distribution.

Data will be coming out in the first quarter of 2021 –

- At best, there may need to be revisions to Nevada Administrative Code to account for DP and any “margins of error” or other information around interpreting it.
- At worst, there may be a need to review state law and Nevada’s legislature meets every two years.

The Distribution of Households and Their Characteristics

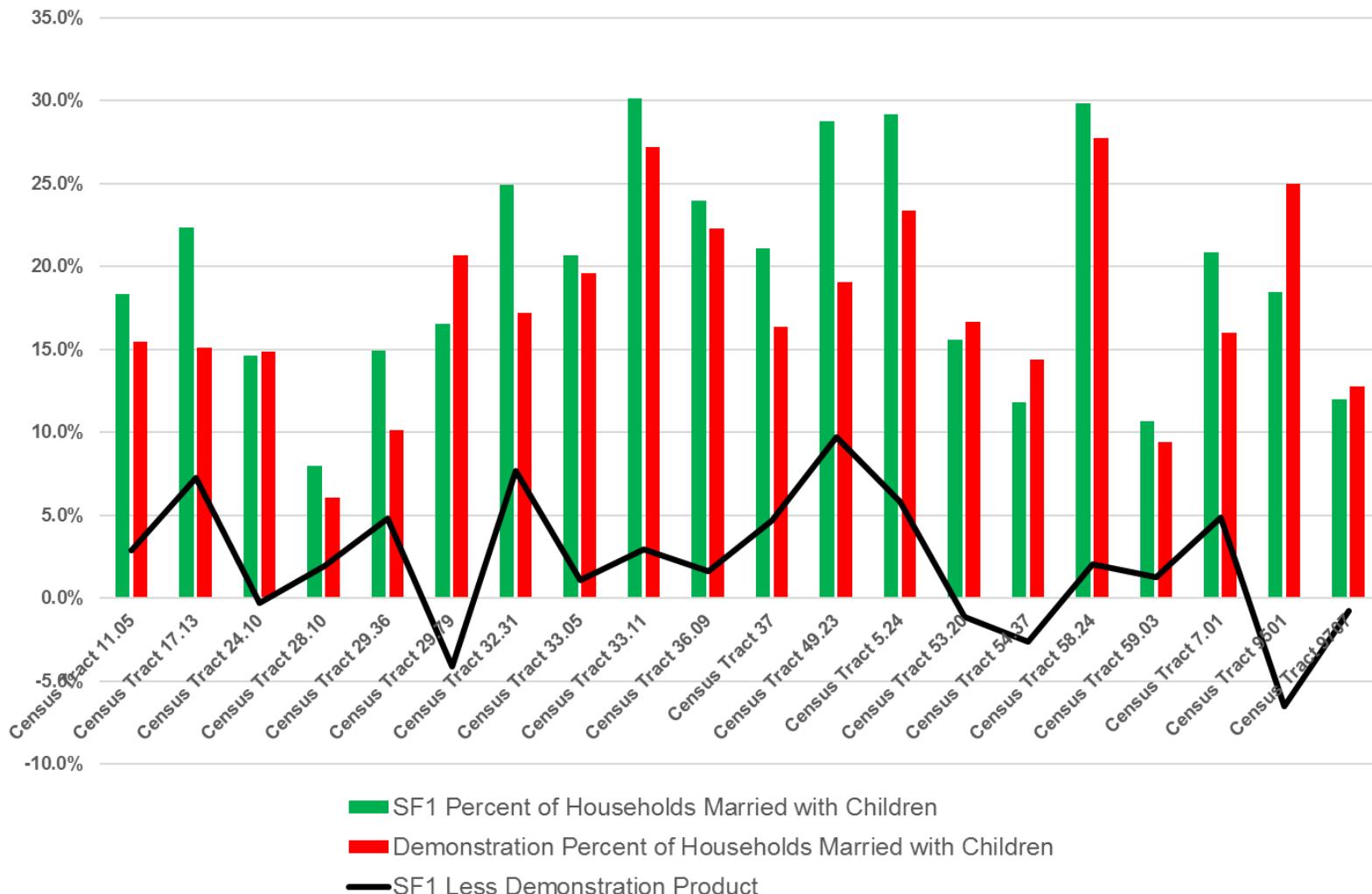
Two use cases to frame these anomalies:

The spatial distribution of various populations groups matters for the efficient and effective distribution of limited public services and resources.

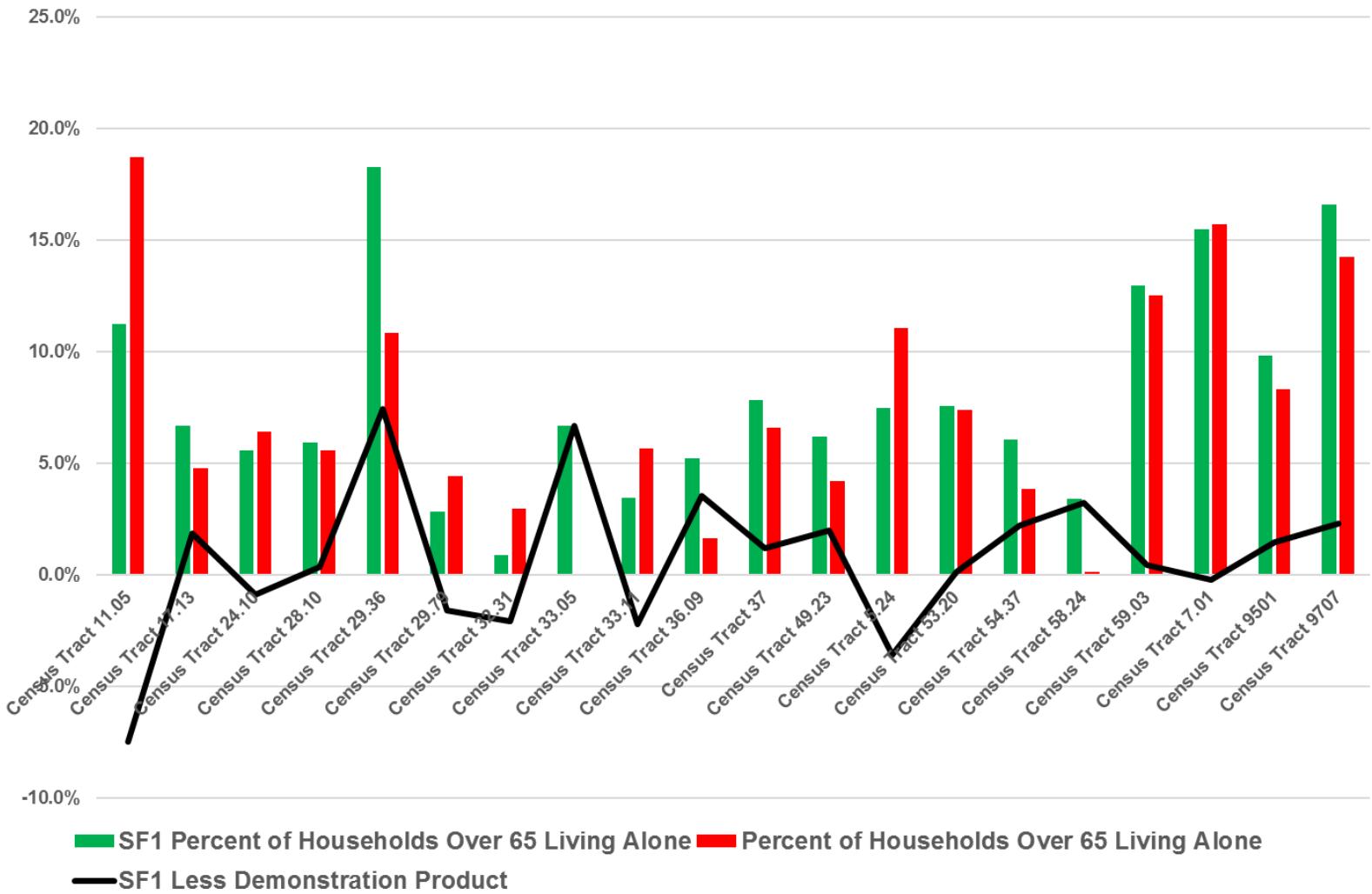
In the early 1990's the Clark County Fire Department wanted to leaflet and reach out to apartment complexes to educate non-English speakers to prevent child drowning. I provided them long form results at either the tract or block group level.

Now, senior advocates are looking at social isolation as an indicator for identifying and providing services to our home bound and low-income senior population.

Percentage of Married Couples with Children for A Random Sample (20/687 Tracts) of Nevada Census Tracts



Percentage of Householders 65 and Over Living Alone for A Random Sample (20/687 Tracts) of Nevada Census Tracts



Observations

It appears that for the most part, the PCT tables which were traditionally provided data at the tract level and higher were eliminated with no middle ground.

One specific set of products that is missing is detailed age x sex x race x ethnicity at all geographic levels.

- 10 states produce these estimates annually
- The data is needed at the county level

This will be opening up changes in state law or code without a story or vocabulary that makes it readily explainable to elected officials. Local policy makers do not deal in inference. They deal with their perceptions.

Trade-offs and questions

The Big One: What is the impact on residence rules and reviewing the Census results? People move!

- 1. How does detailed geographic or cross tabulation of characteristics information impact the privacy budget?**
 - 1. Review the numerous race categories.**
 - 2. Review off spine geographies for statutory or local codes.**
- 2. How much of this is a big data (digital) problem? How much of the privacy budget might be increased by making some small and rare tables at the block level or higher as paper products?**

Questions?

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