

Get ready to know less about your community: Why you should care about changes to the 2020 Census

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Presentation Aims

- **Increase awareness** of changes in the 2020 Decennial Census and what that means for data users.
- **Provide examples** of how this change in methodology has **real-world consequences** for Minnesota's people and places.

Agenda

- Disclosure avoidance
- Differential privacy
- Impacts on data products
- Examples and considerations

Census
Bureau's dual
mandate

Title 13

- Gives Census Bureau authority to conduct the censuses and publish data
- Protects confidentiality of respondent data.

The importance of Census data

There are many important uses for Census data.

- Reapportionment: Voting districts must be adjusted decennially to assure “one person, one vote.”
- Assigning funding at all levels of government: Decennial Census Programs data was used to distribute more than \$2.8 trillion in FY2021.

The issue of confidentiality

However, the Bureau cannot:

- “...make any publication whereby the data furnished by any particular establishment or individual under this title can be identified.”

13 U.S. Code § 9(a)(2)

Census Bureau
must strike a
balance

Protecting
respondent
confidentiality

The diagram consists of two olive-green rounded rectangular boxes connected by two thin olive-green curved lines, one above and one below, forming a circular path. The left box contains the text 'Protecting respondent confidentiality' and the right box contains 'Producing usable data'.

Producing
usable data

What is “disclosure avoidance”?

- Census Bureau uses disclosure avoidance to balance confidentiality protections and usable data.
- Disclosure avoidance is ***not*** a new concept to the Census Bureau



Source: U.S. Census Bureau, *Disclosure Avoidance for the 2020 Census: An Introduction*, U.S. Government Publishing Office, Washington, DC, November 2021.

A new method in 2020

Differential privacy
adds “noise” to the
data.



Source: <https://doi.org/10.48550/arXiv.2103.07073>

Differential
privacy:
How it works

Compute actual counts from confidential data

Step 1

County subdivision	Total population
Moose Lake twp	226
Roseville city	33,660
Minneapolis city	382,578

Differential privacy: How it works

Draw random noise values from
statistical distribution

Step 1

County subdivision	Total population
Moose Lake twp	226
Roseville city	33,660
Minneapolis city	382,578



Step 2

Noise value
38
10
-7

Differential privacy: How it works

Step 1

County subdivision	Total population
Moose Lake twp	226
Roseville city	33,660
Minneapolis city	382,578

+

Step 2

Noise value
38
10
-7

=

Step 3

Noise-infused Total population
264
33,670
382,571

Published data

High-level impacts

Significant delays in releasing products.

- 2010 Summary File 1: July 2011
- 2020 Summary File 1: **May 2023
(nearly two years late).**

High-level impacts

Reduction in published statistics

- **2010:** Statistics provided for counties (10 tables) and tracts (61 tables) for detailed groups with 100 members or more (Summary File 2).
- **2020:** Statistics provided for nation, states, counties, places, tracts, and tribal lands for **four tables** (DDHC).

High-level
impacts

Reduced geographic detail

- Counts of kids in various family types
 - 2010: census blocks
 - 2020: states

Examples

The impact of the new disclosure avoidance system

Comparing data

We can compare data:

- **2010 Summary File 1 (SF)**, originally published data from 2010 Census, and
- **2010 Demonstration data (DP)**, 2010 data with new disclosure avoidance method applied

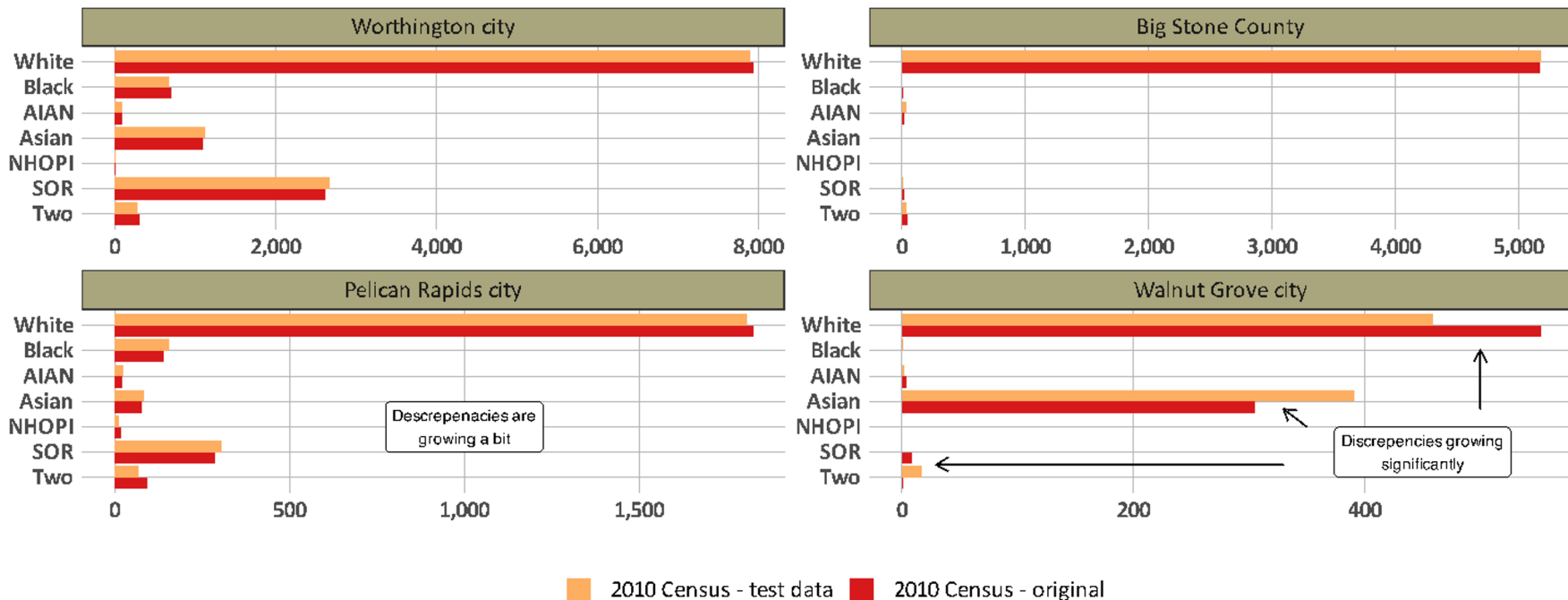
Example geographies

Comparing 2010 Summary File 1 data to 2010 Demonstration Data (DP)

Name	SF1 total pop	DP total pop
Walnut Grove	871	869
Pelican Rapids	2,464	2,460
Worthington	12,764	12,765
Big Stone county	5,269	5,268

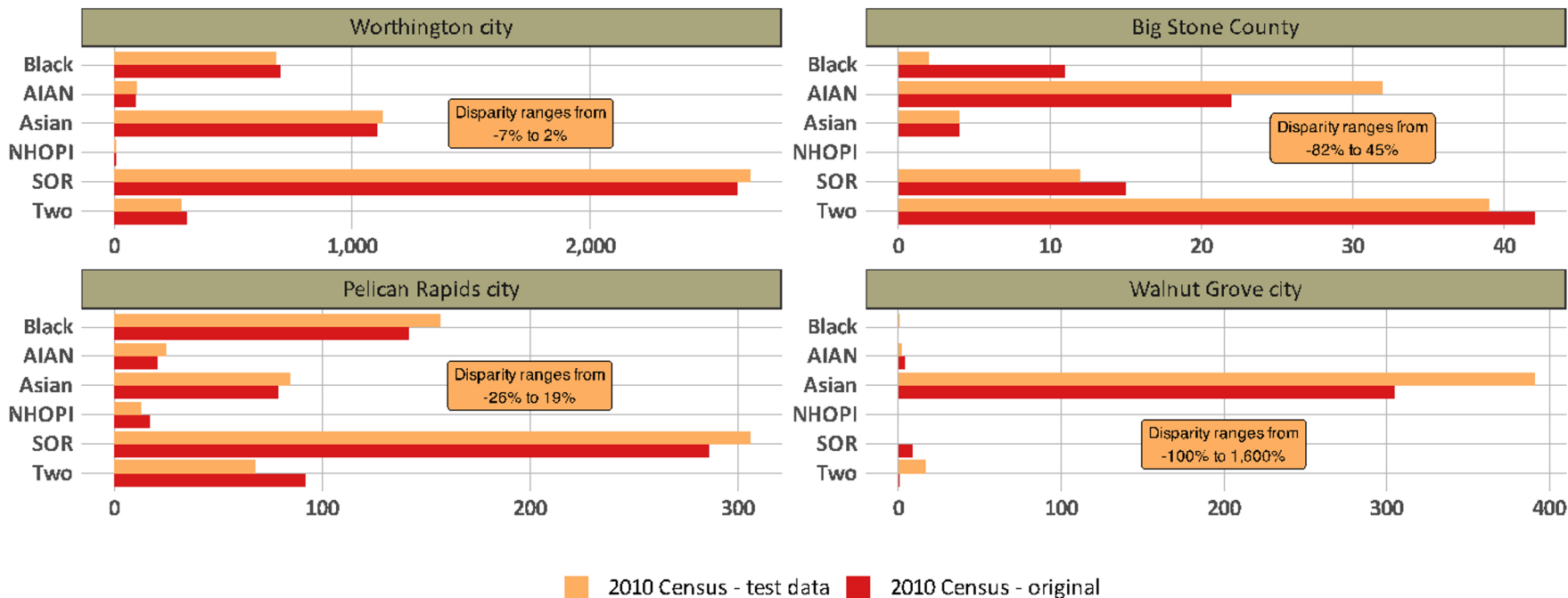
Population by race: Comparison between original 2010 Census and test data

Smaller populations have more discrepancy between the two datasets



Population by race: Comparison between original 2010 Census and test data

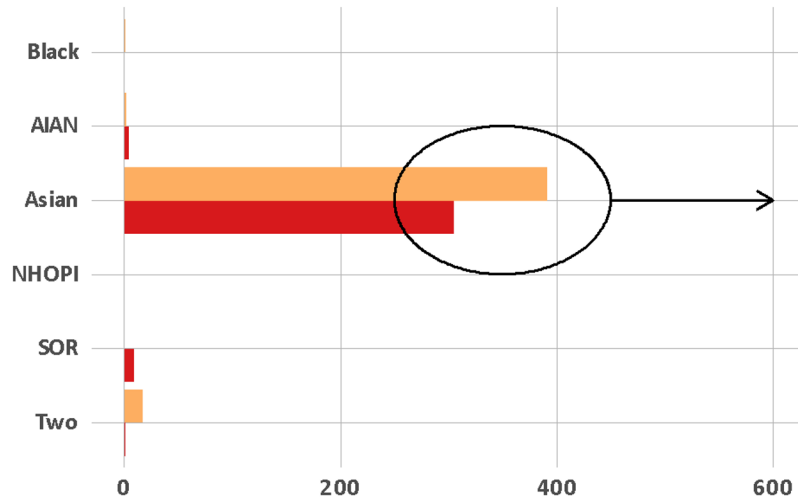
Smaller populations have more discrepancy between the two datasets



Deeper dive in Walnut Grove

Population by race in Walnut Grove

Large discrepancy in Asian population

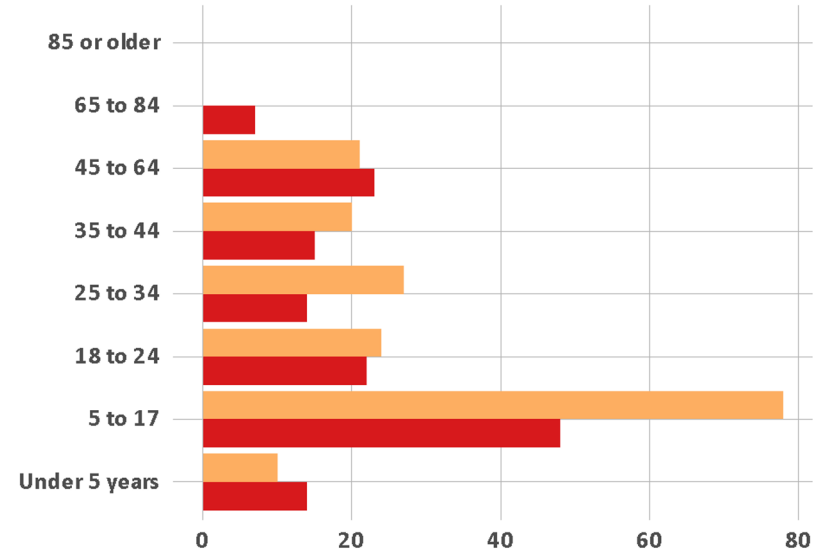


2010 Census - test data 2010 Census - original

U.S. Census Bureau - Decennial Census
U.S. Census Bureau - Disclosure Avoidance Test Data, David Van Riper (MN Population Center)

Asian Females – Walnut Grove

Large disparities between the two datasets

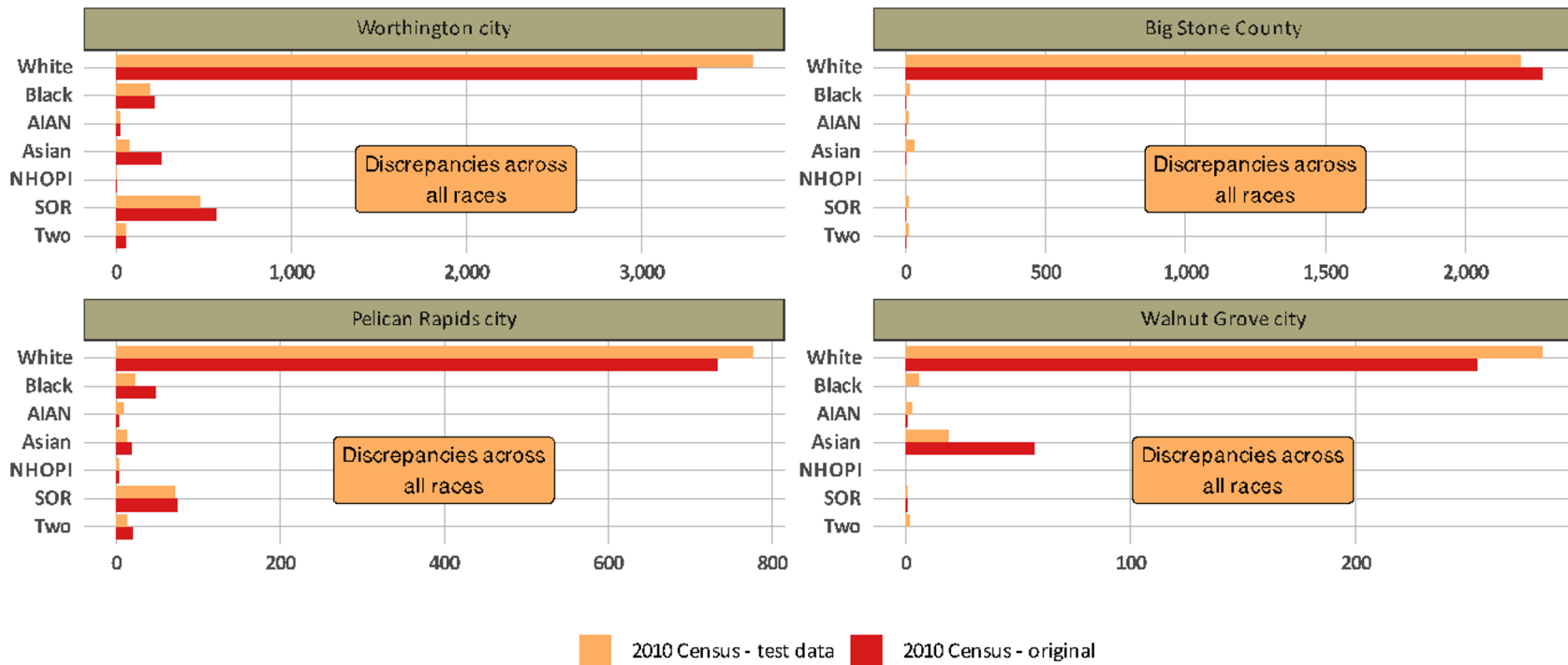


2010 Census - original 2010 Census - test data

U.S. Census Bureau - Decennial Census
U.S. Census Bureau - Disclosure Avoidance Test Data from
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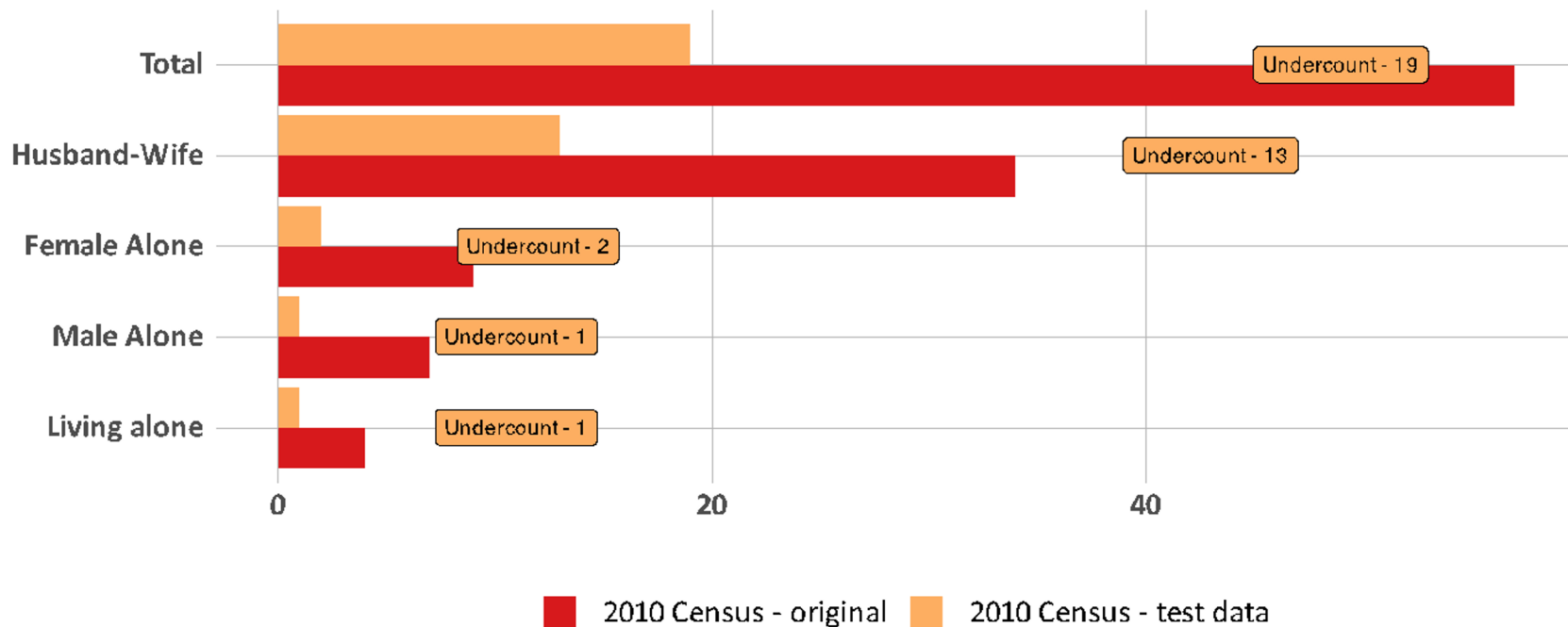
Householders by race

Discrepancies exist across all races when looking at household numbers



Household type (Asian): Walnut Grove

Discrepancies between the two datasets across all household types



Comparing data

We can compare data availability between:

- **2010 Summary File 2 (SF)**, originally published data from 2010 Census, and
- **2020 Detailed DHC-A**, 2020 data with new disclosure avoidance method applied

Tract-level data for Hmong in Minnesota

Year	# of tracts	Threshold
2010	129	100
2020	311	22

Tract-level data for Hmong in Minnesota

Year	# of tracts	Threshold	# of tables
2010	129	100	61
2020	311	22	2*

Tract-level data for Hmong in Minnesota

Year	# of tracts	Threshold	# of tables
2010	129	100	61
2020	311	22	2*

* We have sex by age [4 age categories] for 23 of 311 tracts, and total pop counts for remaining 288

Why this matters

Less accurate Census data will impact the **private sector**:

“Maxfield Research and Consulting conducts market research specifically for the real estate industry. Being able to accurately identify household growth, incomes, household types and other key information to make assessments regarding the appropriate type of housing to develop...underpins our ability to keep local and regional economies healthy and thriving. The annual data supplied by the American Community Survey and the five-year averages are key to **enabling us and our customers to continue providing current information in support of economic development.** ”

Mary Bujold, President, Maxfield Research

Why this matters

Less accurate Census data will impact the **non-profit sector**:

“The Blandin Foundation is one of very few private philanthropies dedicated exclusively to connecting, funding, and advocating for rural places. As a data-driven organization, **we depend on accurate, dependable information to shape our grantmaking strategies**. Our Grant Officers consult Census figures to understand areas of need and disparities by race, place, and class across rural Minnesota. The grantees we partner with also require data for their own planning and to illustrate the community context they're operating in. It is already challenging to acquire solid figures on the small populations and subgroups we serve. Further degradation in the reliability of these estimates will distort the realities of rural communities, **making it harder for us to advance our goal of a more equitable rural Minnesota.**”

Sonja Merrild, Former Director of Grantmaking, Blandin Foundation

Why this matters

Less accurate Census data will impact the **public sector**:

“In my work with local officials, we are trying to stimulate business development in their communities. **A critical piece of the puzzle is being able to describe the economy and workforce of small geographic areas.** The Bureau of Labor Statistics offers some data at the local level, but the Census and in particular ACS are critical resources for communities. Without it, communities would have a difficult time describing the educational attainment and age demographics of their workforce. Without it, communities would not have the data businesses require to make decisions.”

Neal Young, Economic Analysis Director, DEED

Considerations

- Face validity
- Noise injection may have deleterious consequences for small cities and rural areas
- More detail = more relative distortion
- Downstream impacts from general counts being inaccurate
 - *E.g.*, in Walnut Grove, DP distorted demographics of the Asian population considerably



- To learn more about Minnesotans for the ACS (MACS), please visit the website at <https://www.minnesotansforacs.org>