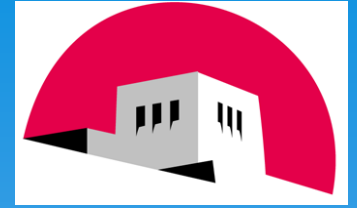


University of New Mexico
Geospatial and Population Studies



New Mexico Population Updates

Robert Rhatigan
Senior Research Scientist
Geospatial and Population Studies
University of New Mexico
rhatigan@unm.edu
505.277.4034

New Mexico
Data User's Conference
November 10, 2016

Outline

- 2020 Census
- GPS Population Estimates
- GPS Population Projections

2020 Census

- * At Stake are **Ten Years** of:
 - * Congressional Apportionment
 - * Legislative District Boundaries
 - * Data Quality
 - * \$\$\$\$\$\$\$\$\$\$\$\$\$

2020 Census

* \$

- * \$400 - 500 Billion in Annual Federal Funds
 - * Medicaid, Transportation, Education, Housing, CDBG, CHIP
- * Over \$3 Billion Annually for New Mexico
- * Each New Mexican Not Counted Costs About \$1,750 a Year e.g.
 - * $\$1,750 * 20,000 \text{ people} = \$35,000,000$

2020 Census

* New Mexico is Particularly Vulnerable to Undercount

- * 2000 Undercount = 1.94%

- * 2010 – NM 2nd Lowest Response Rate in US

- * Most at Risk –

 - * American Indians

 - * Hispanics

 - * Hard to Count Populations e.g. Colonias

2020 Census

- * Census Operations Re-engineering
 - * Address Canvassing
 - * Administrative Records
 - * Self-Response
 - * Field Operations

Population Estimates

- Inexpensive Updates to Costly Census Counts
- *Observations* About Current or Past Populations
- Differ from Projections which *Predict* Future Trends
- Methods are Well Established with Known Biases

Demographic Balancing Equation

$$Pop_{2015} = Pop_{2010} + Births - Deaths + In Migration - Out Migration$$

- Pop_{2010} – Latest Census
- *Births* – From NMDOH Vital Records
- *Deaths* – From NMDOH Vital Records
- *In Migration* – Harder to Track
- *Out Migration* – Much Harder to Track

Census Bureau Vs. GPS Estimates

Census Bureau	GPS
Starts with the US Total	Starts with NM Total
2 Indicators of Migration	6+ Indicators of Migration
Municipal Level	Tract Level
Rigid Methodology	Flexible Methodologies

San Juan County

2010 - 2015

- * 2010 Census Count – 130,000
- * 2015 Census Estimate – 119,000
- * Population Decrease – 11,000
- * 5 Year Natural Increase – 5,000
- * Inferred Out Migration – 16,000

GPS Estimates Input Data

- Vital Records from the NM Department of Health
- Migration Tracked Using:
 - IRS Migration Files
 - Medicare Enrollment
 - **School Enrollment**
 - **Driver's Licenses**
 - **Voter Registration**
 - **Residential Building Permits**
 - Other e.g. Historical Trends, Group Quarters Survey

GPS Estimates Methods

- Cohort-Component Method
 - $Pop_{2015} = Pop_{2010} + B - D + Net\ Migration$
- Housing Unit Method
- Multi-indicator Ratio Correlation Method:
 - School Enrollment
 - Licensed Drivers
 - Registered Voters
- Shift-Share Trend Analysis (Hamilton-Perry)

GPS Estimates Methods

- Primary Steps
 1. State Total
 2. County Totals
 3. Tract Totals
 4. Characteristic Totals
 5. Data Fitting

Estimates Methodology

2015 State Total

Cohort Component Method	2,085,109
Housing Unit Method	2,104,953
Ratio Correlation Method (Students/Drivers/Voters)	2,109,506
Average of Three Methods	2,099,856

Estimates Methodology County Totals (Santa Fe)

Cohort Component Method	148,686
Housing Unit Method	147,701
Ratio Correlation Method (Students/Drivers/Voters)	148,060
Average of Three Methods	148,149
Adjustment to Match State Total	148,237

Estimates Methodology

Tract Totals

- Limited Data Available Below the County Level:
 - NMDOH Vital Records
 - MVD Driver's Licenses
 - Building Permits
- 2000-2010 Change Ratios (Hamilton-Perry Method)
- Tract Totals Must Match County Total from Step 2
 - Santa Fe County's 50 Census Tracts Totaled **148,251**
 - All 50 Tracts were "Raked" to **148,237**

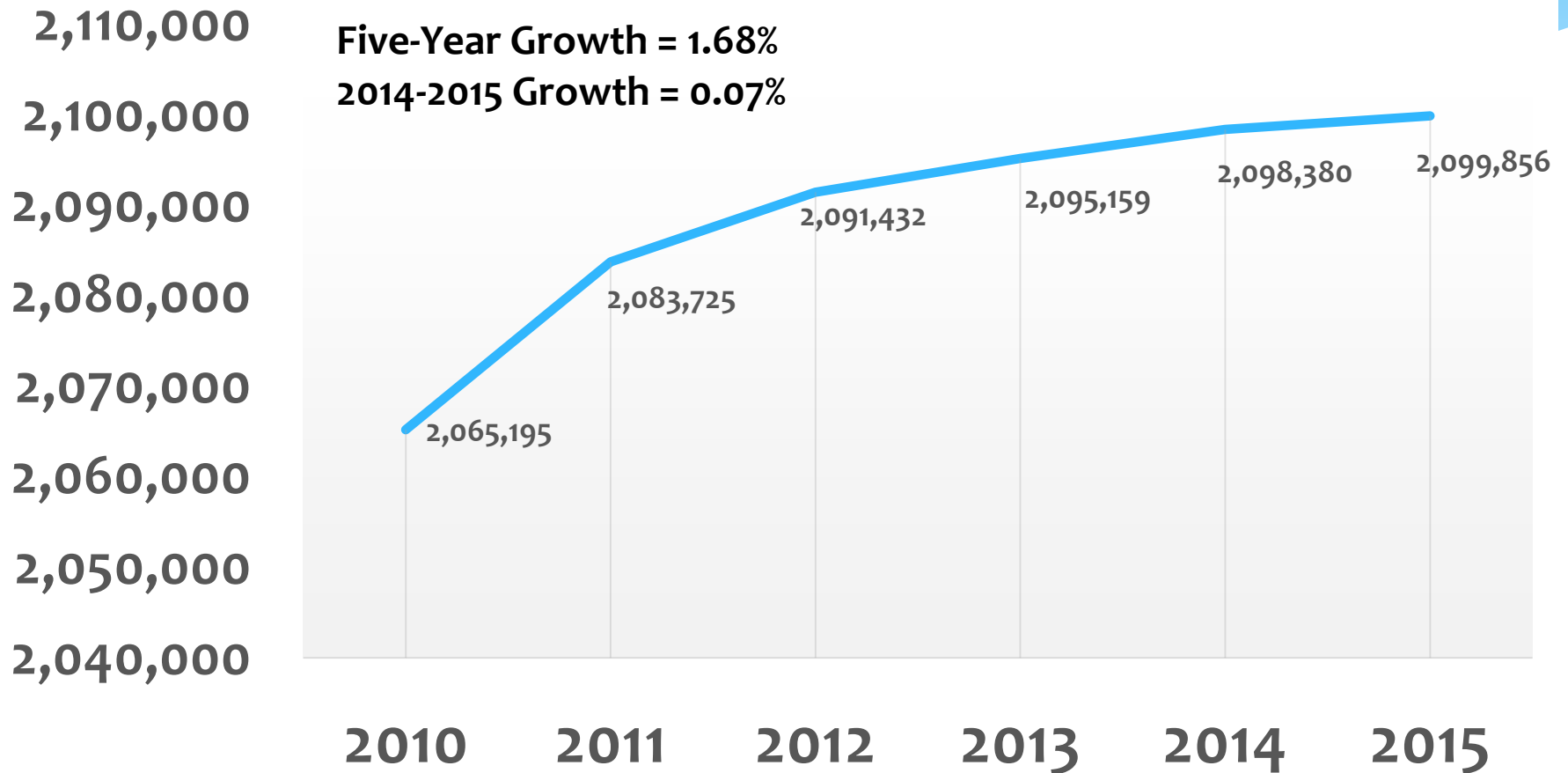
Characteristics and Data Fitting

- * Age/Sex/Race/Ethnicity Characteristics
 - * Initial Values Based on 2010 Census
 - * Changes Based on
 - * NCHS
 - * NMDOH Vital Records
 - * MVD Data
- * Data is Fit using Multi-Dimensional Iterative Proportional Fitting

Data Uncertainty

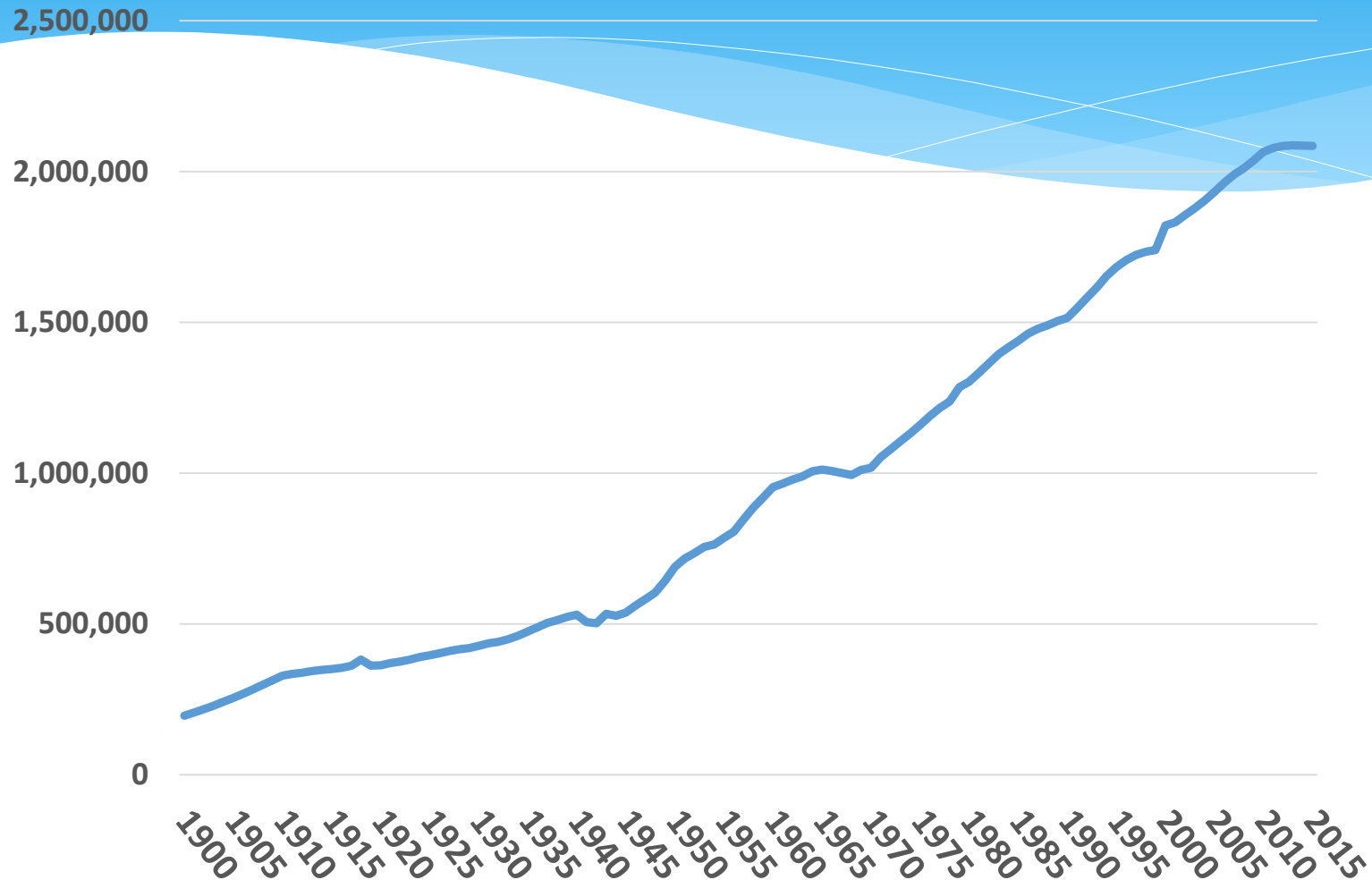
- Increases as Size of Population Decreases
- Increases Further from the Last Census
- Greatest for American Indians Living on Tribal Lands
- Least for Non-Hispanic Whites
- Increases as Stability of Population Decreases

New Mexico State Total 2010-2015



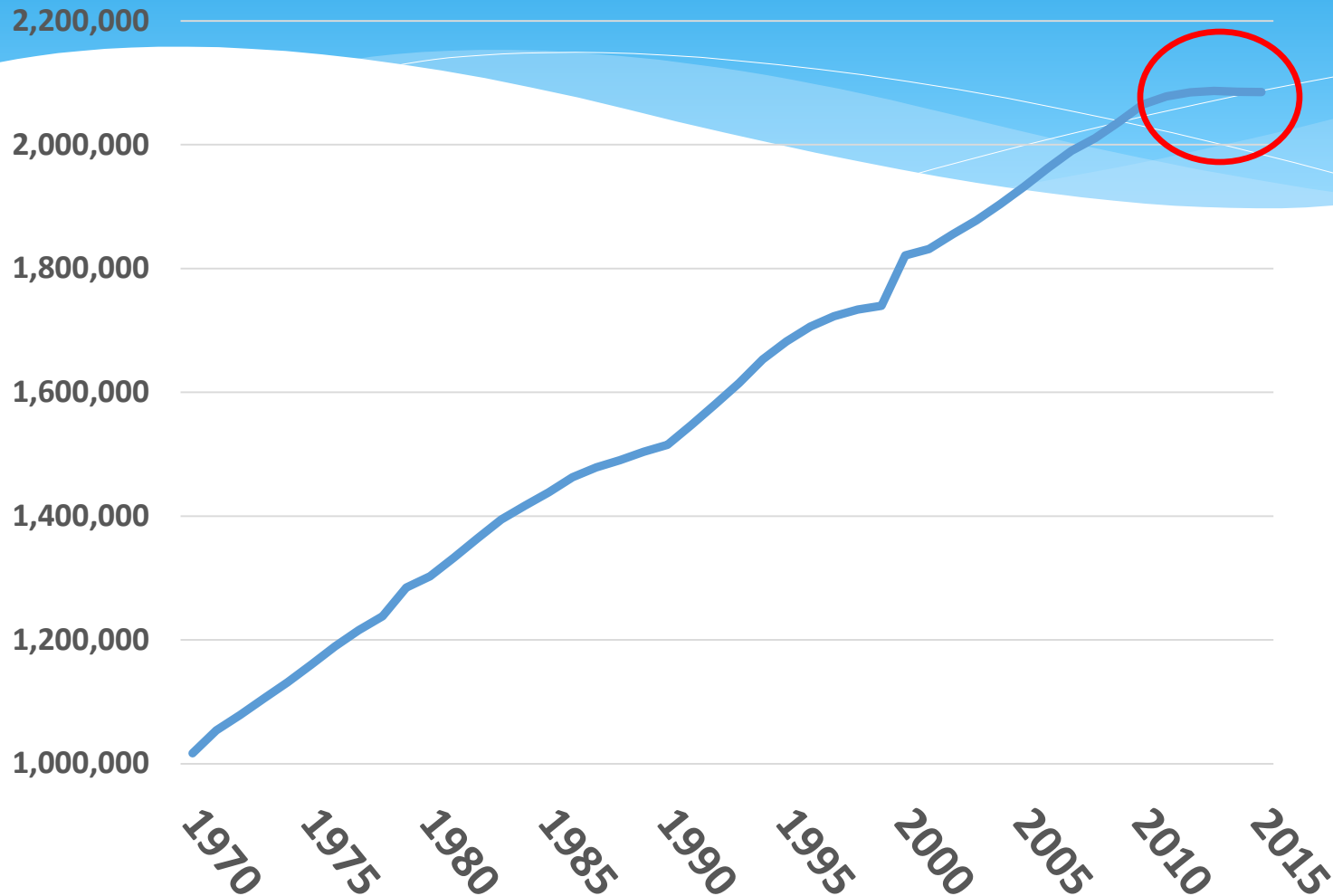
Source: UNM Geospatial and Population Studies (gps.unm.edu)

NM Population 1900 - 2015



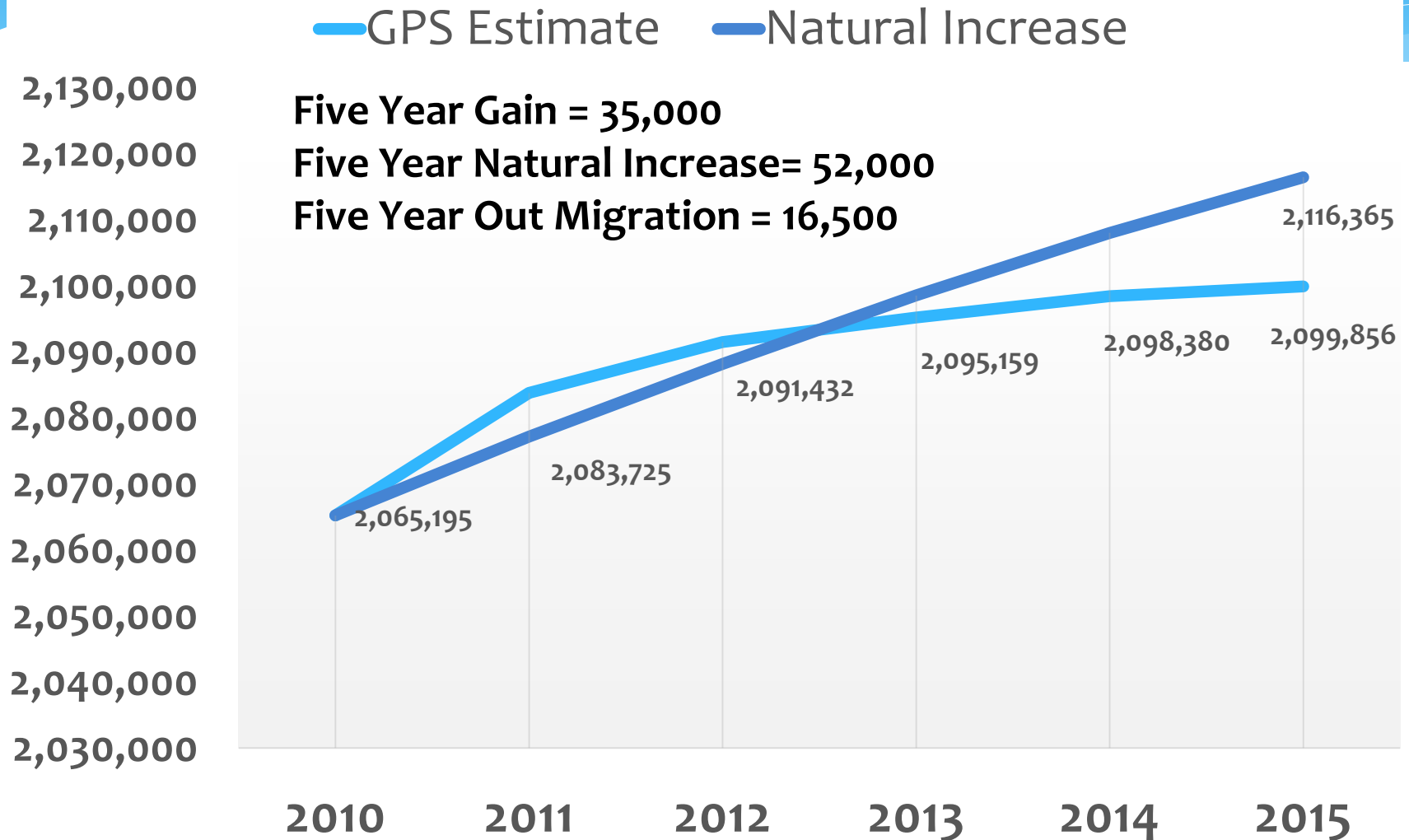
Source: US Census Bureau Population Estimates
<https://www.census.gov/popest/data/historical/index.html>

NM Population 1970 - 2015



Source: US Census Bureau Population Estimates
<https://www.census.gov/popest/data/historical/index.html>

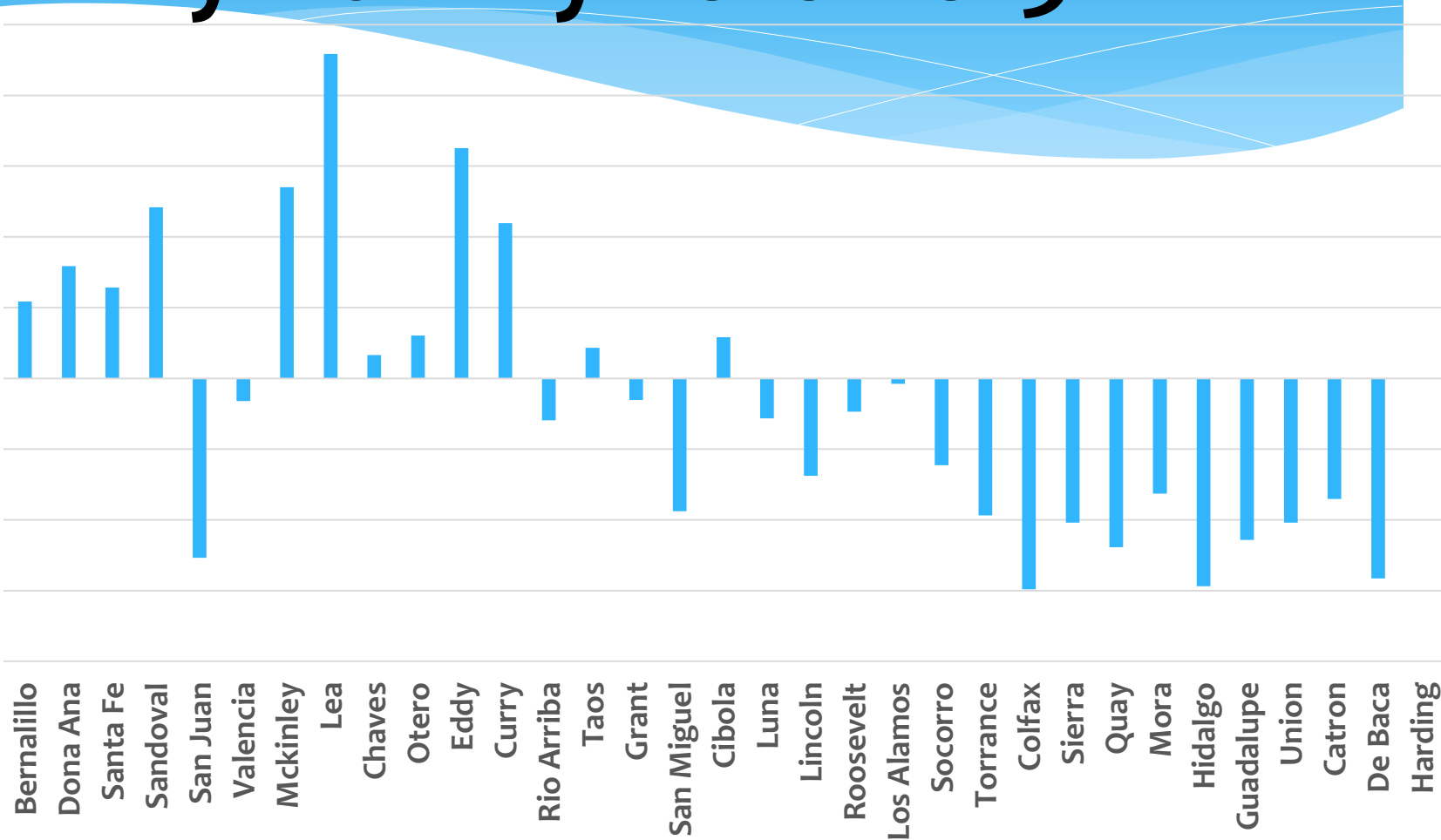
NM State Total 2010-2015 Vs. Natural Increase



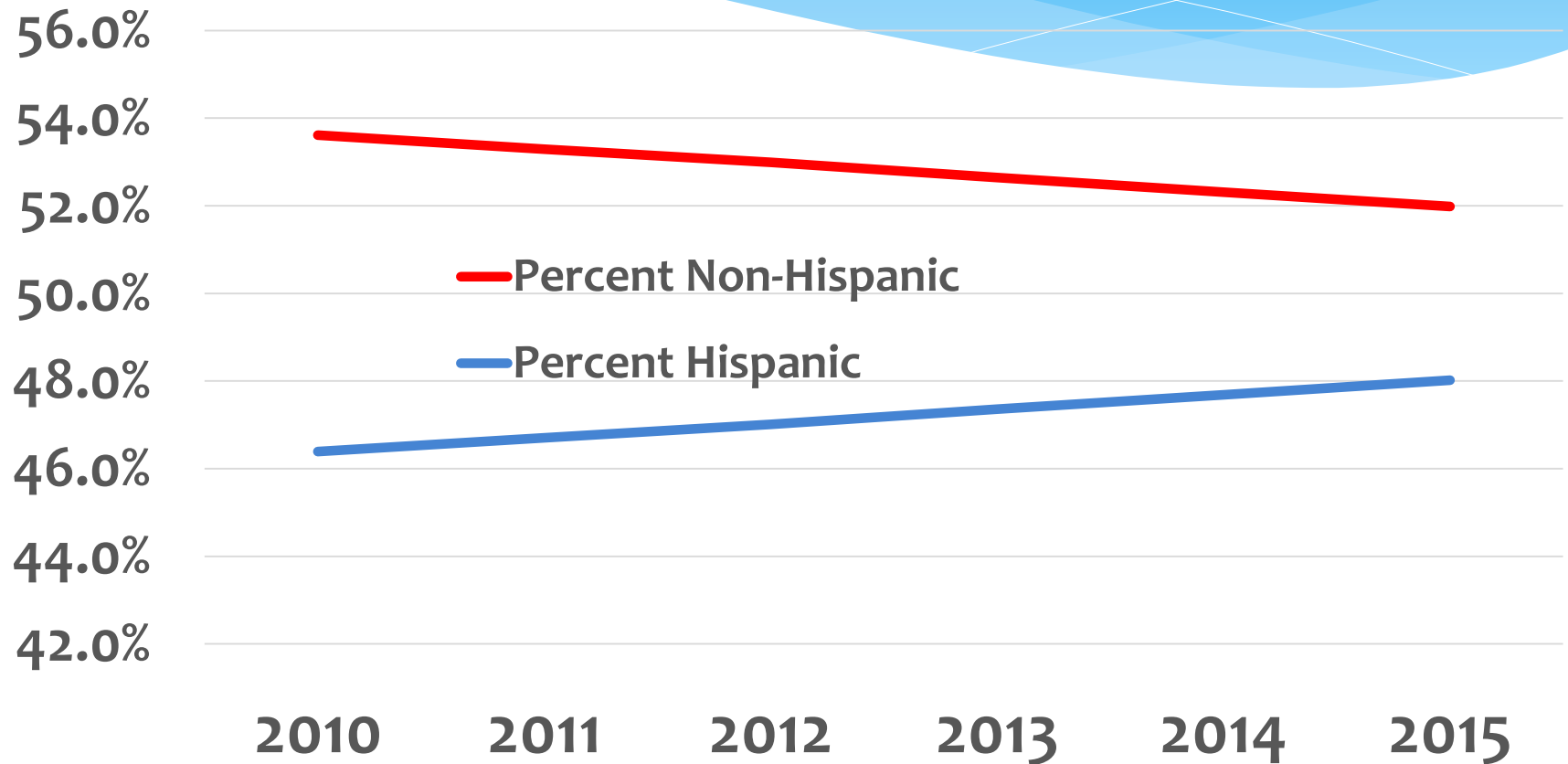
Source: UNM Geospatial and Population Studies (gps.unm.edu)

Population Change by County 2010-2015

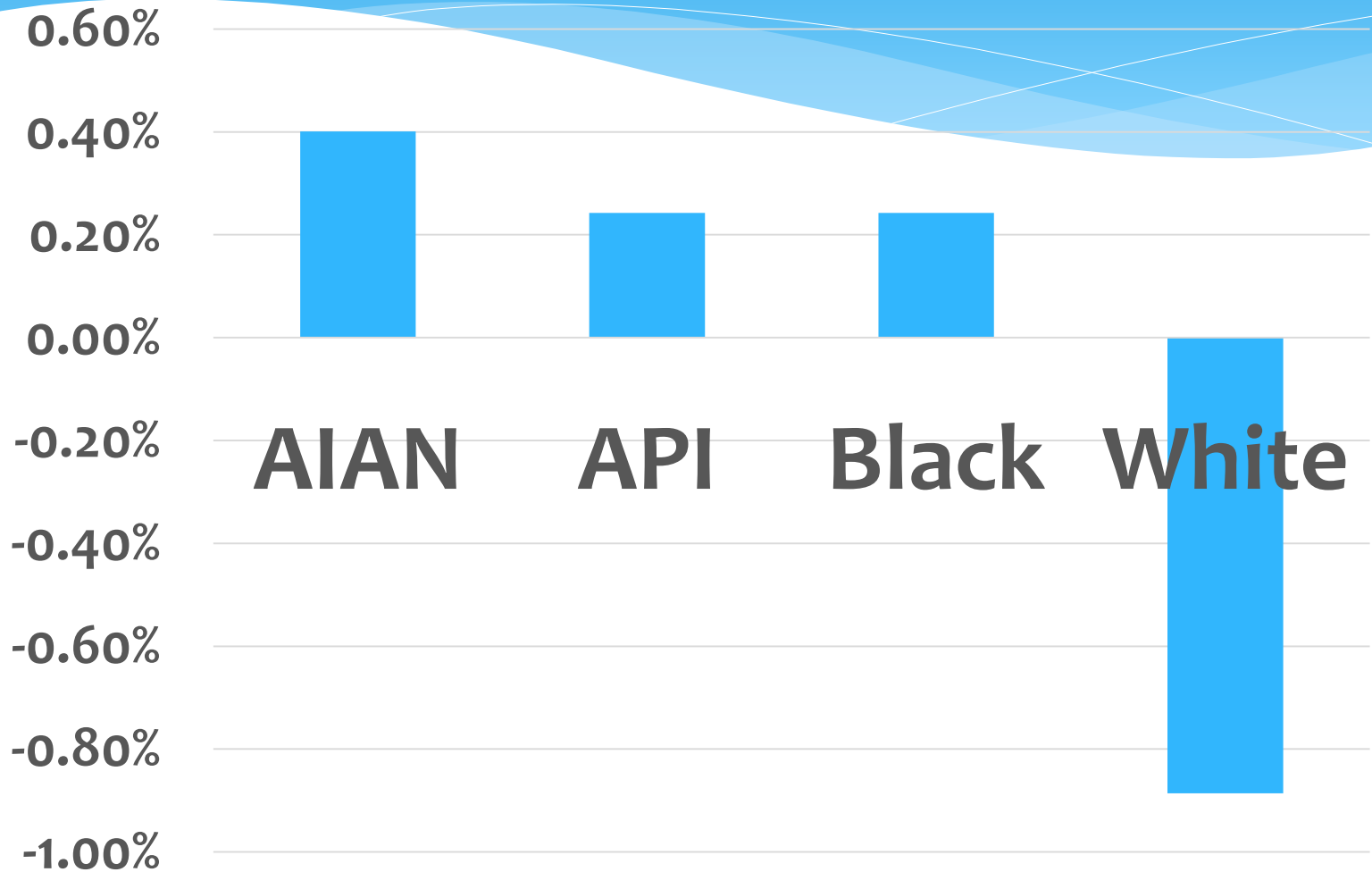
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
-4.0%
-6.0%
-8.0%



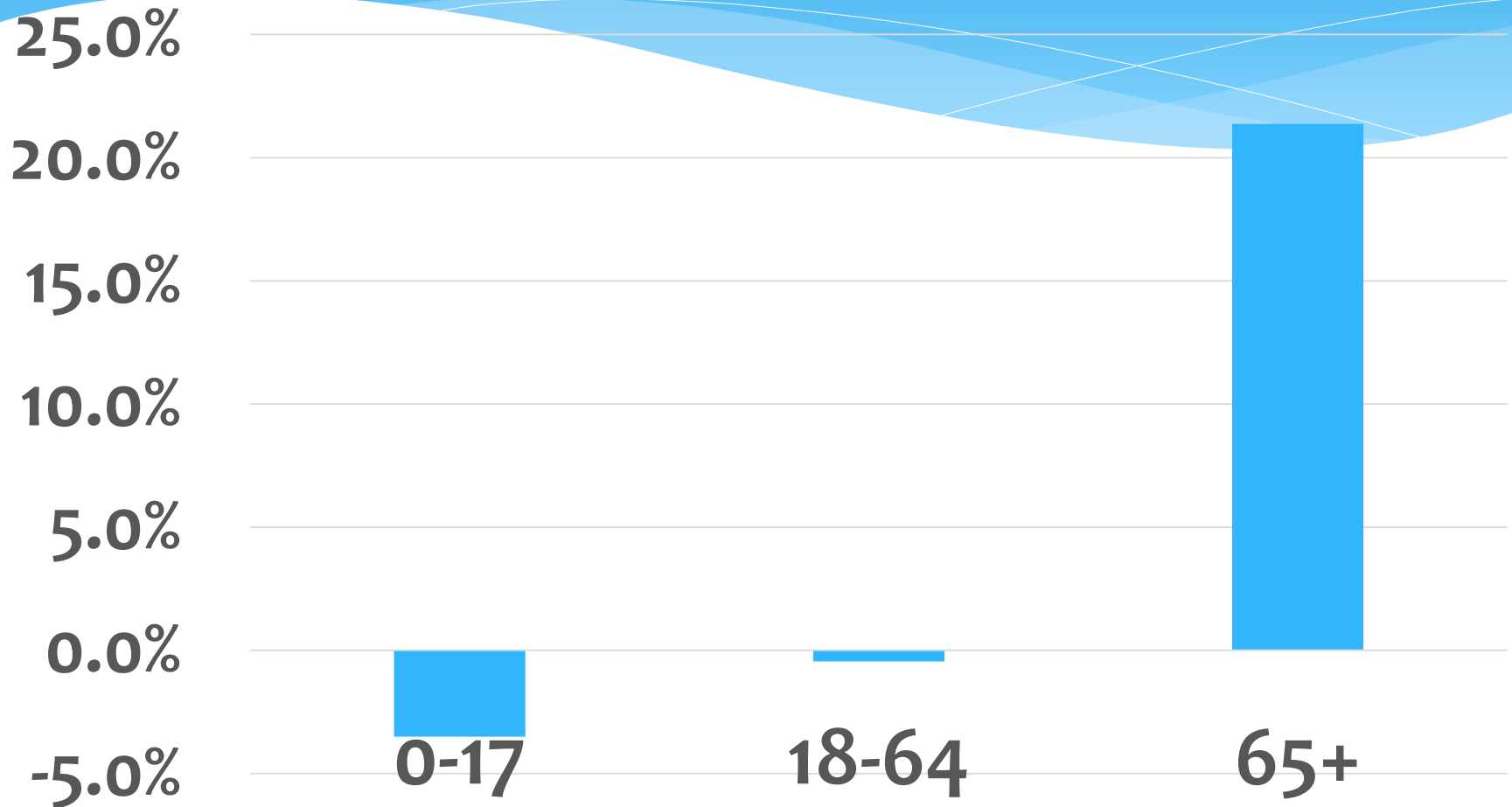
Hispanic/Non-Hispanic Population Change



Five Year Growth By Race



Five Year Growth By Age



Projections

- Preliminary Projections are now on our website: gps.unm.edu
- Slow Growth through 2020
- Growth Rates from Previous Decades wont Return Soon

Questions or Comments

Robert Rhatigan
Senior Research Scientist
Geospatial and Population Studies
University of New Mexico
rhatigan@unm.edu
505.277.4034