Esri Talking Points

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Briefing to;
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Esri Estimates and Projections Methodology

- Esri housing data is built from several sources and methods. Point-level detailed construction and sales data are used in well covered markets. These data sources pick up nearly 60% of all annual new housing unit creation.
- In areas without point-level detailed construction and sales data coverage, a mix of methods is used including building permit data and changes in USPS postal delivery statistics allocated to Census block groups.
- Internal applications leveraging high quality current and historical areal imagery are used for verification of significant changes to the housing stock.
- 5-yr projections for housing leverage future pipeline construction plans for single family housing and multifamily developments. In areas without pipeline construction data, projections rely on short term forecasts of existing housing data and trends.

Esri Housing Affordability Data

- **POIFM**
- Esri 2023 Estimate (#) of the Percent of Income for Mortgage (POIFM) in the geographic area. This is the median percentage of household income dedicated to mortgage payments for a home priced at the median value.
- **Housing Affordability Index (HAI)**
- Esri 2023 Housing Affordability Index (HAI) measures the ability of a typical resident to purchase a home in the geographic area. The HAI has a base of 100, representing where the median income is sufficient to qualify for a loan on a median-valued home and not be cost-burdened (cost-burdened=greater than 30% of income spent on housing). HAI values > 100 indicate increasing affordability; HAI values < 100 indicate areas where homes are less affordable and median income might be insufficient to purchase a median-valued home.

Esri Data of Interest for Discussion

Socioeconomic Index

Esri 2023 Socioeconomic Status Index (SEI) quantifies an area's socioeconomic status, which is the intersection of sociological and economic characteristics that are indicative of social position relative to others. This measure is derived from a mix of input variables from Esri and the American Community Survey (ACS) on topics such as income and poverty, employment and occupation, educational attainment, and household characteristics. The SEI ranges from 0 to 100, where larger values indicate higher socioeconomic status. Reviewing and comparing SEI values can highlight important disparities in social position.

Blog: Measuring Relative Social Position with Esri's Socioeconomic Status

Esri Data of Interest for Discussion

Gini Index

Esri 2023 Gini Index of household income inequality quantifies the dispersion of household income or the deviation of household incomes from perfect equality. The Gini Index ranges from 0 to 100 where 0 represents total inequality and 100 represents total equality.

Household Income Tiers

Esri Data of Interest for Discussion

Esri 2023 Households in Middle Income Tier are households earning between Esri's range of incomes defined as middle income. Esri classifies households in an area into three income tiers (low tier, middle tier and upper tier), where the middle tier is interpretable as "middle class".

Methodology: Esri income tiers and measures of income inequality

Esri Data of Interest for Discussion

Esri Historical Demographic Data back to 2010

Starting with the October 2023 release of Esri's Vintage 2023 Time Series Totals, historical data are provided for every year from 2010 up to the most current vintage of Esri's Updated Demographics. These data are designed for temporal analysis so that users can track changes in total population, housing units, and households across time using the latest geography.

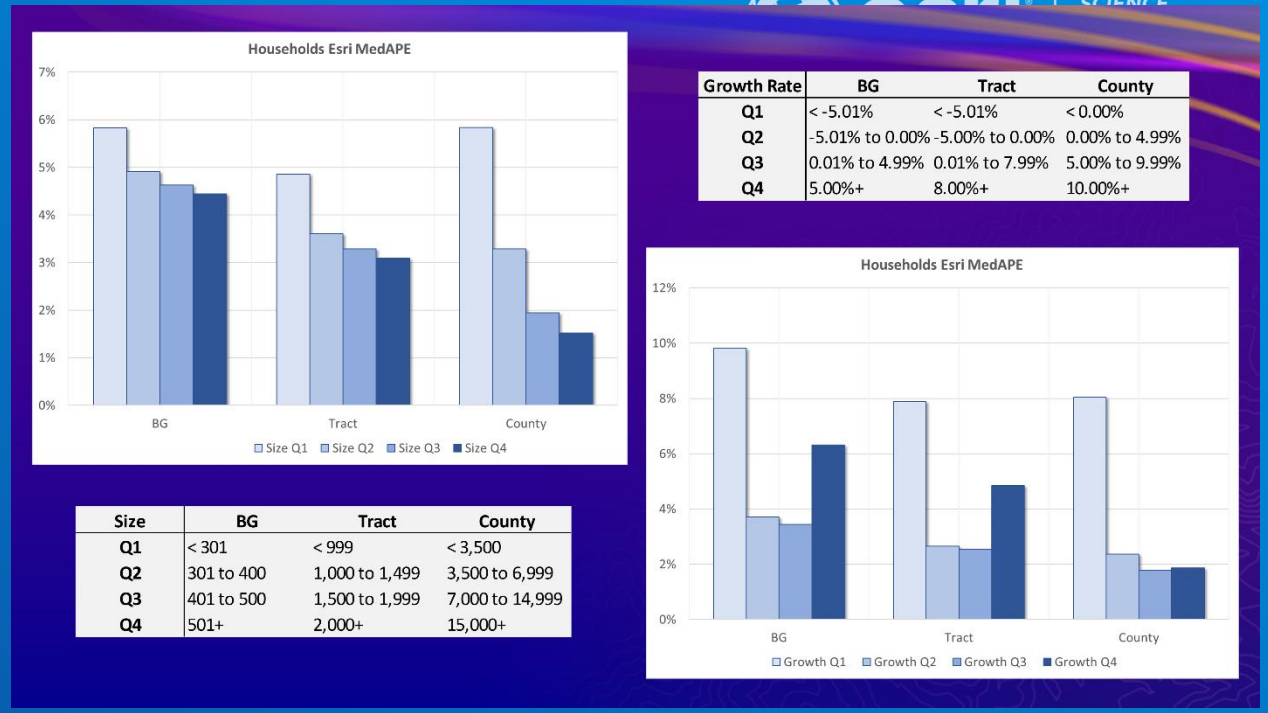
Blog: Esri Historical Demographic Data

Esri Data Accuracy

- Census 2020 improvements over 2010
- • Esri replicated the exact methodology from the 2010 Vendor Accuracy Study with Esri Vintage 2020 estimates and the decennial Census 2020 counts.
- • This apples-to-apples comparison shows that Esri has improved in accuracy (measures of precision, bias, allocation, and outliers) over the decade.
- o A public-facing marketing product is forthcoming.
- • The graphs below summarize accuracy by growth and size quartile for block groups, tracts, and counties. Geographies are stratified by growth rate and size.

Esri Data Accuracy

- Vintage 2015 Projections for year 2020
- • Looking back to the 2020 projections that Esri built in 2014 for the 2015 estimates and 2020 projections we can evaluate the relative accuracy of Esri's projections against the decennial 2020 Census counts.



Growth Rate	BG	Tract	County
Q1	< -5.01%	< -5.01%	< 0.00%
Q2	-5.01% to 0.00%	-5.00% to 0.00%	0.00% to 4.99%
Q3	0.01% to 4.99%	0.01% to 7.99%	5.00% to 9.99%
Q4	5.00%+	8.00%+	10.00%+

Size	BG	Tract	County
Q1	< 301	< 999	< 3,500
Q2	301 to 400	1,000 to 1,499	3,500 to 6,999
Q3	401 to 500	1,500 to 1,999	7,000 to 14,999
Q4	501+	2,000+	15,000+

- Esri Vintage 2015 projected 2020 total population: 330,622,575
- Decennial Census 2020 total population: 331,449,281
- Esri Vintage 2015 projected 2020 total population was an underestimate of -826,706, or -0.25%

Esri Data Accuracy

- • Looking at the state-level Esri Vintage 2015 projected 2020 total population had an average error of 2.15% (MAPE) with a bias of underestimation at -0.42% (MAPLE)
- • The Census Bureau Population Projections Program (PPP) released projections for US total population in 2014.
- o PPP Vintage 2014 projected 2020 total population: 334,503,458
- o Decennial Census 2020 total population: 331,449,281
- • PPP Vintage 2014 projected 2020 total population was an overestimate of 3,054,177, or 0.92%
- From this analysis we can conclude that Esri Vintage 2015 (created in 2014) projected 2020 total population was more accurate than the Census Bureau PPP Vintage 2014 projected 2020 total population.

Census 2020

Esri Realignment

- As privacy protections are strengthened, some statistics at smaller levels of geography are compromised. Esri has realigned many of these irregularities so that Esri Updated Demographics provides the highest quality small area analysis possible.
- Blog: Esri Realigns Census 2020 Data for Esri Updated Demographics
- **Noise Estimates**
- Esri has developed a methodology to approximate the amount of noise infused into the Census 2020 data. The output includes counts from Census 2020 alongside estimates of noise and a range of possible values.
- Blog: How Much Noise Is in Census 2020 Data? Esri Can Show You!
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