Kem C. Gardner
POLICY INSTITUTE
THE UNIVERSITY OF UTAH
DAVID ECCLES SCHOOL OF BUSINESS

User Guide

Long-Term Planning Projection Scenarios

August 1, 2022

These projection scenarios and this user guide were developed by:

Mike Hollingshaus
Senior Demographer

Eric Albers
Research Analyst

Michael Hogue
Senior Research Statistician

Mallory Bateman
Director of Demographic Research

Table of Contents

Long-Term Planning Projection Scenarios User Guide

The Kem C. Gardner Policy Institute prepares long-term demographic and economic planning projections to assist with state decision-making. The Institute released a set of baseline (or most likely) projections in January 2022. These baseline projections provide the data foundation for Utah's long-term transportation, water, education, and other planning activities. As a supplement to these baseline projections, the Gardner Institute has now prepared two alternative projection series at the state and county level that provide an upper and lower range. These scenarios convey the inherent uncertainty involved with long-term projections and support planning activities that benefit from a range of alternative futures. This user guide summarizes the purpose, key findings, methods, and limitations of these alternative projections. It also provides the data at the state level and shares product information to help users access and use the data.

Purpose and Potential Uses

No one can predict the future with absolute certainty. It is inherently unknowable because we are actively creating it; and yet we need some idea of future possibilities to responsibly prepare. While Utah's projections have generally performed well over the past decades, our recent research shows there have been errors, especially for counties that have small populations, experience rapid change, and are rural.[1] It is therefore critical to communicate uncertainty and provide a range of projections for data users.[2]

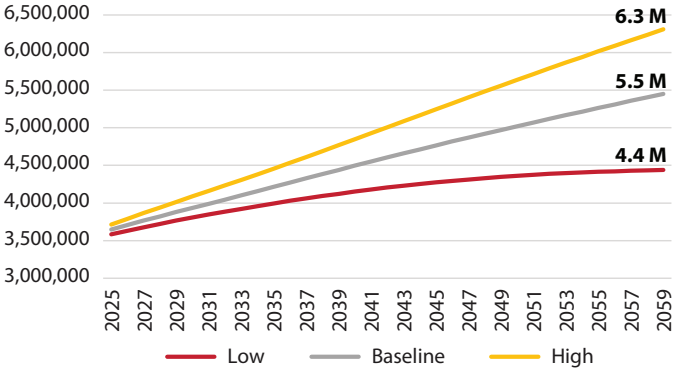
We strongly encourage users to utilize our "baseline" scenario, released in early 2022 for most applications. These new high and low scenarios provide guideposts for each county's possibilities. This can help entities whose planning processes would benefit from a range of population projections.

Key Findings

While the full data are publicly available online, Figures 1-3 provide users a general idea by showing the population, household, and employment scenarios for the entire state. Tables 2-4 provide state-level information for population, households, and employment for all three scenarios

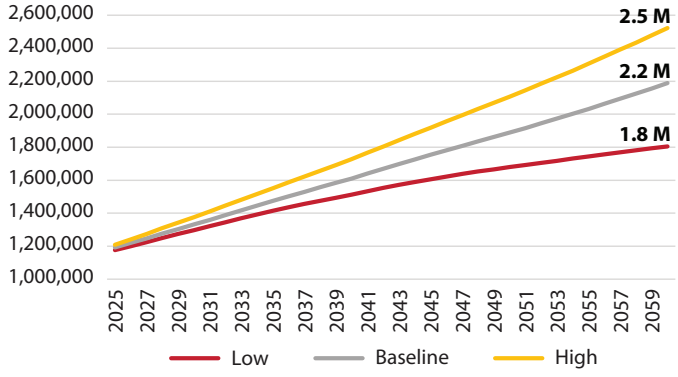
In 2060, the baseline scenario projects a population of 5.5 million for the state. The high scenario is 15.8% higher at 6.3 million while the low scenario is 18.5% lower at 4.4 million. The baseline scenario projects 2.2 million households in 2060 for the state. The high scenario is 15.2% higher at 2.5 million while the low scenario is 17.6% lower at 1.8 million. Regarding employment, the baseline scenario projects 3.4 million jobs in 2060 for the state. The high scenario is 19.0% higher at 4.1 million, while the low scenario is 18.3% lower at 2.8 million.

Figure 1: Total Resident Population in Utah by Scenario, 2025-2060



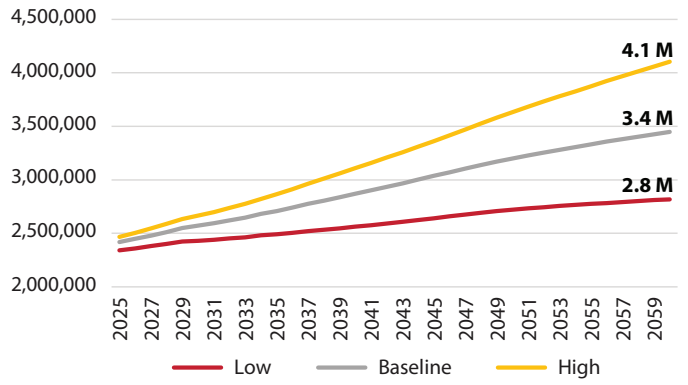
Source: Kem C. Gardner Policy Institute

Figure 2: Total Households in Utah by Scenario, 2025-2060



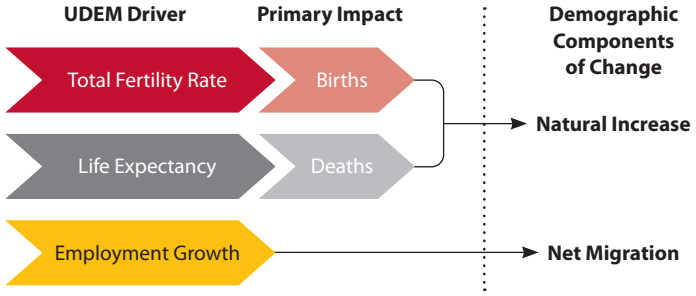
Source: Kem C. Gardner Policy Institute

Figure 3: Total Employment in Utah by Scenario, 2025-2060



Source: Kem C. Gardner Policy Institute

Figure 4: UDEM Projection Drivers



Source: Kem C. Gardner Policy Institute

Methods

The Gardner Institute and community partners developed a set of most likely assumptions to create a baseline scenario. Of course, multiple factors can change in ways that might impact population, households, and employment. One way to address these potential changes is to create alternative scenarios using different sets of assumptions.[3]

We made and modeled different assumptions for the three main drivers of our Utah Demographic and Economic Model (UDEM). These drivers include the total fertility rate, life expectancy, and employment growth. These three forces interact to affect the projected births, deaths, and net migration—the demographic components of change. Each assumption is implemented at the Utah state, economic region,[4] and county levels. Table 1 overviews the state-level assumptions. More detailed baseline assumptions and model logic have been provided in previous documentation.[5]

Limitations

These different scenarios help illustrate the future's uncertainty. Unfortunately, there is no way to assess our assumptions' accuracy until several years into the future, at which point the projections become history. For example, there is still no way to know exactly how COVID-19 will affect deaths in the future. Also, projection models themselves are subject to error and there will be measurement and sampling error in the data inputs.[6]

One critical data limitation is the lack of the detailed 2020 decennial census tables needed to make more accurate projections, including age and sex detail and household size.[7] Furthermore, while economic data are released quarterly, the baseline projections rely on fall 2021 data. Due to differences in the timing of input data sources, the 2020-2025 window may not reflect the most recent demographic or economic data. Since these are long-term projections, we begin the scenarios in 2025 to reduce potential confusion. We are presently conducting research on how to best combine short and long-term projections in a way that is technically accurate, as well as interpretable and actionable by policymakers.

Data Product – Microsoft Excel Data Workbook

These projection scenario data are available in Excel Workbook form. The file is organized into three primary worksheets (corresponding to the low, baseline, and high scenarios) in addition to a worksheet explaining the file layout. Each of the three primary worksheets contains population, households, and employment projections for the state and all 29 counties.

Table 1: State-level Scenario Assumptions

Year/Scenario	Total Fertility Rate	Life Expectancy		Employment	
		Female	Male	Jobs (in thousands)	Average Annual Percentage Growth Rate
2019 Estimate	1.99	81.9	78.3	2,127	N/A
2060 Low	1.74	85.4	81.3	2,817	0.7%
2060 Baseline	1.78	87.3	84.2	3,448	1.2%
2060 High	1.86	89.2	87.1	4,104	1.6%

Notes: Total Fertility is the average number of children a woman would be expected to have throughout her life. Life expectancy at birth is the average number of years a newborn is expected to live. These are period (not cohort) measures. The U.S. Bureau of Economic Analysis definition provides the basis for the employment concept, which includes wage and salary employment and self-employment; full-time and part-time. These are a count of jobs rather than a count of employed persons; one employed person may hold multiple jobs.
This table shows 2019 data because they were prior to the COVID-19 pandemic, which we considered a temporal anomaly for modeling purposes.
Sources: Kem C. Gardner Policy Institute, National Center for Health Statistics, U.S. Bureau of Economic Analysis, United States Mortality DataBase.[8]

Reference Table 2: Total Population in Utah by Scenario, 2025-2060

Year	Scenario		
	Low	Baseline	High
2025	3,536,756	3,588,325	3,639,588
2026	3,584,123	3,647,847	3,714,097
2027	3,631,751	3,707,365	3,789,609
2028	3,678,340	3,765,808	3,864,951
2029	3,723,499	3,823,047	3,939,806
2030	3,766,911	3,879,161	4,013,963
2031	3,808,514	3,934,602	4,087,487
2032	3,848,224	3,989,928	4,160,449
2033	3,886,628	4,045,806	4,233,615
2034	3,923,528	4,101,768	4,306,995
2035	3,959,314	4,158,181	4,381,211
2036	3,994,218	4,214,821	4,456,751
2037	4,028,066	4,271,482	4,533,394
2038	4,060,716	4,327,969	4,610,959
2039	4,092,027	4,384,194	4,689,232
2040	4,122,543	4,440,560	4,768,485
2041	4,151,691	4,496,514	4,848,113
2042	4,179,229	4,551,744	4,927,850
2043	4,205,229	4,606,307	5,007,723
2044	4,229,313	4,659,824	5,087,331
2045	4,252,133	4,712,762	5,166,812
2046	4,274,080	4,765,572	5,246,523
2047	4,294,580	4,817,728	5,325,869
2048	4,313,689	4,869,323	5,404,860
2049	4,331,068	4,920,070	5,483,126
2050	4,346,649	4,969,929	5,560,522
2051	4,361,380	5,019,857	5,637,938
2052	4,374,995	5,069,569	5,715,037
2053	4,387,439	5,119,019	5,791,727
2054	4,398,292	5,167,718	5,867,518
2055	4,407,472	5,215,630	5,942,259
2056	4,415,551	5,263,304	6,016,473
2057	4,422,722	5,310,621	6,090,283
2058	4,429,259	5,357,795	6,163,927
2059	4,435,171	5,404,637	6,237,339
2060	4,439,863	5,450,598	6,309,871

Note: The baseline projections are recommended for long-term planning purposes. The low and high scenarios provide an additional insight of potential ranges of future growth. Baseline numbers presented here may differ slightly from previous publications due to rounding.

Source: Kem C. Gardner Policy Institute, 2025-2060 Long-Term Planning Projection Scenarios

Reference Table 3: Total Households in Utah by Scenario, 2025-2060

Year	Scenario		
	Low	Baseline	High
2025	1,176,264	1,192,326	1,208,567
2026	1,200,504	1,220,284	1,241,533
2027	1,224,750	1,248,097	1,274,791
2028	1,249,033	1,275,878	1,308,432
2029	1,273,267	1,303,638	1,342,407
2030	1,297,210	1,331,265	1,376,508
2031	1,321,297	1,359,356	1,411,174
2032	1,345,080	1,387,747	1,446,074
2033	1,368,617	1,416,545	1,481,335
2034	1,391,835	1,445,551	1,516,865
2035	1,414,048	1,474,129	1,552,092
2036	1,435,292	1,502,118	1,587,083
2037	1,455,754	1,529,715	1,622,061
2038	1,475,415	1,556,903	1,656,984
2039	1,494,489	1,583,904	1,692,026
2040	1,512,603	1,610,383	1,726,909
2041	1,533,719	1,640,619	1,766,217
2042	1,553,271	1,669,733	1,804,733
2043	1,571,710	1,698,140	1,842,791
2044	1,589,223	1,726,113	1,880,758
2045	1,605,874	1,753,636	1,918,459
2046	1,622,027	1,781,138	1,956,289
2047	1,637,435	1,808,384	1,993,989
2048	1,652,055	1,835,389	2,031,567
2049	1,666,055	1,862,358	2,069,227
2050	1,679,436	1,889,344	2,107,033
2051	1,692,563	1,916,737	2,145,369
2052	1,705,300	1,944,397	2,184,071
2053	1,718,053	1,972,782	2,223,617
2054	1,730,998	2,002,086	2,264,223
2055	1,743,946	2,032,249	2,305,857
2056	1,756,637	2,062,991	2,348,240
2057	1,768,779	2,093,810	2,390,871
2058	1,780,629	2,124,912	2,433,926
2059	1,792,681	2,156,673	2,477,795
2060	1,804,579	2,188,830	2,522,220

Note: The baseline projections are recommended for long-term planning purposes. The low and high scenarios provide an additional insight of potential ranges of future growth. Baseline numbers presented here may differ slightly from previous publications due to rounding.

Source: Kem C. Gardner Policy Institute, 2025-2060 Long-Term Planning Projection Scenarios

Reference Table 4: Total Employment in Utah by Scenario, 2025-2060

Year	Scenario		
	Low	Baseline	High
2025	2,341,451	2,418,942	2,467,209
2026	2,360,158	2,448,490	2,504,312
2027	2,382,182	2,479,604	2,547,143
2028	2,401,737	2,510,437	2,589,653
2029	2,424,213	2,550,198	2,634,611
2030	2,431,314	2,573,958	2,667,385
2031	2,438,916	2,594,355	2,699,654
2032	2,452,960	2,621,576	2,738,698
2033	2,463,512	2,647,310	2,776,071
2034	2,481,764	2,681,569	2,822,954
2035	2,492,321	2,709,615	2,865,618
2036	2,506,131	2,741,153	2,912,683
2037	2,521,339	2,775,045	2,962,404
2038	2,534,019	2,806,771	3,011,265
2039	2,547,747	2,838,503	3,060,403
2040	2,562,260	2,871,065	3,110,575
2041	2,576,365	2,902,498	3,159,285
2042	2,591,108	2,934,568	3,207,979
2043	2,607,031	2,967,718	3,257,662
2044	2,623,601	3,002,290	3,309,855
2045	2,640,647	3,036,888	3,362,474
2046	2,658,946	3,071,243	3,417,073
2047	2,675,742	3,104,699	3,471,850
2048	2,692,365	3,137,454	3,526,325
2049	2,707,244	3,169,588	3,580,419
2050	2,721,400	3,199,704	3,633,676
2051	2,734,410	3,228,391	3,685,769
2052	2,744,916	3,254,791	3,733,387
2053	2,755,562	3,280,856	3,780,726
2054	2,765,477	3,306,393	3,828,109
2055	2,774,926	3,332,433	3,875,842
2056	2,784,058	3,357,685	3,922,369
2057	2,792,610	3,381,599	3,968,013
2058	2,801,765	3,404,628	4,014,004
2059	2,810,506	3,426,671	4,058,988
2060	2,817,448	3,448,351	4,104,418

Note: The baseline projections are recommended for long-term planning purposes. The low and high scenarios provide an additional insight of potential ranges of future growth. Baseline numbers presented here may differ slightly from previous publications due to rounding.

Source: Kem C. Gardner Policy Institute, 2025-2060 Long-Term Planning Projection Scenarios

Endnotes

1. Albers, E. (2022). *Accuracy Analysis of Long-Term Planning Projections for Utah and its Counties.* Kem C. Gardner Policy Institute. https://gardner.utah.edu/wp-content/uploads/PopProjAcc-Jun2022.pdf.
2. UNECE Task Force on Population Projections. (2018) *Recommendations on Communicating Population Projections.* United Nations. https://unece.org/DAM/stats/publications/2018/ECECESSTAT20181.pdf.
3. Our UDEM model is designed to implement this assumption-based approach. Its main strength is the capability to model how specific actionable policies might affect the future, and we have already completed other contract work using this capability. One drawback is that the scenarios cannot be interpreted in terms of statistical confidence intervals or credible regions. While some newer methods integrate both approaches, they are resource-intensive, not well-tested, and especially challenging to communicate.
4. Hogue, M. (2020). *Utah's Economic Regions.* Kem C. Gardner Policy Institute. https://gardner.utah.edu/wp-content/uploads/EconRegionsNov2020.pdf.
5. Hollingshaus, M., Hogue, M., Harris, E., Bateman, M., Backlund, M., & Albers, E. (2022). *Utah Long-Term Planning Projections A Baseline Scenario of Population and Employment Change in Utah and its Counties.* Kem C. Gardner Policy Institute. https://gardner.utah.edu/wp-content/uploads/LongTermProj-Jan2022.pdf. See also, Hollingshaus, M., Harris, E., Hogue, M. T., & Perlich, P. S. (2018). *The Utah Demographic and Economic Model: Version 2017.* Kem C. Gardner Policy Institute. https://gardner.utah.edu/wp-content/uploads/udem_2017_final.pdf. See also, Hogue, M. (2018). *Gardner Industry Trends Model.* Kem C. Gardner Policy Institute. https://gardner.utah.edu/wp-content/uploads/gitm_documentation_Final.pdf.
6. For a basic overview of the sources of modeling error, see Keyfitz, N., & Caswell, H. (2005). *Applied Mathematical Demography, Third Edition.* Springer. pp. 293-94.
7. The detailed Census demographic characteristics tables are not scheduled to be released until at least 2023. Until then, we have had to combine the limited census public law data file with other estimates and models. See U.S. Census Bureau. (2022*). Next 2020 Census Data Products to be Released in 2023*. Press Release Number CB22-CN.06. https://www.census.gov/newsroom/press-releases/2022/2020-census-data-products-schedule-2023.html. See also, U.S. Census Bureau. (2021). *2020: DEC Redistricting Data (PL 94-171)*. https://data.census.gov/cedsci/.
8. Numerous other sources were used to calculate these variables, including Utah Population Committee, U.S. Census Bureau, Utah Department of Health, U.S. Bureau of Labor Statistics, Utah Department of Workforce Services, IHS Markit, Regional Economic Models, Inc.

Kem C. Gardner
POLICY INSTITUTE
THE UNIVERSITY OF UTAH

DAVID ECCLES SCHOOL OF BUSINESS

Partners in the Community

The following individuals and entities help support the research mission of the Kem C. Gardner Policy Institute.

Legacy Partners

The Gardner Company
Intermountain Healthcare
Clark and Christine Ivory Foundation
KSL and Deseret News
Larry H. & Gail Miller Family Foundation
Mountain America Credit Union
Salt Lake City Corporation
Salt Lake County
University of Utah Health
Utah Governor's Office of Economic Opportunity
WCF Insurance
Zions Bank

Executive Partners

Mark and Karen Bouchard
The Boyer Company
Clyde Companies
Salt Lake Chamber

Sustaining Partners

Dominion Energy
Staker Parson Materials and Construction

Kem C. Gardner Policy Institute Advisory Board

Conveners

Michael O. Leavitt
Mitt Romney

Board

Scott Anderson, Co-Chair
Gail Miller, Co-Chair
Doug Anderson
Deborah Bayle
Cynthia A. Berg
Roger Boyer
Wilford Clyde
Sophia M. DiCaro
Cameron Diehl
Lisa Eccles
Spencer P. Eccles
Christian Gardner
Kem C. Gardner
Kimberly Gardner
Natalie Gochnour
Brandy Grace
Rachel Hayes
Clark Ivory
Mike S. Leavitt
Derek Miller
Ann Millner
Sterling Nielsen
Jason Perry
Ray Pickup
Gary B. Porter
Taylor Randall
Jill Remington Love
Brad Rencher
Josh Romney
Charles W. Sorenson
James Lee Sorenson
Vicki Varela

Ex Officio *(invited)*

Governor Spencer Cox
Speaker Brad Wilson
Senate President Stuart Adams
Representative Brian King
Senator Karen Mayne
Mayor Jenny Wilson
Mayor Erin Mendenhall

Kem C. Gardner Policy Institute Staff and Advisors

Leadership Team

Natalie Gochnour, Associate Dean and Director
Jennifer Robinson, Associate Director
Mallory Bateman, Director of Demographic Research
Phil Dean, Chief Economist and Public Finance Senior Research Fellow
Shelley Kruger, Accounting and Finance Manager
Colleen Larson, Administrative Manager
Dianne Meppen, Director of Survey Research
Nicholas Thiriot, Communications Director
James A. Wood, Ivory-Boyer Senior Fellow

Staff

Eric Albers, Research Associate
Max Becker, Research Associate
Samantha Ball, Senior Research Associate
Andrea Thomas Brandley, Research Associate
Kara Ann Byrne, Senior Research Associate
Mike Christensen, Scholar-in-Residence
Nate Christensen, Research Associate
Dejan Eskic, Senior Research Fellow
Enas Farag, Research Assistant
Emily Harris, Senior Demographer
Michael T. Hogue, Senior Research Statistician
Mike Hollingshaus, Senior Demographer
Thomas Holst, Senior Energy Analyst
Jennifer Leaver, Senior Tourism Analyst
Nate Lloyd, Deputy Director of Economics and Public Policy
Levi Pace, Senior Research Economist
Heidi Prior, Research Associate
Natalie Roney, Economist
Shannon Simonsen, Research Coordinator
Paul Springer, Senior Graphic Designer
Laura Summers, Senior Health Care Analyst

Faculty Advisors

Matt Burbank, College of Social and Behavioral Science
Elena Patel, David Eccles School of Business
Nathan Seegert, David Eccles School of Business

Senior Advisors

Jonathan Ball, Office of the Legislative Fiscal Analyst
Silvia Castro, Suazo Business Center
Gary Cornia, Marriott School of Business
Wes Curtis, Community-at-Large
John C. Downen, Camoin Associates
Theresa Foxley, EDCUtah
Dan Griffiths, Tanner LLC
Emma Houston, University of Utah
Beth Jarosz, Population Reference Bureau
Darin Mellott, CBRE
Pamela S. Perlich, University of Utah
Chris Redgrave, Community-at-Large
Wesley Smith, Western Governors University
Juliette Tennert, Utah System of Higher Education