

Population Estimates for Utah

Methods Documentation

April 2008

Population Estimates for Utah 2007

**Demographic and Economic Analysis
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Overview

Utah's population reached 2,699,554 in 2007, according to the Utah Population Estimates Committee (UPEC). This 3.2% increase from 2006 represents a record growth of 84,425, comparable to adding approximately the population of Ogden, Utah. With the national population increasing by an estimated 1.0% during 2007, the pace of population growth in Utah is more than three times the nation's. Utah's population ranks 34th, as it has for almost two decades, and the U.S. Census Bureau continues to rank Utah one of the nation's fastest growing states. From July 2006 to July 2007, Utah had the 3rd fastest growth rate in the nation.¹ Compared to the rest of the country, Utah's population growth is characterized by a high birth rate and low death rate.

Utah's growth in 2007 continued the trend of a large number of births compared to relatively few deaths. The state's record natural increase was 40,173, which is the number of births minus deaths. Births were a record 53,953 and deaths were a record 13,780. The record high number of births continued a trend of yearly record births that started in 1997, was broken briefly in 2005, and resumed in 2006. Net migration during 2007 was 44,252,

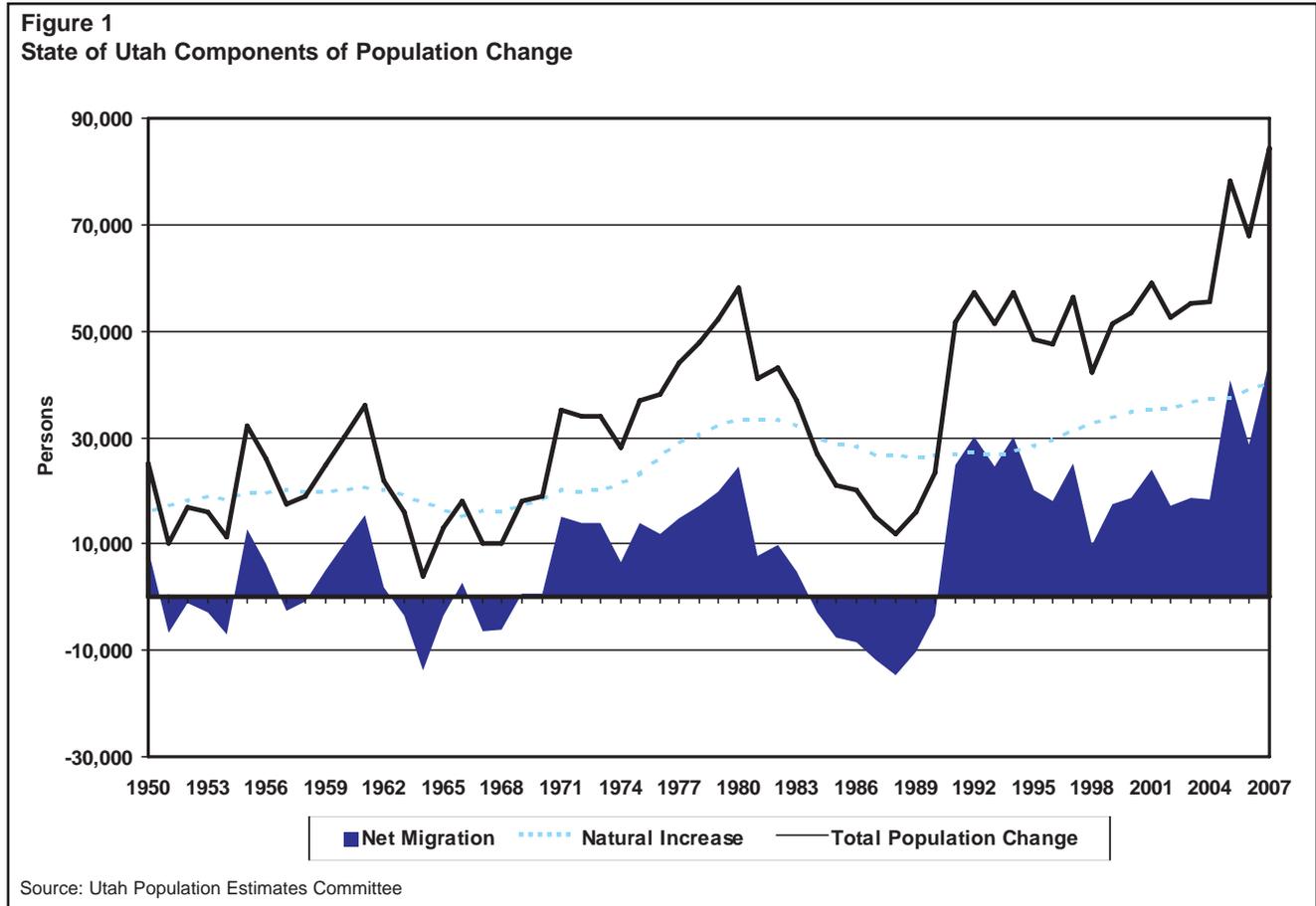
a post-World War II record. Indicators such as employment, wages, income, and sales demonstrated Utah's economy grew very rapidly during 2007. Likewise, demographic indicators such as school enrollment, LDS Church membership, tax exemptions, building permits, and utility connections suggest population growth was strong, due to both record natural increase and net migration.

This paper presents the official population estimate for the state, multi-county districts (MCDs) and counties, and discusses the method used to develop the estimates. The 2007 estimates and the historical context of Utah's population growth are discussed. Details are provided on the components of population change, as well as the methods used to prepare these estimates. The final section describes the methods used by the U.S. Census Bureau and the resulting estimates.

2007 Estimates

As Table 1 and Figure 1 show, Utah has now experienced 17 consecutive years of net in-migration. During this peri-

¹ This is based on Bureau of the Census national and state population estimates, online: <http://www.census.gov/popest/states/NST-ann-est.html>



**Table 1
Utah Population Estimates and Components of Population Change**

Year	July 1st Population	Percent Change	Population Change	Net Migration	Net Migration as a Percent of Previous Year's Population	Natural Increase	Fiscal Year Births	Fiscal Year Deaths
1960	900,000			10,047	1.1%	20,053	26,011	5,958
1961	936,000	3.8%	36,000	15,371	1.7%	20,629	26,560	5,931
1962	958,000	2.3%	22,000	1,817	0.2%	20,183	26,431	6,248
1963	974,000	1.6%	16,000	-3,317	-0.3%	19,317	25,648	6,331
1964	978,000	0.4%	4,000	-13,863	-1.4%	17,863	24,461	6,598
1965	991,000	1.3%	13,000	-3,553	-0.4%	16,553	23,082	6,529
1966	1,009,000	1.8%	18,000	2,810	0.3%	15,190	21,953	6,763
1967	1,019,000	1.0%	10,000	-6,350	-0.6%	16,350	23,030	6,680
1968	1,029,000	1.0%	10,000	-6,029	-0.6%	16,029	22,743	6,714
1969	1,047,000	1.7%	18,000	798	0.1%	17,202	24,033	6,831
1970	1,066,000	1.8%	19,000	612	0.1%	18,388	25,281	6,893
1971	1,101,150	3.2%	35,150	14,966	1.4%	20,184	27,400	7,216
1972	1,135,100	3.0%	33,950	14,046	1.3%	19,904	27,146	7,242
1973	1,168,950	2.9%	33,850	13,810	1.2%	20,040	27,562	7,522
1974	1,196,950	2.3%	28,000	6,621	0.6%	21,379	28,876	7,497
1975	1,233,900	3.0%	36,950	13,897	1.2%	23,053	30,566	7,513
1976	1,272,050	3.0%	38,150	11,761	1.0%	26,389	33,773	7,384
1977	1,315,950	3.3%	43,900	14,824	1.2%	29,076	36,707	7,631
1978	1,363,750	3.5%	47,800	17,220	1.3%	30,580	38,289	7,709
1979	1,415,950	3.7%	52,200	19,868	1.5%	32,332	40,216	7,884
1980	1,474,000	3.9%	58,050	24,536	1.7%	33,514	41,645	8,131
1981	1,515,000	2.7%	41,000	7,612	0.5%	33,388	41,509	8,121
1982	1,558,000	2.8%	43,000	9,662	0.6%	33,338	41,773	8,435
1983	1,595,000	2.3%	37,000	4,914	0.3%	32,086	40,555	8,469
1984	1,622,000	1.7%	27,000	-2,793	-0.2%	29,793	38,643	8,850
1985	1,643,000	1.3%	21,000	-7,714	-0.5%	28,714	37,664	8,950
1986	1,663,000	1.2%	20,000	-8,408	-0.5%	28,408	37,309	8,901
1987	1,678,000	0.9%	15,000	-11,713	-0.7%	26,713	35,631	8,918
1988	1,690,000	0.7%	12,000	-14,557	-0.9%	26,557	35,809	9,252
1989	1,706,000	0.9%	16,000	-10,355	-0.6%	26,355	35,439	9,084
1990	1,729,227	1.3%	23,227	-3,480	-0.2%	26,707	35,830	9,123
1991	1,780,870	2.9%	51,643	24,878	1.4%	26,765	36,194	9,429
1992	1,838,149	3.1%	57,279	30,042	1.7%	27,237	36,796	9,559
1993	1,889,393	2.7%	51,244	24,561	1.3%	26,683	36,738	10,055
1994	1,946,721	2.9%	57,328	30,116	1.6%	27,212	37,623	10,411
1995	1,995,228	2.4%	48,507	20,024	1.0%	28,483	39,064	10,581
1996	2,042,893	2.3%	47,665	18,171	0.9%	29,494	40,495	11,001
1997	2,099,409	2.7%	56,516	25,253	1.2%	31,263	42,512	11,249
1998	2,141,632	2.0%	42,223	9,745	0.5%	32,478	44,126	11,648
1999	2,193,014	2.3%	51,382	17,584	0.8%	33,798	45,434	11,636
2000	2,246,553	2.4%	53,539	18,612	0.8%	34,927	46,880	11,953
2001	2,305,652	2.6%	59,099	23,848	1.1%	35,251	47,688	12,437
2002	2,358,330	2.2%	52,678	17,299	0.8%	35,379	48,041	12,662
2003	2,413,618	2.3%	55,288	18,568	0.8%	36,720	49,518	12,798
2004	2,469,230	2.3%	55,612	18,367	0.8%	37,245	50,527	13,282
2005	2,547,389	3.1%	78,159	40,647	1.6%	37,512	50,431	12,919
2006	2,615,129	2.6%	67,740	28,730	1.1%	40,173	53,953	13,780
2007	2,699,554	3.1%	84,425	44,252	1.7%	40,173	53,953	13,780

Note: Before 1995, the Utah Population Estimates Committee rounded its population estimates

Source: Utah Population Estimates Committee

od, the number of people moving into the state is estimated to exceed the number moving out by over 410,000, which is about 90,000 fewer people than live in Utah County. Even with this large net in-migration, over 60% of Utah's population growth since 1990 has come from natural increase. Since 1990 natural increase is almost 560,000, while total population growth is almost 970,000.

As is shown in Table 2 and Figure 2, the most rapid growth in Utah occurred in counties within or adjacent to the northern metropolitan region and in counties in the southwest portion of the state.

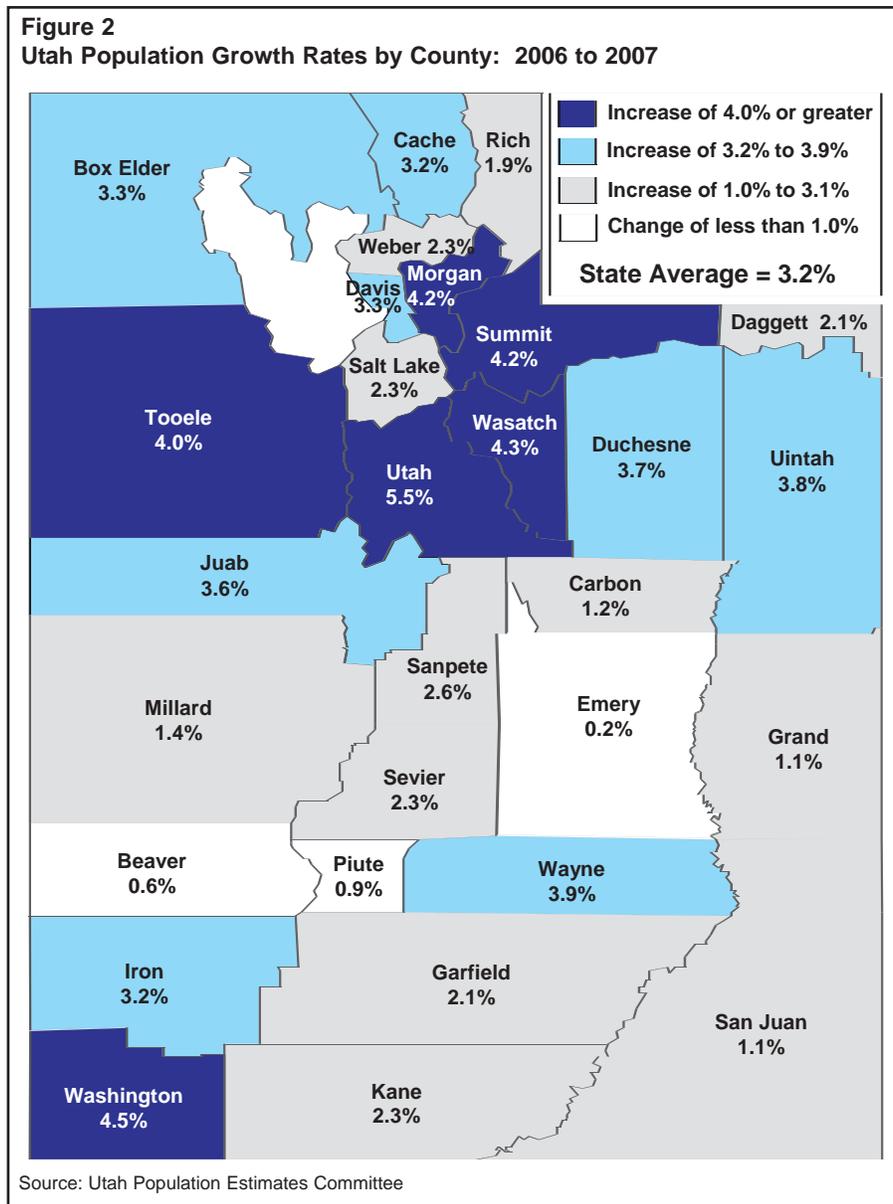
For 2007, the following counties had the highest population growth rates:

Utah	5.5%	Tooele	4.0%
Washington	4.5%	Wayne	3.9%
Wasatch	4.3%	Uintah	3.8%
Morgan	4.2%	Duchesne	3.7%
Summit	4.2%	Juab	3.6%

For 2007, the following counties had the highest population increases:

Utah	26,022	Weber	4,911
Salt Lake	22,530	Cache	3,351
Davis	9,482	Tooele	2,161
Washington	6,009	Summit	1,541

The population in all 29 of Utah's counties increased during 2007.



Expanding Urban Area

Utah, Wasatch, Morgan, Tooele, Davis, and Juab counties continue to grow quite rapidly, which reflects the increasing urbanization of the Wasatch Front and Back. The semi-rural counties surrounding the Wasatch Front urban area are growing faster than the urban core. Indeed, although Utah County continues to be one of the fastest growing counties in the state, much of this growth reflects the urbanization of previously semi-rural parts of the county.

To a large extent, the growth in the counties on the urban periphery results from the expansion of the Wasatch Front urban area. People in these counties are in close proximity to urban services, but are still able to enjoy many of the desirable characteristics found in a rural setting. While these peripheral areas will retain their rural character for the foreseeable future, their growth will be increasingly tied to the urban core. The growth in these outlying areas is often referred to as a "doughnut effect," and this phenomenon is clearly visible in Figure 2.

County Highlights

Utah County. Utah County's population passed 500,000 in 2007.

Table 2
Components of Population Change in Utah by County and Multi-County District

County	July 1 Population		Population Change 2006-07		Components of Change 2006-07			
	2006	2007	Numerical	Percent	Births	Deaths	Natural Increase	Net Migration
Beaver	6,428	6,466	38	0.6%	104	67	37	1
Box Elder	45,987	47,491	1,504	3.3%	901	295	606	898
Cache	105,671	109,022	3,351	3.2%	2,401	435	1,966	1,385
Carbon	19,504	19,730	226	1.2%	324	202	122	104
Daggett	949	969	20	2.1%	10	2	8	12
Davis	286,547	296,029	9,482	3.3%	6,049	1,298	4,751	4,731
Duchesne	15,585	16,163	578	3.7%	343	115	228	350
Emery	10,438	10,461	23	0.2%	185	76	109	-86
Garfield	4,772	4,872	100	2.1%	72	33	39	61
Grand	9,024	9,125	101	1.1%	102	69	33	68
Iron	43,424	44,813	1,389	3.2%	959	269	690	699
Juab	9,315	9,654	339	3.6%	167	67	100	239
Kane	6,294	6,440	146	2.3%	87	78	9	137
Millard	13,230	13,414	184	1.4%	191	110	81	103
Morgan	8,888	9,265	377	4.2%	150	32	118	259
Piute	1,373	1,385	12	0.9%	15	14	1	11
Rich	2,121	2,162	41	1.9%	24	10	14	27
Salt Lake	996,374	1,018,904	22,530	2.3%	19,407	5,404	14,003	8,527
San Juan	14,647	14,807	160	1.1%	173	49	124	36
Sanpete	25,799	26,464	665	2.6%	400	159	241	424
Sevier	19,984	20,442	458	2.3%	373	197	176	282
Summit	36,871	38,412	1,541	4.2%	553	109	444	1,097
Tooele	54,375	56,536	2,161	4.0%	1,098	264	834	1,327
Uintah	27,747	28,806	1,059	3.8%	630	199	431	628
Utah	475,425	501,447	26,022	5.5%	11,964	1,864	10,100	15,922
Wasatch	21,053	21,951	898	4.3%	404	95	309	589
Washington	134,899	140,908	6,009	4.5%	2,697	848	1,849	4,160
Wayne	2,535	2,635	100	3.9%	30	25	5	95
Weber	215,870	220,781	4,911	2.3%	4,140	1,395	2,745	2,166
MCD								
Bear River	153,779	158,675	4,896	3.2%	3,326	740	2,586	2,310
Wasatch Front	1,562,054	1,601,515	39,461	2.5%	30,844	8,393	22,451	17,010
Mountainland	533,349	561,810	28,461	5.3%	12,921	2,068	10,853	17,608
Six County	72,236	73,994	1,758	2.4%	1,176	572	604	1,154
Five County	195,817	203,499	7,682	3.9%	3,919	1,295	2,624	5,058
Uintah Basin	44,281	45,938	1,657	3.7%	983	316	667	990
Southeast	53,613	54,123	510	1.0%	784	396	388	122
State of Utah	2,615,129	2,699,554	84,425	3.2%	53,953	13,780	40,173	44,252

Source: Utah Population Estimates Committee

The county had both the largest amount of population growth, over 26,000, and the fastest rate of growth, 5.5%, in the state. Since Utah County is half the size of Salt Lake County, it is remarkable that its amount of growth is larger than its neighbor to the north. The county's high birth rate resulted in record natural increase of more than 10,000. The truly stunning part of its growth, however, was that almost 16,000 more people moved in than moved out, ranking it first among the counties in net migration. Utah County has ranked first in net migration in nine of the past 11 years.

Washington County. Washington County has averaged over 6% population growth for four decades. Until 2007, its growth rate was 5.8% or greater in every year after 2000. In 2007, however, the recent boom decelerated, with population growing 4.5%. While this growth rate is low for the county, it still ranked second in the state, and in most places around the country would be considered very rapid. Net in-migration was over 4,000.

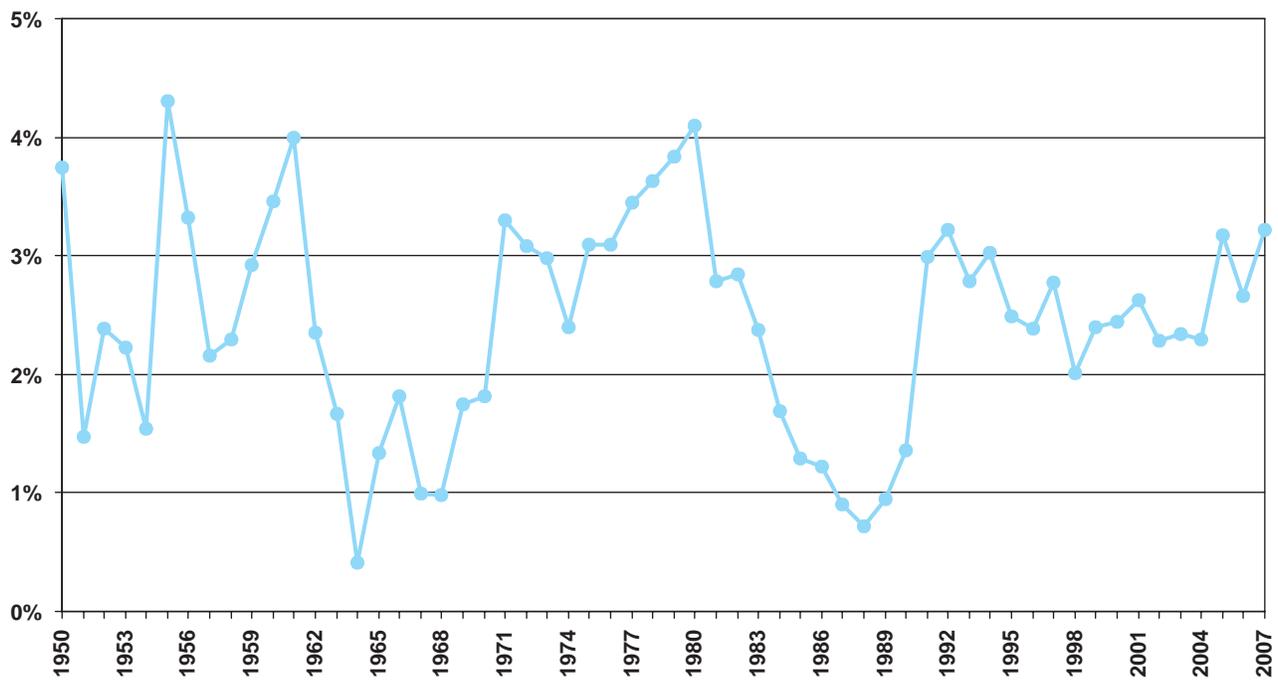
Salt Lake County. Salt Lake County's population passed 1 million in 2007. Almost 40% of the state resides in the county. With strong housing construction, net migration was about 8,500. Natural increase of 14,000 combined to give Salt Lake County the second largest amount of growth, over 22,000 new residents, after Utah County.

Historical Context

Utah's population reached 1 million during 1966 and 2 million during 1996, 30 years later. Table 3 presents the population estimates for the state, the Multi County Districts (MCD), and the counties since 1940 for selected years. During this period, the state's fastest growth occurred during the 1970s, when the population increased at a 3.3% average annual rate. During the 1940s and 1950s, the state's population increased about 2.5% per year, which contrasts with the 1960s and 1980s, when the population increased less than 2.0% per year. At 2.7% per year, the 1990s growth rates represent a return to the relatively high rates of growth seen during the 1940s and 1950s, although they are still substantially below the growth of the 1970s. With growth averaging 2.7% per year, the 2000s are on track to repeat the growth of the 1990s.

Reflecting the fact that it has almost half of Utah's population, Salt Lake County's growth pattern most closely mirrors the state. As with the state as a whole, Salt Lake County experienced fairly rapid growth during the 1940s, 2.7% per year, even more rapid growth during the 1950s, 3.3% per year, a slowdown in the 1960s, 1.8% per year, rapid growth during the 1970s, 3.1% per year, another slowdown in the 1980s, 1.5% per year, and an increase in growth during the 1990s, 2.2% per year. Salt Lake County deviated slightly from the state in that the growth of the

Figure 3
Utah Population: Annual Percent Change



Source: Utah Population Estimates Committee

**Table 3
Population Estimates for Utah by County and Multi-County District**

County	July 1 Population Estimates										Average Annual Growth Rates for				
	1940	1950	1960	1970	1980	1990	2000	2005	2006	2007	1940s	1950s	1960s	1970s	1980s
Beaver	4,900	4,800	4,300	3,850	4,400	4,800	6,023	6,341	6,428	6,466	-0.2%	-1.1%	-1.1%	1.3%	0.9%
Box Elder	18,900	19,800	25,500	28,150	33,500	36,500	42,860	45,304	45,987	47,491	0.5%	2.6%	1.0%	1.8%	0.9%
Cache	29,900	33,600	36,100	42,550	57,700	70,500	91,897	103,564	105,671	109,022	1.2%	0.7%	1.7%	3.1%	2.0%
Carbon	18,700	24,800	21,200	15,750	22,400	20,200	20,396	19,338	19,504	19,730	-2.9%	-1.6%	-2.9%	3.6%	-1.0%
Daggett	600	400	1,200	650	750	700	933	963	949	969	-4.0%	11.6%	-5.9%	1.4%	-0.7%
Davis	15,500	31,200	65,600	99,600	148,000	188,000	240,204	278,278	286,547	296,029	7.2%	7.7%	4.3%	4.0%	2.4%
Duchesne	8,700	8,100	7,200	7,400	12,700	12,600	14,397	15,237	15,585	16,163	-0.7%	-1.2%	0.3%	5.5%	-0.1%
Emery	7,000	6,300	5,500	5,150	11,600	10,300	10,782	10,491	10,438	10,461	-1.0%	-1.3%	-0.7%	8.5%	-1.2%
Garfield	5,300	4,100	3,500	3,150	3,700	3,950	4,763	4,703	4,772	4,872	-2.5%	-1.6%	-1.0%	1.6%	0.7%
Grand	2,200	1,900	6,400	6,600	8,250	6,600	8,537	8,826	9,024	9,125	-1.5%	12.9%	0.3%	2.3%	-2.2%
Iron	8,400	9,700	10,900	12,300	17,500	20,900	34,079	41,397	43,424	44,813	1.4%	1.2%	1.2%	3.6%	1.8%
Juab	7,400	5,900	4,500	4,600	5,550	5,800	8,310	8,974	9,315	9,654	-2.2%	-2.7%	0.2%	1.9%	0.4%
Kane	2,600	2,300	2,700	2,450	4,050	5,150	6,037	6,211	6,294	6,440	-1.2%	1.6%	-1.0%	5.2%	2.4%
Millard	9,700	9,300	7,900	7,050	9,050	11,300	12,461	13,171	13,230	13,414	-0.4%	-1.6%	-1.1%	2.5%	2.2%
Morgan	2,600	2,500	2,800	4,050	4,950	5,550	7,181	8,516	8,888	9,265	-0.4%	1.1%	3.8%	2.0%	1.2%
Plute	2,200	1,900	1,400	1,150	1,350	1,250	1,436	1,368	1,373	1,385	-1.5%	-3.0%	-1.9%	1.6%	-0.8%
Rich	2,000	1,700	1,700	1,600	2,150	1,750	1,955	2,062	2,121	2,162	-1.6%	0.0%	-0.6%	3.0%	-2.0%
Salt Lake	213,700	279,000	387,800	461,500	625,000	728,000	902,777	978,285	996,374	1,018,904	2.7%	3.3%	1.8%	3.1%	1.5%
San Juan	4,600	5,300	8,900	9,700	12,400	12,600	14,360	14,571	14,647	14,807	1.4%	5.3%	0.9%	2.5%	0.2%
Sanpete	15,900	13,800	11,100	11,000	14,800	16,300	22,846	25,454	25,799	26,464	-1.4%	-1.4%	-0.1%	3.0%	1.0%
Sevier	12,300	12,000	10,600	10,150	14,900	15,400	18,938	19,649	19,984	20,442	-0.2%	-2.2%	-0.4%	3.9%	0.3%
Summit	8,600	6,700	5,700	5,900	10,400	15,700	30,048	36,283	36,871	38,412	-2.5%	-1.6%	0.3%	5.8%	4.2%
Tooele	8,800	15,000	18,000	21,600	26,200	26,700	41,549	52,133	54,371	56,536	5.5%	1.8%	1.8%	1.9%	0.2%
Utah	10,000	10,300	11,700	12,800	20,700	22,200	25,297	26,883	27,747	28,806	0.3%	1.3%	0.9%	4.9%	0.7%
Utah	56,900	83,000	108,300	139,300	220,000	266,000	371,894	456,073	475,425	501,447	3.8%	2.7%	2.5%	4.7%	1.9%
Wasatch	5,800	5,500	5,300	5,950	8,650	10,100	15,433	19,999	21,053	21,951	-0.5%	-0.4%	1.2%	3.8%	1.6%
Washington	9,200	9,800	10,400	13,900	26,400	49,100	91,104	127,127	134,899	140,908	0.6%	0.6%	2.9%	6.6%	6.4%
Wayne	2,300	2,200	1,700	1,450	1,950	2,150	2,515	2,504	2,535	2,635	-0.4%	-2.5%	-1.6%	3.0%	1.0%
Weber	57,100	85,000	112,100	126,700	145,000	159,000	197,541	213,684	215,870	220,781	4.1%	2.8%	1.2%	1.4%	0.9%
MCD															
Bear River	50,800	55,100	63,300	72,300	93,350	108,750	136,712	150,930	153,779	158,675	0.8%	1.4%	1.3%	2.6%	1.5%
Wasatch Front	297,700	412,700	586,300	713,450	949,150	1,107,250	1,389,252	1,530,896	1,562,054	1,601,515	3.3%	3.6%	2.0%	2.9%	1.6%
Mountainland	71,300	95,200	119,300	151,150	239,050	291,800	417,375	512,355	533,349	561,810	2.9%	2.3%	2.4%	4.7%	2.0%
Six County	49,800	45,100	37,200	35,400	47,600	52,200	66,506	71,120	72,236	73,994	-1.0%	-1.9%	-0.5%	3.0%	0.9%
Five County	30,400	30,700	31,800	35,650	56,050	83,900	142,006	185,779	195,817	203,499	0.1%	0.4%	1.1%	4.6%	4.1%
Utah Basin	19,300	18,800	20,100	20,850	34,150	35,500	40,627	43,083	44,281	45,938	-0.3%	0.7%	0.4%	5.1%	0.4%
Southeast	32,500	38,300	42,000	37,200	54,650	49,700	54,075	53,226	53,613	54,123	1.7%	0.9%	-1.2%	3.9%	-0.9%
State of Utah	552,000	696,000	900,000	1,066,000	1,474,000	1,729,000	2,246,553	2,547,389	2,615,129	2,699,554	2.3%	2.6%	1.7%	3.3%	1.6%

Notes:

1. Before 1995, the Utah Population Estimates Committee rounded its population estimates
2. The average annual growth rate for a period is based on a discrete compounding formula which is available from The Governor's Office of Planning and Budget

Source: Utah Population Estimates Committee

1950s was relatively more rapid compared to other periods.

A number of counties have had growth patterns substantially different from the state's. While Utah's population grew very strongly in both the 1940s and the 1950s, 12 counties actually had declining populations in both decades. Juab County's population had the greatest percentage decline during this period, about 2.5% per year, from 7,400 in 1940 to 4,500 in 1960. During 1996, Juab's population finally surpassed the 1940 level. In contrast to Juab, the current populations in Garfield and Piute Counties continue to be lower than in 1940. Although the 1960s and 1980s were slow growth periods for the state as a whole, some counties still grew extremely rapidly during these two decades. During the 1960s, Davis and Morgan Counties grew at more than twice the state average, 4.3% and 3.8% per year, respectively, while Washington and Summit Counties grew at more than twice the state average during the 1980s, 6.4% and 4.2% per year, respectively.

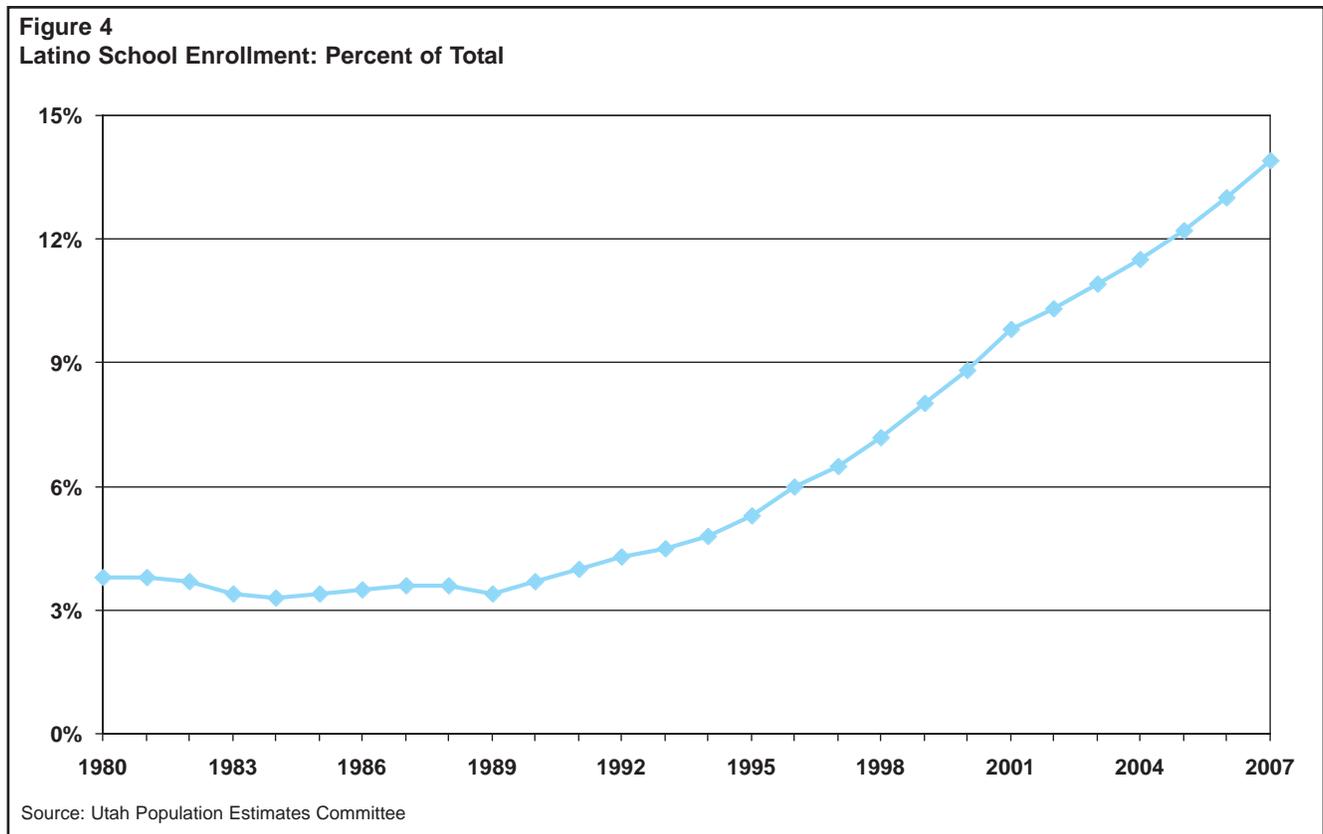
Components of Population Change

Population change is comprised of two components: natural increase and net migration. In turn, both of these have two components as well. Natural increase is the number of births less the number of deaths. Net migra-

tion is in-migration less out-migration, or the number of people moving into a place less the number of people moving out. Table 1 and Figure 1 present the components of Utah's population change from 1960 to 2007 and from 1950 to 2007, respectively, as of July 1 each year. Table 2 presents the components of population change from 2006 to 2007 for the counties and MCDs.

Natural Increase. Natural increase is computed from records maintained by the Utah Department of Health. As presented in Table 1, natural increase in Utah during 2007 was the largest ever, 40,173, which was the difference between 53,953 births and 13,780 deaths. Both births and deaths were at record high levels during 2007. The number of births will vary as fertility changes and as the number of women in their child-bearing years changes. The number of deaths, however, tends to increase slowly and steadily.

Net Migration. Net migration is positive when in-migration exceeds out-migration and negative when out-migration exceeds in-migration. When net migration is positive, net in-migration has occurred and when net migration is negative, net out-migration has occurred. In the population estimates developed by the Utah Population Estimates Committee, net migration is not estimated directly. Rather, net migration is computed as the implied



difference between estimated population change and natural increase as computed from the records maintained by the Department of Health. No attempt is made to estimate net migration directly. In addition, no attempt is made to estimate the components of net migration, in-migration and out-migration.

Thus far, the 2000s have been a period of sustained net in-migration. While this has been a period of high absolute in-migration, migration rates (net migration as a percent of the base or previous year population), were higher during the 1970s, as well as a few years in the 1950s and 1960s. During 2007, however, net migration was 44,252, the highest level since World War II, and a rate of 1.7%, comparable to the 1970s.

Though it is not known for sure where the recent migrants came from, IRS tax return data on county to county address changes highlights some interesting points. California dominates the flow of interstate migration to and from Utah. The extended Salt Lake area has strong migration ties with the major metropolitan areas south and or west of Utah, such as Los Angeles, Phoenix, Portland, Seattle and Las Vegas.

The recent strong in-migration to Utah can be explained by a rapidly growing economy. School records suggest a strong Latino, possibly foreign born, element to the recent migration wave. As depicted in Figure 4, the Latino share of enrollment, increased 0.9 percentage points from 2006 to 2007, from 13.0% to 13.9%. If this 0.9% is viewed as a migration rate applicable to the entire population, it implies about 24,000 migrants, or about 55% of estimated migration during 2007.

Utah Population Estimates Committee

The Utah Population Estimates Committee develops the official population estimates for Utah and the 29 counties in the state. Coordination and staffing of the Committee is the responsibility of the Demographic and Economic Analysis Section of the Governor's Office of Planning and Budget (GOPB). Membership includes representatives from state government, universities, and other organizations with knowledge of the data used in making population estimates. A list of members is at the back of this report.

The Committee has been preparing estimates for a half century.² During most of this time, UPEC operated as an interagency committee, with select members included from outside state government. Governor Leavitt officially sanctioned the Committee and clarified its purposes and responsibilities in 1997 by issuing an Executive Order. The Committee is also recognized in state statute as the

source for population estimates used in state funding formulas when U.S. Census Bureau estimates are unavailable.

In addition to staffing UPEC, GOPB represents the state in the Federal-State Cooperative for Population Estimates. This program, administered by the U.S. Census Bureau, facilitates the exchange of data used in making population estimates. The program also provides a forum for dialog that can improve the quality of state and county estimates made by both parties. Census Bureau population estimates by county are discussed later in this article.

Methods

Over the years, the various methods and data used by the Committee share many similarities with national standards of the time, but also included some differences. UPEC, like the Census Bureau, has always relied heavily on the component method of population estimation. This method follows the standard demographic accounting equation of:

$$P_t = P_{(t-1)} + B_t - D_t + M_t$$

where P = population
B = births
D = deaths
M = net migration
t = time

For example, in one widely used version of the component method, migration is estimated by comparing the actual and expected school-age population and relating this difference to the total population and total migration.³ In Utah, this is known as the school enrollment method and is a slightly modified version of what is commonly referred to in the literature as the component II method.⁴

2 For more information on the history and methods of the Utah Population Estimates Committee, see Governor's Office of Planning and Budget, Population Estimates: The Utah Experience (Salt Lake City, Natalie Gochnour, Chair, Utah Population Estimates Committee, September 1999).

3 The Census Bureau currently uses a component method based on administrative records such as birth and death records, tax returns, and Medicare enrollment.

4 The fundamental characteristic of the component II method is that migration of the total population is estimated based on (1) a comparison of the actual and the expected (survived) school-age population; and, (2) the historical relationship between school-age migration and total migration. There are many varieties of this fundamental method, including detailed estimation for subgroups of the population such as the population under age 65, population age 65 and over, and special military and institutional population groups. Utah's method is modified in the sense that it employs a level of detail (i.e. components) and input data (i.e. target grades and survival rate) that reflect Committee input.

**Table 4
Utah Population Estimates by County and Multi-County District: An Average of Three Methods with Judgement in Selected Counties**

County	School Enrollment				LDS				IRS				Housing				Average of Four Methods				Estimate Based on Judgement in Selected Counties	
	July 1, 2006		July 1, 2007		July 1, 2007		July 1, 2007		July 1, 2007		July 1, 2007		July 1, 2007		July 1, 2007		July 1, 2007		July 1, 2007			
	Population	Natural Increase	Population	Net Migration	Population	Net Migration	Population	Net Migration														
Beaver	6,428	37	6,525	60	6,364	-101	6,398	-67	6,578	113	6,466	1	6,466	1	6,466	1	6,466	1	6,466	1		
Box Elder	45,987	606	47,412	819	47,423	830	47,637	1,044	48,114	1,521	47,647	1,054	47,647	1,054	47,647	1,054	47,647	1,054	47,491	898		
Cache	105,671	1,966	109,873	2,236	107,817	180	110,013	2,376	108,384	747	109,022	1,385	109,022	1,385	109,022	1,385	109,022	1,385	109,022	1,385		
Carbon	19,504	122	19,868	242	19,430	-196	19,966	340	19,654	28	19,730	104	19,730	104	19,730	104	19,730	104	19,730	104		
Daggett	949	8	878	-79	990	33	961	4	955	-2	946	-11	969	12	969	12	969	12	969	12		
Davis	286,547	4,751	294,398	3,100	295,991	4,693	298,600	7,302	295,125	3,827	296,029	4,731	296,029	4,731	296,029	4,731	296,029	4,731	296,029	4,731		
Duchesne	15,585	228	17,144	1,331	16,212	399	16,274	461	16,003	190	16,408	595	16,163	350	16,163	350	16,163	350	16,163	350		
Emery	10,438	109	10,401	-146	10,439	-108	10,463	-84	10,540	-7	10,461	-86	10,461	-86	10,461	-86	10,461	-86	10,461	-86		
Garfield	4,772	39	4,844	33	4,846	35	4,899	88	4,900	89	4,872	61	4,872	61	4,872	61	4,872	61	4,872	61		
Grand	9,024	33	9,029	-128	9,024	-33	9,306	249	9,239	182	9,125	68	9,125	68	9,125	68	9,125	68	9,125	68		
Iron	43,424	690	44,218	104	44,117	3	45,515	1,401	45,402	1,288	44,813	699	44,813	699	44,813	699	44,813	699	44,813	699		
Juab	9,315	100	9,618	203	9,733	318	9,740	325	9,525	110	9,654	239	9,654	239	9,654	239	9,654	239	9,654	239		
Kane	6,294	9	6,225	-78	6,367	64	6,433	130	6,736	433	6,440	137	6,440	137	6,440	137	6,440	137	6,440	137		
Millard	13,230	81	13,458	147	13,119	-192	13,421	110	13,364	53	13,341	30	13,341	30	13,341	30	13,341	30	13,341	30		
Morgan	8,888	118	9,583	547	9,244	238	9,306	300	9,246	240	9,337	331	9,265	259	9,265	259	9,265	259	9,265	259		
Plute	1,373	1	1,404	30	1,363	-11	1,400	26	1,373	-1	1,385	11	1,385	11	1,385	11	1,385	11	1,385	11		
Rich	2,121	14	2,255	120	2,139	4	2,189	54	2,158	23	2,185	50	2,162	27	2,162	27	2,162	27	2,162	27		
Salt Lake	996,374	14,003	1,012,534	2,157	993,420	-16,957	1,030,442	20,065	1,013,737	3,360	1,012,533	2,156	1,012,533	2,156	1,012,533	2,156	1,012,533	2,156	1,012,533	2,156		
San Juan	14,647	124	15,050	279	14,733	-38	14,819	48	14,870	99	14,868	97	14,807	36	14,807	36	14,807	36	14,807	36		
Sanpete	25,799	241	26,487	447	26,042	-24	26,904	864	26,424	384	26,464	424	26,464	424	26,464	424	26,464	424	26,464	424		
Sevier	19,984	176	20,631	471	20,136	-24	20,631	471	20,368	208	20,442	282	20,442	282	20,442	282	20,442	282	20,442	282		
Summit	36,871	444	38,524	1,209	36,985	-330	38,387	1,072	38,325	1,010	38,055	740	38,412	1,097	38,412	1,097	38,412	1,097	38,412	1,097		
Tooele	54,375	834	56,175	966	56,558	1,349	57,015	1,806	56,397	1,188	56,536	1,327	56,536	1,327	56,536	1,327	56,536	1,327	56,536	1,327		
Utah	27,747	431	28,283	105	28,535	357	28,965	787	29,442	1,264	28,806	628	28,806	628	28,806	628	28,806	628	28,806	628		
Wasatch	475,425	10,100	492,061	6,536	493,863	8,338	503,197	17,672	499,697	14,172	497,205	11,680	501,447	15,922	501,447	15,922	501,447	15,922	501,447	15,922		
Washington	21,053	309	21,779	417	21,455	93	22,045	683	22,524	1,162	21,951	589	21,951	589	21,951	589	21,951	589	21,951	589		
Wayne	134,899	1,849	140,181	3,433	138,271	1,523	144,562	7,814	140,617	3,869	140,908	4,160	140,908	4,160	140,908	4,160	140,908	4,160	140,908	4,160		
Weber	2,535	5	2,681	141	2,689	149	2,582	42	2,586	46	2,635	95	2,635	95	2,635	95	2,635	95	2,635	95		
	215,870	2,745	221,968	3,353	218,151	-464	223,748	5,133	219,258	643	220,781	2,166	220,781	2,166	220,781	2,166	220,781	2,166	220,781	2,166		
MCD																						
Bear River	153,779	2,586	159,540	3,175	157,379	1,014	159,839	3,474	158,656	2,291	158,854	2,489	158,854	2,489	158,854	2,489	158,854	2,489	158,854	2,489		
Wasatch Front	1,562,054	22,451	1,594,628	10,123	1,573,364	-11,141	1,619,111	34,606	1,593,763	9,258	1,595,217	10,712	1,601,515	17,010	1,601,515	17,010	1,601,515	17,010	1,601,515	17,010		
Mountainland	533,349	10,853	552,364	8,162	552,303	8,101	563,629	19,427	560,546	16,344	557,211	13,009	561,810	17,608	561,810	17,608	561,810	17,608	561,810	17,608		
Six County	72,236	604	74,279	1,439	73,082	242	74,678	1,838	73,640	800	73,920	1,080	73,994	1,154	73,994	1,154	73,994	1,154	73,994	1,154		
Five County	195,817	2,624	201,993	3,552	199,965	1,524	207,807	9,366	204,233	5,792	203,500	5,059	203,499	5,058	203,499	5,058	203,499	5,058	203,499	5,058		
Uintah Basin	44,281	667	46,305	1,357	45,737	789	46,200	1,252	46,400	1,452	46,161	1,213	45,938	990	45,938	990	45,938	990	45,938	990		
Southeast	53,613	388	54,248	347	53,626	-375	54,554	553	54,303	302	54,183	182	54,123	122	54,123	122	54,123	122	54,123	122		
State of Utah	2,615,129	40,173	2,683,357	28,055	2,655,456	154	2,725,818	70,516	2,691,541	36,239	2,689,043	33,741	2,699,554	44,252	2,699,554	44,252	2,699,554	44,252	2,699,554	44,252		

Note: In most counties, the estimate is the average of the estimates produced from each of the four methods. Table 5 details the procedure used to develop the estimate when the average of the four methods was not used.

Source: Utah Population Estimates Committee

UPEC develops population estimates using a combination of the component II or school enrollment method, a method based on membership in the Church of Jesus Christ of Latter Day Saints (LDS), a method based on tax return data from the Internal Revenue Service (IRS), and a method based on housing units. Table 4 presents the population estimates and implied net migration resulting from each method. For the 2007 population estimate, the methods ranked:

1. IRS, 2,725,818
2. housing, 2,691,541;
3. school, 2,683,357; and
4. LDS, 2,655,456.

School Enrollment Method

The school enrollment method uses changes in school enrollment as an indicator of net migration. This method compares a county's survived enrollment (calculated by applying a survival rate of 99.98% to the enrollment count), in grades 1 to 8 for the year prior to the estimate year, to enrollment in grades 2 to 9 for the estimate year. The difference between these two enrollment totals is taken to be net student migration for the county. Total net migration from the school enrollment method for the county is then derived by multiplying the county's student migration estimate by the county specific total population to student ratio. This ratio is defined as the total population estimate of the county for the prior year divided by the same year's enrollment in grades 1 to 8.

Utah's implementation of the component II method is strengthened by the quality of the state's school enrollment data. Utah's public school system is unique in that it serves an unusually high percentage of the total kindergarten through 12th grade enrollment. During 2004, for instance, 96.9% of total enrollment in Utah was public, second highest among states, compared with 90.4% nationwide.⁵ In addition, the public school system encompasses a large percentage of the total population. Utah ranks first among the states with 21.3% of its population ages 5-17, compared to 17.8% nationwide. Moreover, the public school system receives independent audits of enrollment data due to the state's equalized education funding mechanism.

LDS Membership Method

The Committee's second method is called the LDS membership method. This method simply applies the growth rate in LDS membership in a particular county to the previous year's population estimate for the county. The growth in LDS membership, then, is an indicator of population growth. The membership records of the Church of Jesus Christ of Latter Day Saints (frequently called LDS

or Mormons) are a data source uniquely relevant to Utah. The LDS Church graciously provides this data in aggregate form enabling a count of members by county. Individual member information such as names and addresses are not provided.

The Committee is very fortunate to have access to the LDS membership data for estimating purposes. About 60% of Utah's population is included in the membership counts of the LDS Church. These counts include every member of record, including children. The counts are not limited to those who attend church regularly. Rather, they include any member assigned to a local unit (church or ward) regardless of a given member's involvement with the organization.

In addition to the broad coverage, the utility of the data is strengthened by its timeliness and quality. The originating file is a current file and an extract can be taken at any time. For estimation purposes, this means that there is essentially no delay or lag time between when the data are released and the reporting period. The accuracy of the data is ensured by the careful record keeping of church officials. Within the LDS faith, leaders from each local unit (church or ward) have ecclesiastical responsibility for the individuals assigned. Hence, there is a religious stewardship that accompanies each membership record. This improves the accuracy of the aggregate data.

Internal Revenue Service Tax Exemption Method

Since 1996, the Committee has used the Internal Revenue Service tax exemption method. This method uses the growth in exemptions as reported on tax returns filed with the IRS as an indicator of population change. The growth rate in exemptions for the previous calendar year is applied to the previous fiscal year population to estimate the current fiscal year population. The Committee developed the method in the mid-1990s after realizing that the School Enrollment and LDS Membership Methods were yielding unrealistically low population estimates during a time of significant economic expansion. Committee members felt that the estimates would be more accurate by incorporating a more economically sensitive methodology. This method is relatively accurate as long as the tax code is stable and the percent of the population filing tax returns does not vary dramatically from year to year. A change in tax laws, for example, affected returns filed during 2003. Therefore, the Committee did not use the IRS method in making its 2004 estimates. Despite its limitations, adding the IRS method significantly increased UPEC's estimates

⁵ Calculated from data provided by the U.S. Department of Education, Institute of Education Sciences. These calculations were published in *State Rankings 2007*, Morgan Quinto Press.

during the 1990s, thereby improving their accuracy. Indeed, if UPEC had relied solely on the IRS method during the 1990s, it would have been just 12,000 people below the 2000 decennial census enumeration, as compared to the 82,000 it was actually under.

Housing Unit Method

In 2004, the Committee added the housing unit method, which it had been testing on an experimental basis since the late 1990s. The main reason was to supplement the estimate with a viable method given the IRS method would be flawed in years with significant tax changes. Building permits have been collected from local governments by the Bureau of Economic and Business Research at the University of Utah for decades. As with LDS membership and IRS tax exemptions, housing growth is used as an indi-

cator of population growth. The method starts with the April 1, 2000 housing enumeration from the Census and updates the estimate with building permit data. The housing stock is estimated for July 1, using the previous calendar year's permit data. This allows a six month lag for the completion of permitted housing units. A factor of 0.98 is applied to the permit data to account for units that are permitted but not completed, and to account for units that are demolished. The growth rate in the housing stock is applied to the previous year's July 1 estimate to develop the current year July 1 estimate.

Identifying Outliers with the Q-Statistic

UPEC has traditionally identified outliers among its various methods in a given county during a given estimate year and excluded the method from its consideration. Until the

Table 5
Utah Population Estimates by County and Multi-County District: Outlier Analysis of Estimates Produced with Three Methods

County	July 1, 2006 Population	Natural Increase	July 1, 2006 Population Estimate				Outlier Analysis				Estimate Based on Judgement in Select Counties	
			School	LDS	IRS	Housing	School	LDS	IRS	Housing	July 1, 2007 Population	Implied Net Migration
Beaver	6,428	37	6,525	6,364	6,398	6,578	6,525	6,364	6,398	6,578	6,466	1
Box Elder	45,987	606	47,412	47,423	47,637	48,114	47,412	47,423	47,637	High	47,491	898
Cache	105,671	1,966	109,873	107,817	110,013	108,384	109,873	107,817	110,013	108,384	109,022	1,385
Carbon	19,504	122	19,868	19,430	19,966	19,654	19,868	19,430	19,966	19,654	19,730	104
Daggett	949	8	878	990	961	955	Low	990	961	955	969	12
Davis	286,547	4,751	294,398	295,991	298,600	295,125	294,398	295,991	298,600	295,125	296,029	4,731
Duchesne	15,585	228	17,144	16,212	16,274	16,003	High	16,212	16,274	16,003	16,163	350
Emery	10,438	109	10,401	10,439	10,463	10,540	10,401	10,439	10,463	10,540	10,461	-86
Garfield	4,772	39	4,844	4,846	4,899	4,900	4,844	4,846	4,899	4,900	4,872	61
Grand	9,024	33	8,929	9,024	9,306	9,239	8,929	9,024	9,306	9,239	9,125	68
Iron	43,424	690	44,218	44,117	45,515	45,402	44,218	44,117	45,515	45,402	44,813	699
Juab	9,315	100	9,618	9,733	9,740	9,525	9,618	9,733	9,740	9,525	9,654	239
Kane	6,294	9	6,225	6,367	6,433	6,736	6,225	6,367	6,433	6,736	6,440	137
Millard	13,230	81	13,458	13,119	13,421	13,364	13,458	Low	13,421	13,364	13,414	103
Morgan	8,888	118	9,553	9,244	9,306	9,246	High	9,244	9,306	9,246	9,265	259
Piute	1,373	1	1,404	1,363	1,400	1,373	1,404	1,363	1,400	1,373	1,385	11
Rich	2,121	14	2,255	2,139	2,189	2,158	High	2,139	2,189	2,158	2,162	27
Salt Lake	996,374	14,003	1,012,534	993,420	1,030,442	1,013,737	1,012,534	Low	1,030,442	1,013,737	1,018,904	8,527
San Juan	14,647	124	15,050	14,733	14,819	14,870	High	14,733	14,819	14,870	14,807	36
Sanpete	25,799	241	26,487	26,042	26,904	26,424	26,487	26,042	26,904	26,424	26,464	424
Sevier	19,984	176	20,631	20,136	20,631	20,368	20,631	20,136	20,631	20,368	20,442	282
Summit	36,871	444	38,524	36,985	38,387	38,325	38,524	Low	38,387	38,325	38,412	1,097
Tooele	54,375	834	56,175	56,558	57,015	56,397	56,175	56,558	57,015	56,397	56,536	1,327
Uintah	27,747	431	28,283	28,535	28,965	29,442	28,283	28,535	28,965	29,442	28,806	628
Utah	475,425	10,100	492,061	493,863	503,197	499,697	Low	Low	503,197	499,697	501,447	15,922
Wasatch	21,053	309	21,779	21,455	22,045	22,524	21,779	21,455	22,045	22,524	21,951	589
Washington	134,899	1,849	140,181	138,271	144,562	140,617	140,181	138,271	144,562	140,617	140,908	4,160
Wayne	2,535	5	2,681	2,689	2,582	2,586	2,681	2,689	2,582	2,586	2,635	95
Weber	215,870	2,745	221,968	218,151	223,748	219,258	221,968	218,151	223,748	219,258	220,781	2,166
Total	2,615,129	40,173	2,683,357	2,655,456	2,725,818	2,691,541					2,699,554	44,252

Note: An estimate was classified as an outlier based on the value of the Q-statistic, described in text, and the judgment of the Utah Population Estimates Committee.

Source: Utah Population Estimates Committee

1990s outliers were identified in an informal manner during Committee deliberations. Various formal techniques were used during the 1990s, but none worked well and at one point UPEC dispensed with formal outlier analysis altogether. In 2005, the Committee began using what is known as the Q-statistic or Dixon's Q.⁶ Most simply, Q is the ratio of the range of methods with the outlier excluded to the initial range based on all methods. While Q can be applied as a hypothesis test assuming a probability distribution, UPEC has used it less rigidly as a means to reduce the range of the methods in a given county. Using a critical value of 0.5, UPEC has decided that identifying a specific method as an outlier among the four methods must reduce the range in the remaining three methods by 50% of the initial four methods. Q had a significant impact on the estimates in 2005 and 2007. In 2007, the school enrollment method was identified as a high outlier using Q. Excluding this method lowered the estimate in Utah County by about 3,000. In 2007, the LDS method was identified as a low outlier in Salt Lake County. Excluding LDS raised the estimate in Salt Lake County by over 6,000. For the most part, however, UPEC uses Q in the smaller counties to reduce the likelihood unrepresentative data will unduly influence the estimate.

For the 2007 estimates, UPEC's approach to considering the combination of the school enrollment, IRS, LDS, and housing methods is presented in Table 5. The Committee decided not to include the estimate generated with a particular method based on the Q-statistic. As presented in Table 5, UPEC used the average of the four methods in 18 of Utah's 29 counties. In the remaining 11 counties, the estimate was the average of three methods in 10 counties, and was the average of housing and IRS in Utah County. The net effect of the outlier analysis was to increase the state total estimate by 10,511 people above the average of the four methods. The particular methods used in the 11 counties where an outlier was identified are:

Millard, Salt Lake, Summit Counties - The LDS method was determined to be an outlier using the Q statistic and was not used. The school, IRS, and housing methods were used to determine the estimate.

Daggett, Duchesne, Morgan, Rich, San Juan and Sevier Counties - The school method was determined to be an outlier using the Q statistic and was not used. The LDS, IRS, and housing methods were used to determine the estimate.

Box Elder - The housing method was determined to be an outlier using the Q statistic and was not used. The LDS, IRS, and school methods were used to determine the estimate.

Sevier - The school and IRS methods generated exactly the same estimate which was determined to be an outlier using the Q statistic. After noting if the two estimates were not exactly the same, then neither would be an outlier, UPEC decided to use the simple average of all four methods to determine the estimate.

Davis, Tooele, Washington Counties - The IRS method was identified as a high outlier using the Q statistic. After discussion about utility connections and employment, UPEC concluded growth in these counties was strong and simple average of all four methods to determine the estimate.

Utah - UPEC discussed the fact that much of the current growth in Utah County results from Latino immigration. Because these individuals are not LDS, and they tend to be young workers without families, UPEC determined the school and LDS methods were outliers. The IRS and housing methods were used to determine the estimate.

U.S. Census Bureau Population Estimates

The U.S. Census Bureau, Population Estimates Branch, prepares post-2000 census population estimates for states, counties and sub-county areas. These estimates use different methods and, in some cases, different base data than UPEC. Since estimates prepared by the Committee generally include more recent data, consider a variety of methods and information sources, and incorporate the informed judgment of local people who are familiar with local indicators of population growth, they are widely used in Utah.

Estimates prepared by the Census Bureau, however, may be preferred in applications that require comparisons with other states or when state statute or federal grant applications require their use. Utah statute explicitly states that U.S. Census Bureau estimates be used in calculating the state spending limit and allocating local option sales taxes and class B and C road monies. Census Bureau estimates are also used by other federal data agencies and are currently the only statewide source of city estimates.

The estimates prepared by the Census Bureau and UPEC have been diverging as the time since the 2000 Census increases. During 2007, the Census estimate for Utah's population, 2,645,330, was about 54,000, or 2.0% less than UPEC's. The main differences in the two estimates are the timing of input data and method. UPEC uses more cur-

⁶ A thorough discussion of the Q-statistic is in Rorabacher, "Statistical Treatment for Rejection of Deviant Values: Critical Values of Dixon's 'Q' Parameter and Related Subrange Ratios at the 95% Confidence Level," *Analytical Chemistry*, 1991, volume 63, pages 139-146.

rent birth and death data, and draws from local data sources on school enrollment, LDS membership, and housing unit permits. The Census Bureau methods rely heavily on IRS tax return data as an indicator of domestic migration, American Community Survey results to indicate international migration, and Medicare and group quarters data.⁷

There is a fairly significant difference in the estimation process of the Census Bureau and UPEC. The Census Bureau first develops a total U.S. population estimate using national vital records and migration estimates. The national population estimate includes detail by single year of age, sex, and race. Separately from the national estimate, an

estimate for each county in the nation is developed. (The Census Bureau county estimate methodology is described in more detail below.) In a typical estimate year, in a typical county, estimates at the county level are developed for the population under age 65 and 65 and over. The totals of the 3,000 plus individual county population estimates for these two age groups are used to develop control factors. These control factors are then applied to each county estimate so the total of the controlled estimates equals the national population estimates for the two age groups.

7 U.S. Census Bureau group quarters data is collected from places where people live or stay other than the usual house, apartment, or mobile home and it is collected by the state and by the Bureau.

**Table 6
Comparison of Census Bureau and Utah Population Estimates Committee**

County	Utah Population Estimates Committee			Census Bureau			Numeric Difference			Percent Difference		
	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007
Beaver	6,341	6,428	6,466	6,087	6,113	6,090	254	315	376	4.0%	4.9%	5.8%
Box Elder	45,304	45,987	47,491	45,946	46,714	47,846	-642	-727	-355	-1.4%	-1.6%	-0.7%
Cache	103,564	105,671	109,022	104,779	106,399	108,887	-1,215	-728	135	-1.2%	-0.7%	0.1%
Carbon	19,338	19,504	19,730	19,205	19,230	19,634	133	274	96	0.7%	1.4%	0.5%
Daggett	963	949	969	924	938	927	39	11	42	4.0%	1.2%	4.3%
Davis	278,278	286,547	296,029	269,886	278,944	288,146	8,392	7,603	7,883	3.0%	2.7%	2.7%
Duchesne	15,237	15,585	16,163	15,172	15,478	16,216	65	107	-53	0.4%	0.7%	-0.3%
Emery	10,491	10,438	10,461	10,362	10,304	10,399	129	134	62	1.2%	1.3%	0.6%
Garfield	4,703	4,772	4,872	4,345	4,404	4,529	358	368	343	7.6%	7.7%	7.0%
Grand	8,826	9,024	9,125	8,713	8,902	9,023	113	122	102	1.3%	1.4%	1.1%
Iron	41,397	43,424	44,813	39,382	41,802	43,526	2,015	1,622	1,287	4.9%	3.7%	2.9%
Juab	8,974	9,315	9,654	8,902	9,135	9,604	72	180	50	0.8%	1.9%	0.5%
Kane	6,211	6,294	6,440	6,180	6,407	6,523	31	-113	-83	0.5%	-1.8%	-1.3%
Millard	13,171	13,230	13,414	11,901	11,928	11,949	1,270	1,302	1,465	9.6%	9.8%	10.9%
Morgan	8,516	8,888	9,265	7,767	8,028	8,357	749	860	908	8.8%	9.7%	9.8%
Piute	1,368	1,373	1,385	1,364	1,344	1,341	4	29	44	0.3%	2.1%	3.2%
Rich	2,062	2,121	2,162	2,015	2,006	2,094	47	115	68	2.3%	5.4%	3.1%
Salt Lake	978,285	996,374	1,018,904	963,717	990,505	1,009,518	14,568	5,869	9,386	1.5%	0.6%	0.9%
San Juan	14,571	14,647	14,807	13,896	14,011	14,484	675	636	323	4.6%	4.3%	2.2%
Sanpete	25,454	25,799	26,464	23,781	24,009	24,644	1,673	1,790	1,820	6.6%	6.9%	6.9%
Sevier	19,649	19,984	20,442	19,055	19,335	19,702	594	649	740	3.0%	3.2%	3.6%
Summit	36,283	36,871	38,412	34,757	34,978	35,541	1,526	1,893	2,871	4.2%	5.1%	7.5%
Tooele	52,133	54,375	56,536	50,219	52,441	54,914	1,914	1,934	1,622	3.7%	3.6%	2.9%
Uintah	26,883	27,747	28,806	26,997	27,878	29,042	-114	-131	-236	-0.4%	-0.5%	-0.8%
Utah	456,073	475,425	501,447	455,014	471,746	483,702	1,059	3,679	17,745	0.2%	0.8%	3.5%
Wasatch	19,999	21,053	21,951	18,782	19,924	20,535	1,217	1,129	1,416	6.1%	5.4%	6.5%
Washington	127,127	134,899	140,908	119,224	127,310	133,791	7,903	7,589	7,117	6.2%	5.6%	5.1%
Wayne	2,504	2,535	2,635	2,412	2,474	2,520	92	61	115	3.7%	2.4%	4.4%
Weber	213,684	215,870	220,781	214,229	216,848	221,846	-545	-978	-1,065	-0.3%	-0.5%	-0.5%
MCD												
Bear River	150,930	153,779	158,675	152,740	155,119	158,827	-1,810	-1,340	-152	-1.2%	-0.9%	-0.1%
Wasatch Front	1,530,896	1,562,054	1,601,515	1,505,818	1,546,766	1,582,781	25,078	15,288	18,734	1.6%	1.0%	1.2%
Mountainlands	512,355	533,349	561,810	508,553	526,648	539,778	3,802	6,701	22,032	0.7%	1.3%	3.9%
Six County	71,120	72,236	73,994	67,415	68,225	69,760	3,705	4,011	4,234	5.2%	5.6%	5.7%
Five County	185,779	195,817	203,499	175,218	186,036	194,459	10,561	9,781	9,040	5.7%	5.0%	4.4%
Uintah Basin	43,083	44,281	45,938	43,093	44,294	46,185	-10	-13	-247	0.0%	0.0%	-0.5%
Southeast	53,226	53,613	54,123	52,176	52,447	53,540	1,050	1,166	583	2.0%	2.2%	1.1%
State of Utah	2,547,389	2,615,129	2,699,554	2,505,013	2,579,535	2,645,330	42,376	35,594	54,224	1.7%	1.4%	2.0%

Source: Utah Population Estimates Committee and the U.S. Census Bureau

The process of controlling county population estimates to a separately determined national population estimate can introduce error to the estimating process.

In contrast to the Census Bureau, UPEC examines data at the county level for its methods. The state estimate is then simply the sum of the independently produced county estimates.

The Census Bureau recently revised state population estimates for 2000 through 2006 and produced new estimates for 2007. A comparison of the Census Bureau estimates for 2005 through 2007 with UPEC's estimates is presented in Table 6. Among the counties in 2007, the largest percent difference between the Census and UPEC was 10.9% in Millard County, a growing rural county of over 13,000 by UPEC's estimate, but not growing by the Census Bureau estimate. According to the Census Bureau almost 18,000, or about one-third of the state-wide difference between UPEC and the Census Bureau during 2007 was in Utah county.

U.S. Census Bureau Methods

The Census Bureau "develops county population estimates with an administrative records component of population change method in which the household and group quarters population are estimated independently. State population estimates are simply the sum of all county population estimates within each state." This procedure relies on federal income tax data to estimate the net inter-county migration of the resident population under 65 years old; results from the American Community Survey to estimate net foreign migration; reported resident birth and death statistics to estimate natural change; and data on Medicare enrollees to estimate the population 65 years

and older. Estimates for the population living outside of households are based on the decennial census and data provided by each state. People living outside households are known as the group quarters population. This population includes military personnel living in barracks, college students living in dormitories, inmates of correctional facilities, persons living in nursing homes or assisted care facilities, and others.

Tax data for two successive years are used to determine the number of persons whose county of residence changed during the period. From this series a net migration rate is calculated and applied to the household population base under age 65. The resulting estimates of net migration are combined with independent estimates of the population 65 years and over, the group quarters population, and the other components of population change (resident births and deaths, international migration, and net movement of military barracks personnel to the civilian population) to yield an estimate of total population.

Conclusion

This article has provided a historical and current description of the significant features of population change in Utah. Utah's high birth rates, low death rates, and migration trends have been highlighted, as have the patterns of population change in 2007 among Utah's multi-county districts and counties. To make data users more familiar with how population estimates are developed in Utah, UPEC and its methods have been discussed. The population estimates prepared by the Census Bureau and the methods it uses have also been described, with a brief comparison of how the Bureau's population estimates differ from those prepared by UPEC.

Utah Population Estimates Committee

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