

Summary of the U.S. Census Bureau’s 2023 County-Level Population and Component Estimates for Massachusetts

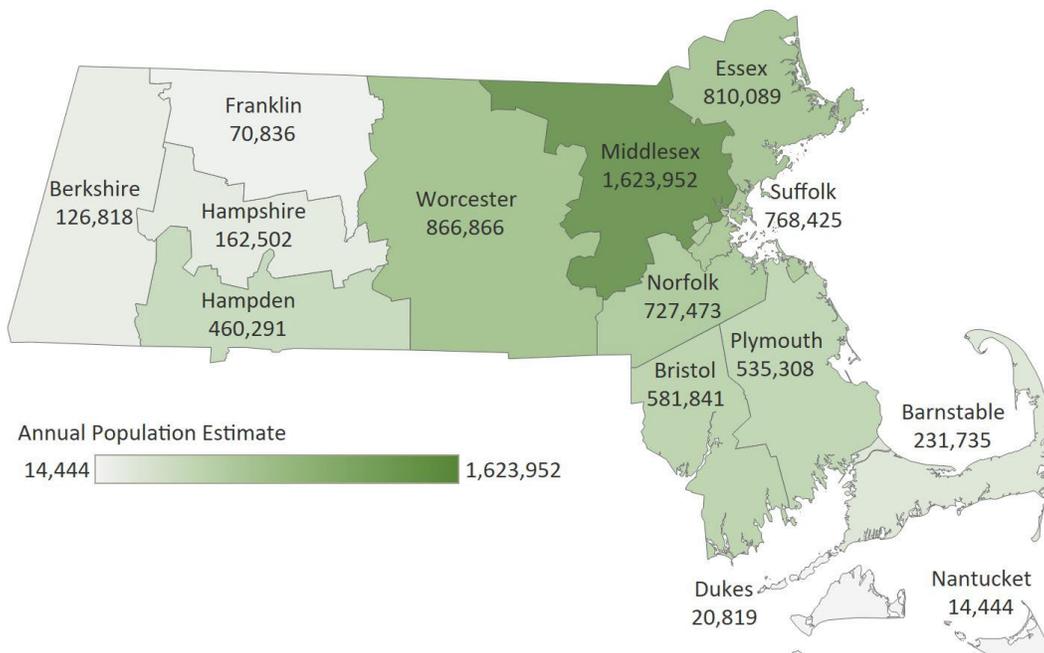
Prepared by:

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Economic and Public Policy Research
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March 14, 2024

On March 14th, 2024, the U.S. Census Bureau released population estimates for July 1, 2020 through July 1, 2023 for Massachusetts and U.S. counties. The Vintage 2023 estimates are developed from a 2020 “base” population that incorporates a combination of the 2020 Census count results, Vintage 2020 estimates, and 2020 Demographic Analysis estimates from the Population Division of the U.S. Census Bureau.¹ This updated methodology is utilized by the U.S. Census Bureau to account for various challenges of the 2020 Census. These challenges include the limitations of the disclosure avoidance system applied to 2020 Census counts, the scheduling delays of census operations caused by the COVID-19 pandemic, and the ongoing evaluation of 2020 Census data as a suitable base population for estimates. Visit the U.S. Census estimates webpage to learn more about this updated methodology: www.census.gov/programs-surveys/popest.html.

Figure 1: Estimated Population by Massachusetts County, July 1, 2023



UMass Donahue Institute. Source: Annual Estimates of the Resident Population: April 1, 2020 to July 1, 2023 (CO-EST2023-alldata), U.S. Census Bureau, Population Division, March 14, 2024.

¹ “Methodology for the United States Population Estimates: Vintage 2023.” Census.gov, US Census Bureau, Dec. 2023. <https://www.census.gov/programs-surveys/popest/technical-documentation/methodology.html>

County Population Change: Single-Year Change 2022-2023

According to the new county-level population estimates released by the U.S. Census Bureau, the greatest numerical increases in Massachusetts counties from July 1, 2022 to July 1, 2023 were seen in Middlesex County at 7,158 net persons gained; Worcester at 3,993; Essex at 3,590; and Bristol at 2,097. In terms of percentage change, the largest net gains were in Worcester County and Essex County with 0.5% and 0.4% increases, respectively, from 2022 to 2023 (Table 1).

The slowest growing counties in the 2022-2023 period by population count included Berkshire, with an estimated 729-person net loss; Hampden, with a 467-person net loss; and Suffolk, with an estimated loss of 387 persons. The largest percentage decreases were in Dukes (-0.7%), Berkshire (-0.6%) and Franklin Counties (-0.2%). Population loss in these areas during the 2022-2023 period can be attributed to a number of factors, including a reversion to pre-pandemic trends, as seen in Berkshire and Dukes County. During the pandemic, many people moved to seasonal homes in the Berkshires and Cape and Islands. Domestic migration into these areas remained robust in 2021 but estimates for 2022 and 2023 indicated a reversal of that trend in Dukes and Berkshire Counties. Meanwhile the more urban areas, such as Suffolk and Middlesex Counties, which experienced higher outmigration in 2021, possibly due to rising housing costs and the relocation of remote workers away from the city, are now showing signs of slowing outmigration compared to the last few years.²

Table 1 below shows county population estimates, change, and rankings for the July 1, 2022 to July 1, 2023 estimates years, while the following map (Figure 2) displays the annual percent change.

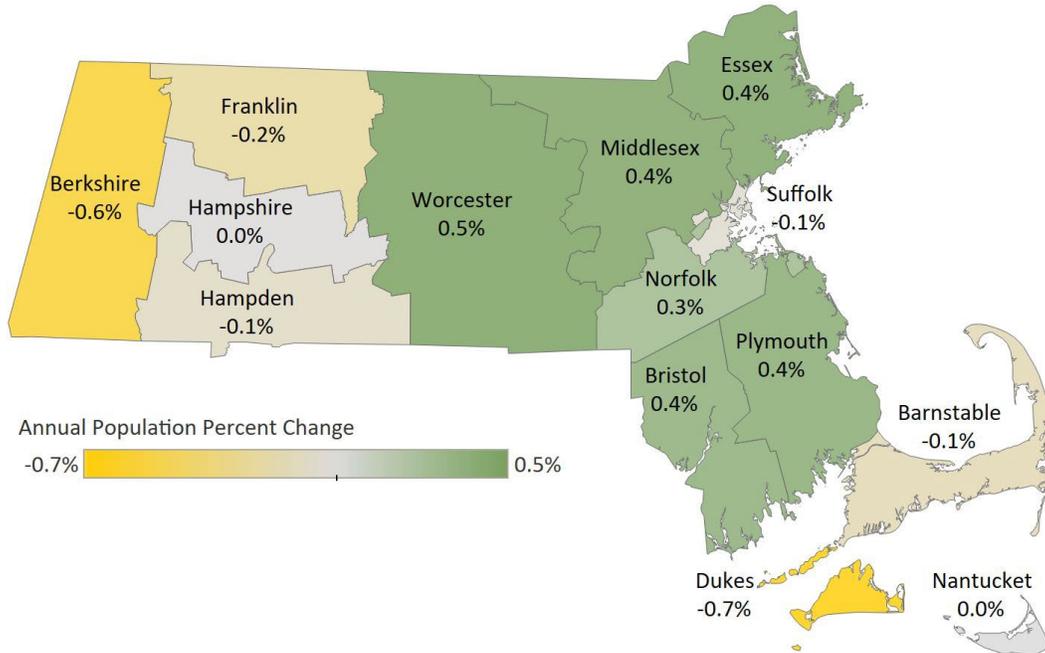
Table 1. Annual Estimates of Resident Population Change and Rankings for Massachusetts Counties						
July 1, 2022 to July 1, 2023						
Geography	July 1 Population Estimate		Change 2022 to 2023		Rank Change 2022 to 2023	
	2022	2023	Number	Percent	Number	Percent
Massachusetts	6,982,740	7,001,399	18,659	0.3%	(X)	(X)
Barnstable	232,078	231,735	-343	-0.1%	11	11
Berkshire	127,547	126,818	-729	-0.6%	14	13
Bristol	579,744	581,841	2,097	0.4%	4	5
Dukes	20,962	20,819	-143	-0.7%	9	14
Essex	806,499	810,089	3,590	0.4%	3	2
Franklin	70,995	70,836	-159	-0.2%	10	12
Hampden	460,758	460,291	-467	-0.1%	13	10
Hampshire	162,518	162,502	-16	0.0%	8	8
Middlesex	1,616,794	1,623,952	7,158	0.4%	1	3
Nantucket	14,443	14,444	1	0.0%	7	7
Norfolk	725,469	727,473	2,004	0.3%	6	6

² A previous analysis by the New York Times in 2022 reports that counties with more modest housing costs gained in population in 2021, while counties ranking above the 90th percentile for housing stress – a measure of housing costs relative to income – were net population losers, suggesting housing costs have influenced recent population trends. Source: Gebeloff, Robert, et al. “Cities Lost Population in 2021, Leading to the Slowest Year of Growth in U.S. History.” The New York Times, The New York Times, 24 Mar. 2022.

Plymouth	533,248	535,308	2,060	0.4%	5	4
Suffolk	768,812	768,425	-387	-0.1%	12	9
Worcester	862,873	866,866	3,993	0.5%	2	1

UMass Donahue Institute. Source: Annual Estimates of the Resident Population: April 1, 2020 to July 1, 2023 (CO-EST2023-alldata), U.S. Census Bureau, Population Division, March 14, 2024.

Figure 2: Estimated Annual Percent Change in Population by Massachusetts County, July 1, 2022 to July 1, 2023



UMass Donahue Institute. Source: Annual Estimates of the Resident Population: April 1, 2020 to July 1, 2023 (CO-EST2023-alldata), U.S. Census Bureau, Population Division, March 14, 2024.

County Population Change: Cumulative Change 2020-2023

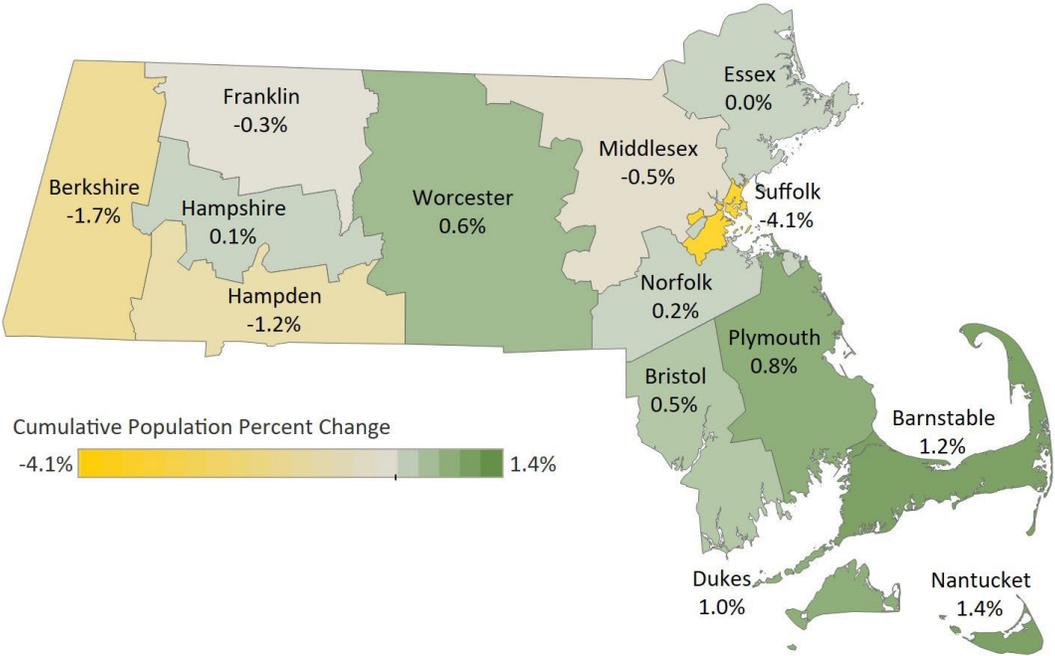
While “single-year change” refers to estimated growth or decline between July 1 of one estimate year to July 1 of the next, “cumulative change” measures the total net change since the Census count date of April 1, 2020.

Table 2, below, shows county population estimates, cumulative change, and rankings from the April 1, 2020 base to the July 1, 2023 estimate, while the map (Figure 3) displays the cumulative percentage change for each county from Census 2020 to the July 1, 2023 estimate. According to these estimates, Nantucket County has been growing the fastest, in terms of percentage growth, since Census 2020 at 1.4%, or 193 people, followed by Barnstable at 1.2% and Dukes at 1.0%, with the pandemic-related migration in 2021 still largely factoring in this cumulative change. By number of people, Worcester County, Plymouth County, and Barnstable County have seen the largest numeric growth at 4,750, 4,489, and 2,740 people, respectively. Note that in the case of Nantucket and Dukes, their small total population leads to larger percentage changes.

Table 2. Cumulative Estimates of Resident Population Change and Rankings for Massachusetts Counties April 1, 2020 to July 1, 2023						
Geographic Area	Population Estimates		Change, 2020 to 2023		Rank Change	
	April 1, 2020 Estimates Base	July 1, 2023	Number	Percent	By Number	By Percent
Massachusetts	7,032,933	7,001,399	-31,534	-0.4%	(X)	(X)
Barnstable	228,995	231,735	2,740	1.2%	3	2
Berkshire	129,039	126,818	-2,221	-1.7%	11	13
Bristol	579,208	581,841	2,633	0.5%	4	6
Dukes	20,605	20,819	214	1.0%	7	3
Essex	809,827	810,089	262	0.0%	6	9
Franklin	71,028	70,836	-192	-0.3%	10	10
Hampden	465,839	460,291	-5,548	-1.2%	12	12
Hampshire	162,316	162,502	186	0.1%	9	8
Middlesex	1,632,028	1,623,952	-8,076	-0.5%	13	11
Nantucket	14,251	14,444	193	1.4%	8	1
Norfolk	725,932	727,473	1,541	0.2%	5	7
Plymouth	530,819	535,308	4,489	0.8%	2	4
Suffolk	800,930	768,425	-32,505	-4.1%	14	14
Worcester	862,116	866,866	4,750	0.6%	1	5

UMass Donahue Institute. Sources: Annual Estimates of the Resident Population: April 1, 2020 to July 1, 2023 (CO-EST2023-alldata), U.S. Census Bureau, Population Division, March 14, 2024.

Figure 3: Estimated Cumulative Percent Change in Population by Massachusetts County, April 1, 2020 – July 1, 2023



UMass Donahue Institute. Source: Annual Estimates of the Resident Population: April 1, 2020 to July 1, 2023 (CO-EST2023-alldata), U.S. Census Bureau, Population Division, March 14, 2024.

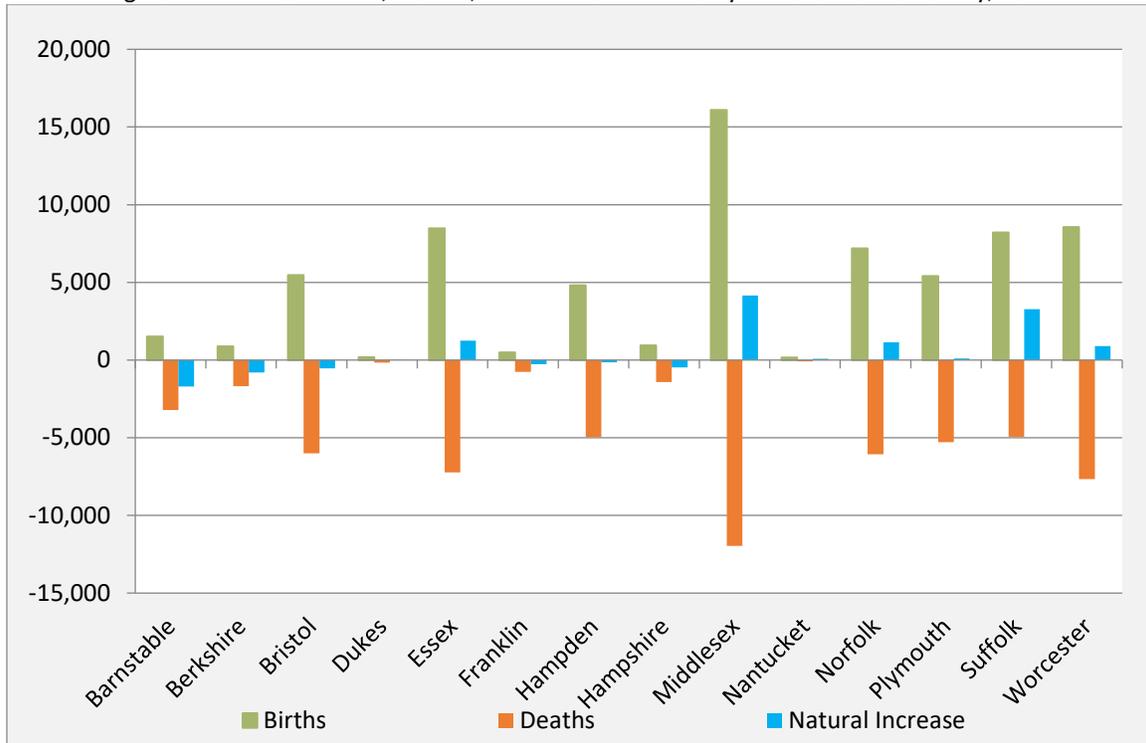
Components of Change

The U.S. Census Bureau develops county-level estimates using the latest data available for the various components of change, which include births and deaths, domestic migration (within the United States) international migration, and the group quarters population for each county. The following section describes changes in the Massachusetts county-level population estimates due to births, deaths, and migration.

Natural Increase

Natural increase is the net change in population after births and deaths are added together. The following chart (Figure 4) shows the estimated number of births, deaths, and the resulting net natural increase in each county for the period of July 1, 2022 to July 1, 2023. Note that eight counties during this period had a positive net natural increase in which the number of births was greater than the number of deaths. These counties were Middlesex (+4,145), Suffolk (+3,278), Essex (+1,225), Norfolk (+1,140), Worcester (+898), Plymouth (+106), Nantucket (+71), and Dukes (+4). Counties with the largest negative net natural increase were Barnstable (-1,704), Berkshire (-797), Bristol (-529), and Hampshire (-482).

Figure 4. Estimated Births, Deaths, and Natural Increase by Massachusetts County, 2023



UMass Donahue Institute. Source: Annual Estimates of the Resident Population: April 1, 2020 to July 1, 2023 (CO-EST2023-alldata), U.S. Census Bureau, Population Division, March 14, 2024.

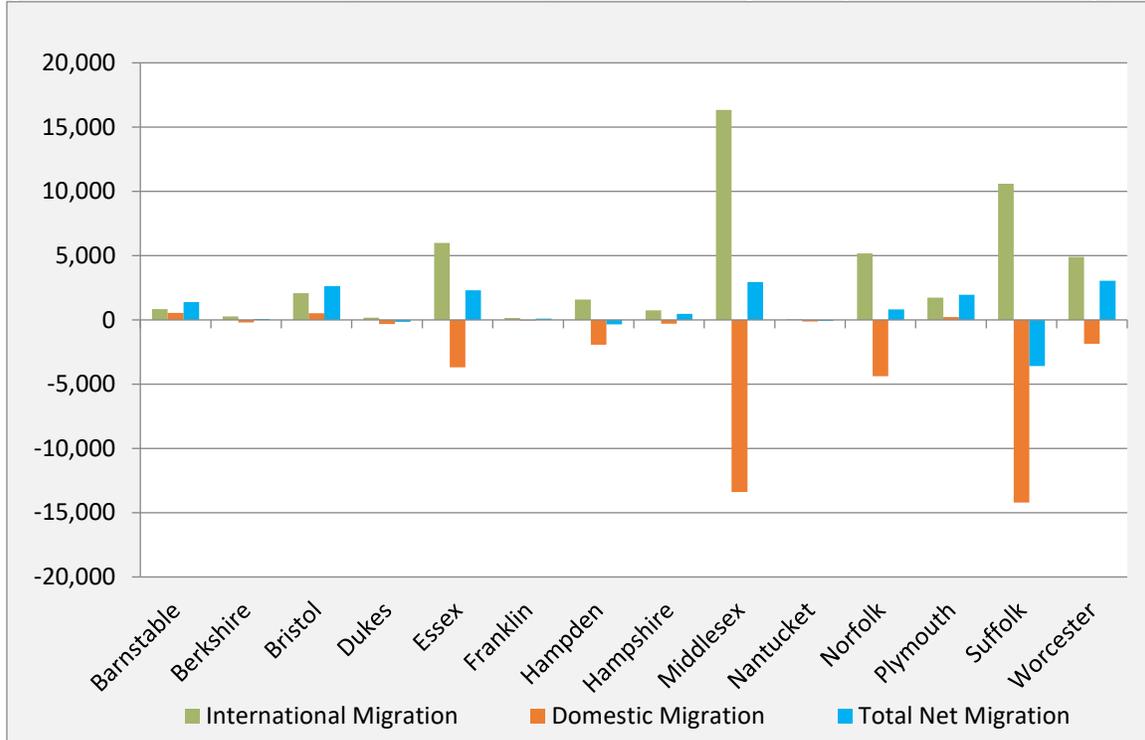
Migration

In the estimates process, *net international migration* measures in- and out-migration between a county and places outside the U.S. These numbers represent estimates produced by the U.S. Census Bureau’s analysis of American Community Survey data on the foreign-born population and other data sources. *Domestic migration*, sometimes called *internal migration*, measures movement from one county to another within the U.S. To estimate this component, the U.S. Census Bureau uses a combination of IRS data on tax filers and Medicare enrollment data. The sum of these two types of migration, international and domestic, equals the *total net migration*.

The following chart (Figure 5) shows the international, domestic, and total net migration estimates for each Massachusetts county for the period of July 1, 2022 to July 1, 2023. Note that almost all Massachusetts counties—11 out of 14—show negative domestic migration, meaning populations have moved from these counties to other counties within the U.S. In some counties, however, the negative domestic migration is offset by international immigration. For instance, Worcester, Norfolk, Middlesex, Hampshire, Franklin, Essex, and Berkshire counties’ negative domestic migration is offset completely for a positive total net migration. Barnstable County has both a positive domestic and international migration, but also has a negative natural increase, leading to a slight population decline.

International migration has continued to make a strong comeback in the V2023 estimates series for Massachusetts, reaching its highest point since at least 2000 of 50,674. International migration, from July 1, 2022 to July 1, 2023, outweighed domestic migration across the state for the first time since 2018, resulting in a positive total migration figure of 11,498. However, Dukes (-148), Hampden (-350), Nantucket (-71), and Suffolk (-3,601) Counties continued to experience a negative total net migration.

Figure 5. Estimated Net Domestic, Net International, and Total Net Migration by Massachusetts County, 2023



UMass Donahue Institute. Source: Annual Estimates of the Resident Population: April 1, 2020 to July 1, 2023 (CO-EST2023-alldata), U.S. Census Bureau, Population Division, March 14, 2024.

Detailed Components-of-Change Estimates and Rates

As described above, component data on births, deaths, domestic migration, and international migration combine together (along with group quarters updates and a “residual” component, not shown) to factor into population change for each county. The following table outlines the numerical change in each of these components for each county. Table 3 shows single-year change from July 1, 2022 to July 1, 2023.

Massachusetts County	Total Population Change [1]	Vital Events			Net Migration		
		Natural Increase	Births	Deaths	Total	International [2]	Domestic
Barnstable	(343)	(1,704)	1,504	3,208	1,375	836	539
Berkshire	(729)	(797)	888	1,685	68	263	(195)
Bristol	2,097	(529)	5,475	6,004	2,623	2,092	531
Dukes	(143)	4	177	173	(148)	176	(324)
Essex	3,590	1,255	8,482	7,227	2,297	5,988	(3,691)
Franklin	(159)	(259)	495	754	101	152	(51)
Hampden	(467)	(143)	4,808	4,951	(350)	1,581	(1,931)
Hampshire	(16)	(482)	937	1,419	463	755	(292)
Middlesex	7,158	4,145	16,102	11,957	2,937	16,339	(13,402)
Nantucket	1	71	159	88	(71)	51	(122)
Norfolk	2,004	1,140	7,196	6,056	809	5,181	(4,372)
Plymouth	2,060	106	5,395	5,289	1,950	1,722	228
Suffolk	(387)	3,278	8,210	4,932	(3,601)	10,606	(14,207)
Worcester	3,993	898	8,559	7,661	3,045	4,905	(1,860)

[1] Total population change includes a residual. This residual represents the change in population that cannot be attributed to any specific demographic component. See Population Estimates Terms and Definitions at <http://www.census.gov/popest/about/terms.html>. [2] Net international migration (except for Puerto Rico) includes the international migration of both native and foreign-born populations. For population estimates methodology statements, see <https://www.census.gov/programs-surveys/popest/technical-documentation/methodology.html>

UMass Donahue Institute. Source: Annual Estimates of the Resident Population: April 1, 2020 to July 1, 2023 (CO-EST2023-alldata), U.S. Census Bureau, Population Division, March 14, 2024.

The table below displays these same components of change as average rates per 1,000 persons over one year from July 1, 2022 through July 1, 2023. These rates are useful when comparing one county to another.

Massachusetts County	Total Population Change	Vital Events			Net Migration		
		Natural Increase	Births	Deaths	Total	International	Domestic
Barnstable	(1.5)	(7.3)	6.5	13.8	5.9	3.6	2.3
Berkshire	(5.7)	(6.3)	7.0	13.2	0.5	2.1	(1.5)
Bristol	3.6	(0.9)	9.4	10.3	4.5	3.6	0.9
Dukes	(6.8)	0.2	8.5	8.3	(7.1)	8.4	(15.5)
Essex	4.4	1.6	10.5	8.9	2.8	7.4	(4.6)
Franklin	(2.2)	(3.7)	7.0	10.6	1.4	2.1	(0.7)

Hampden	(1.0)	(0.3)	10.4	10.8	(0.8)	3.4	(4.2)
Hampshire	(0.1)	(3.0)	5.8	8.7	2.8	4.6	(1.8)
Middlesex	4.4	2.6	9.9	7.4	1.8	10.1	(8.3)
Nantucket	0.1	4.9	11.0	6.1	(4.9)	3.5	(8.4)
Norfolk	2.8	1.6	9.9	8.3	1.1	7.1	(6.0)
Plymouth	3.9	0.2	10.1	9.9	3.6	3.2	0.4
Suffolk	(0.5)	4.3	10.7	6.4	(4.7)	13.8	(18.5)
Worcester	4.6	1.0	9.9	8.9	3.5	5.7	(2.2)
*Rates per 1,000 average population.							
UMass Donahue Institute. Source: Annual Estimates of the Resident Population: April 1, 2020 to July 1, 2023 (CO-EST2023-alldata), U.S. Census Bureau, Population Division, March 14, 2024.							

Shifting Trends

During the height of the pandemic years, 2020 and 2021, many of the counties that started the previous decade as the strongest growers in the state became, instead, the state’s slowest growers. In this year’s estimates release, as with last year’s 2022 release, we see the population trends starting to return to pre-pandemic patterns. However, as discussed above, overall growth has been small or negative in most counties in Massachusetts, especially since the 2020 Census count. Table 5 below shows the shift in rank annual percent population change by county over the 2010-2023 period.

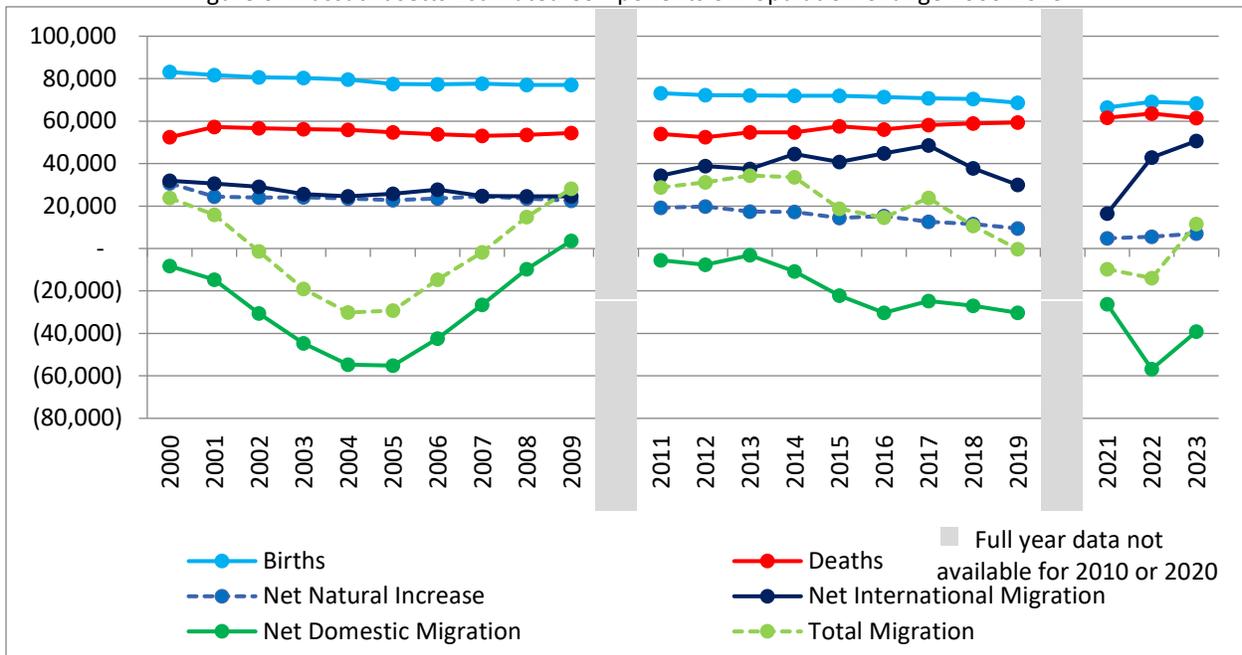
County	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Suffolk	1	1	3	2	1	2	1	6	5	13	14	13	9
Middlesex	2	3	4	3	4	4	6	7	6	10	13	6	3
Essex	3	5	5	4	3	7	5	3	7	7	10	8	2
Dukes	4	4	2	5	11	8	9	8	10	2	2	14	14
Norfolk	5	6	6	8	7	6	8	4	3	6	9	1	6
Hampshire	6	10	9	11	10	5	13	11	4	14	1	9	8
Franklin	7	12	13	12	13	12	11	10	13	11	8	4	12
Worcester	8	7	8	7	8	9	4	5	8	4	7	2	1
Plymouth	9	9	7	6	5	3	3	2	2	9	5	3	4
Hampden	10	11	11	10	9	13	12	9	12	12	12	11	10
Bristol	11	8	10	9	6	10	7	1	9	8	6	5	5
Barnstable	12	14	12	13	12	11	10	12	11	3	4	7	11
Nantucket	13	2	1	1	2	1	2	14	1	1	3	10	7
Berkshire	14	13	14	14	14	14	14	13	14	5	11	12	13

Shifting ranks this year can be attributed to both reverting to pre-pandemic trends, as well as some persistent trends within the state. International immigration has fully rebounded, which has counterbalanced the domestic outmigration that Massachusetts has historically experienced. Additionally, many of the seasonal areas that experienced abrupt and rapid growth from domestic migration, such as in the Berkshires, Cape, and Islands, are starting to see that migration pattern turning around. For example, Dukes, Nantucket, and Berkshire Counties all experienced a net domestic outflow of residents from July 1, 2022 to July 1, 2023 after a period of positive domestic migration during the pandemic. In the current vintage, Berkshire County’s negative domestic migration was only just offset by

international migration, and Barnstable County saw gains in net domestic migration and international migration, which were outweighed by the net natural decrease, leading to small a population decline after experiencing much larger population increase due to domestic migration in the pandemic years. The population of Hampshire County, which contains a proportionally large college student population, was heavily influenced by the migration of college students away from their schools and back again during the pandemic and shows large jumps in ranking over the past few years.

In addition to shifting pandemic trends, both overall migration trends and the aging population profile in Massachusetts also contribute to the change in rankings. In 2023 international migration was at its highest in Massachusetts since at least 2000 and domestic migration in Massachusetts, while still relatively sizable and negative, has seen its outflow shrink over that last year from -56,813 in 2022 to -39,149 in 2023. The decrease in domestic migration outflow led to a positive total migration number, coupled with a persistently positive, although declining, natural increase, for a gain in total population over the past year. Domestic migration into Massachusetts peaked in around 2010 – the same year that the large “Millennial” generation hit a median age of 18 in Massachusetts – but has been generally decreasing since that time and is now a negative component in most Massachusetts counties. Because of these shifting trends, counties that typically attract younger, college-age students will tend to show more domestic loss, as the Millennials age up. Finally, as Massachusetts and the U.S, as a whole, ages, the natural increase that occurs when births replace deaths is declining in many places, with six out of the 14 counties experiencing a negative net natural increase from 2022 to 2023. Figure 6, below, displays the statewide trends in components of population change over the long term, from 2000 through 2023.³ An appendix to this report shows these component trends from 2000-2023 by Massachusetts county.

Figure 6. Massachusetts Estimated Components of Population Change 2000-2023



UMass Donahue Institute. Sources: U.S. Census Bureau Population Division, CO-EST2009-04-25, CO-EST2020-ALLDATA, and CO-EST2023-ALLDATA, Release dates March 2010, May 2021, and March 2024.

³ The 2010 and 2020 values have been excluded from this time series due to the Census Bureau providing only a 3-month period (April-June) for the entire census year, which complicates assessing trends over time.

For more information on the U.S. Census Bureau's Vintage 2023 Population Estimates Release and to see national county data, see:

<https://www.census.gov/programs-surveys/popest/data/tables.html>

To see additional summary reports by the UMDI Population Estimates Program on U.S. Census Bureau estimates releases for Massachusetts, follow this link: <https://donahue.umass.edu/business-groups/economic-public-policy-research/massachusetts-population-estimates-program/population-estimates-by-massachusetts-geography>

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