POPULATION ESTIMATES FOR NEW YORK CITY AND BOROUGHS AS OF JULY 1, 2023

Summary of Findings

The U.S. Census Bureau has estimated New York City's population at 8,258,000, as of July 1, 2023. This represents a decrease of 78,000 from July 1, 2022, the smallest annual population loss since 2020. The diminishing population losses were largely the result of mitigated net domestic migration losses. Many major cities across the United States experienced a similar recent population arc from 2020 to 2023, with slowing losses or population gains after a period of substantial decrease early in the pandemic.

Much of the estimated decrease in New York City's population is likely offset by an underestimate of people living in shelters. The Census Bureau's population estimates include figures for the population living in group quarters, which encompass facilities such as dormitories, skilled nursing facilities, correctional facilities, and shelters. The Census Bureau estimated a marginal increase in the group quarters population of about 1,200 between 2022 and 2023, at odds with New York City data, which shows that the shelter population increased substantially. New York City is working with the Census Bureau through their Challenge Program to incorporate more than 50,000 people who were likely missed in the most recent estimates for July 1, 2023. Incorporating this adjustment, estimated population change between 2022 and 2023 would be minimal.

The pandemic produced short-term shocks to New York City's patterns of population change. A large uptick in movement to the suburbs and exurbs of New York City, as well as elsewhere in the country, resulted in larger than typical net domestic outflows. Net international inflows were near historical lows as national immigration was severely curtailed. In addition to changes in migration patterns, births decreased during the pandemic, and mortality due to Covid-19 increased the total number of deaths, particularly early in the pandemic. Migration has the largest impact on population change in New York City, and disruptions to domestic and international migration were temporary. Net migration patterns

have returned to pre-pandemic trends, as reflected in the Vintage 2023 estimates. In addition, a substantial amount of housing has been added to the city's housing stock between April 2020 and July 2023, while occupancy rates are at historical highs, indicating strong demand for housing in New York City. Population losses in the Bronx, Brooklyn, Queens, and Staten Island were all substantially smaller in the year to July 2023 than they were the year prior, suggesting that New York City's population losses are starting to level off across the city. And Manhattan, the borough that experienced the largest population losses in the first 15 months of the pandemic, returned to population growth between July 2021 and July 2022, and continued to grow in the most recent period, from July 2022 to July 2023. The reversal of population losses in the borough suggests a strong rebound to the core of New York City.

As a final note, the Census Bureau's population estimates are subject to annual revisions, as updated data and methodological refinements are incorporated. While the Census Bureau uses the most robust possible methods and has access to the highest quality data available, estimation is inherently imprecise. Year-to-year changes in particular should be interpreted with caution. For more information see New York City Current Population Estimates and Trends.

In summary, the estimated large decline in the population after the April 1, 2020 Census enumeration is a result of temporary, pandemic-related phenomena. Most trends contributing to the decline have attenuated or reversed. Taking into account the increase in the population living in shelters, which has not been accounted for in the most recent Census Bureau estimates, New York City's population decreased by about 25,000. Given the uncertainty inherent in population estimation, such a small annual change in the context of New York City's total population suggests roughly flat population change between 2022 and 2023.

COMPLETE ANALYSIS OF U.S. CENSUS BUREAU ESTIMATES FOR JULY 1, 2023

Introduction

The Census Bureau's Population Estimates Program releases annual estimates of the national, state, and county populations, as well as components of population change—births, deaths, and net migration. Using a cohort-component method, the Census Bureau estimates the resident population each year by adding estimated births, subtracting estimated deaths, and adding estimated net migration. Population estimates are most useful for identifying patterns of change in the city's population. It is important to keep in mind that the Census Bureau's methodology is not robust enough to precisely quantify the magnitude of year-to-year changes, even without the added uncertainty due to the pandemic. More details on methodology are available below, and more details on population trends are available in New York City Current Population Estimates and Trends.

Total Population

According to U.S. Census Bureau population estimates, New York City's population was 8,258,000 as of July 1, 2023. This is a decline of 546,000 residents, or 6.2 percent, from the decennial census enumeration of 8,804,000 as of April 1, 2020 (see Table 1).

Among the boroughs, the Bronx experienced the largest percentage decrease of 7.9 percent (-116,000 persons), followed by Brooklyn and Queens each with losses of 6.4 percent (-175,000 and -153,000 persons respectively), followed by Manhattan (-5.7 percent or -97,000 persons), and Staten Island (-1.0 percent or -5,000) over the 39-month period.

Table 1. Population and Change, Census Bureau Estimates New York City and Boroughs, April 1, 2020, and July 1, 2020 to 2023

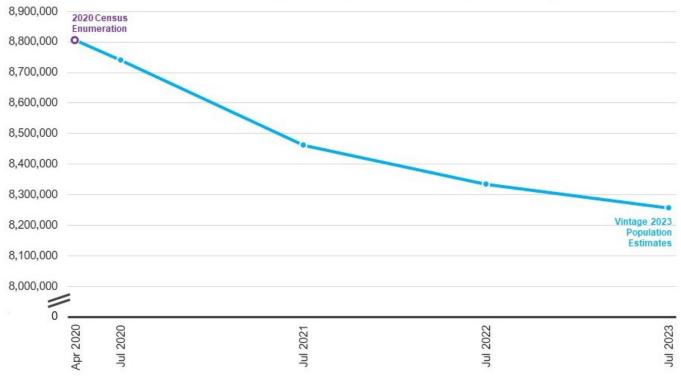
	Census	ensus Estimates					Change				
	Apr 2020	Jul 2020	Jul 2021	Jul 2022	Jul 2023	Apr 2020 - Jul 2023	Jul 2020 - Jul 2021	Jul 2021 - Jul 2022	Jul 2022 - Jul 2023		
						Number (Percent)	Number (Percent)	Number (Percent)	Number (Percent)		
NYC Total	8,804,190	8,740,292	8,462,216	8,335,798	8,258,035	-546,155 (-6.2)	-278,076 (-3.2)	-126,418 (-1.5)	-77,763 (-0.9)		
Bronx	1,472,654	1,461,151	1,424,084	1,381,808	1,356,476	-116,178 (-7.9)	-37,067 (-2.5)	-42,276 (-3.0)	-25,332 (-1.8)		
Brooklyn	2,736,074	2,718,447	2,637,522	2,589,531	2,561,225	-174,849 (-6.4)	-80,925 (-3.0)	-47,991 (-1.8)	-28,306 (-1.1)		
Manhattan	1,694,251	1,677,232	1,578,055	1,594,543	1,597,451	-96,800 (-5.7)	-99,177 (-5.9)	16,488 (1.0)	2,908 (0.2)		
Queens	2,405,464	2,388,864	2,329,008	2,278,558	2,252,196	-153,268 (-6.4)	-59,856 (-2.5)	-50,450 (-2.2)	-26,362 (-1.2)		
Staten Island	495,747	494,598	493,547	491,358	490,687	-5,060 (-1.0)	-1,051 (-0.2)	-2,189 (-0.4)	-671 (-0.1)		

Source: U.S. Census Bureau, Population Estimates Program (Vintage 2023)

Between July 1, 2022 and July 1, 2023, New York City's population decreased by 78,000. The largest percentage decrease was in the Bronx (-1.8 percent or -25,000 persons), followed by Queens (-1.2 percent or -26,000 persons), Brooklyn (-1.1 percent or -28,000 persons), and Staten Island (-0.1 percent or -700 persons). Manhattan's population increased by 0.2 percent, or 3,000 persons.

The annual decrease between 2022 and 2023 was substantially smaller than the population loss of 126,000 between 2021 and 2022, which in turn was substantially smaller than the population loss of 278,000 between 2020 and 2021. At the borough level, Manhattan's population change reversed direction from a loss of 99,000 between 2020 and 2021 to a gain of 16,000 between 2021 and 2022, and a further gain of 3,000 between 2022 and 2023. Population losses were substantially mitigated in the Bronx, Brooklyn, Queens, and Staten Island between 2022 and 2023, relative to losses between 2021 and 2022.

Figure 1. 2020 Census Enumeration and Vintage 2023 Population Estimates New York City and Boroughs, April 1, 2020, and July 1, 2020 to 2023



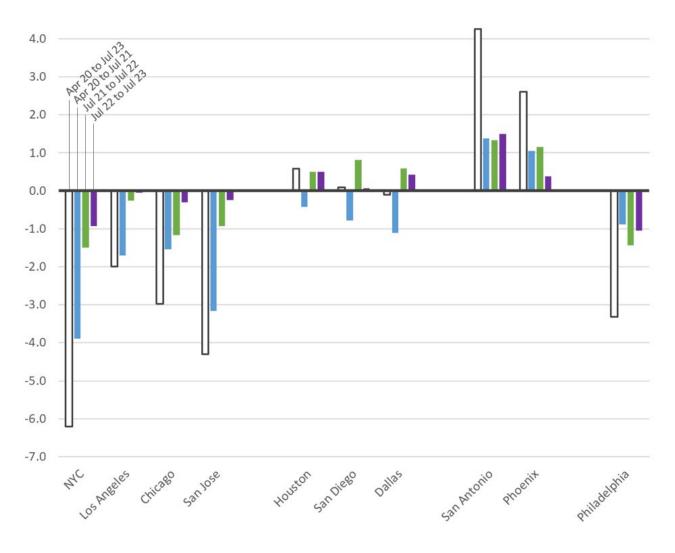
Source: U.S. Census Bureau, Population Estimates Program (Vintage 2023)

While the city's population continued to decrease between 2022 and 2023, the estimated annual declines have attenuated each year since 2020 (see Figure 1). Approximately 63 percent of the estimated population losses between April 2020 and July 2023 took place by July 2021, or within the first 15 months of the 39-month period covered by the most recent estimates. Moreover, approximately two-thirds of the estimated loss of about 78,000 between 2022 and 2023 is offset by an omitted increase in group quarters population, discussed in more detail below. The resulting adjusted population change of approximately 25,000 is within a reasonable band of uncertainty, and should be interpreted as minimal population change or no change at all. It is important to keep in mind that population estimates are subject to revision, and the estimates for recent years may be revised upward in future vintages. Recent declines in New York City's population are likely a short-term anomaly in a longer trajectory of population growth.

New York City in the Context of Major U.S. Cities

Many of the largest cities in the United States suffered population losses early in the pandemic and are now seeing smaller declines or a return to population growth (see Figure 2). The three largest cities in the country, New York City, Los Angeles, and Chicago, have all experienced smaller losses each year since 2020. Houston, San Diego and Dallas all grew for a second year in a row after losses early in the pandemic, nearly or fully offsetting losses from 2020 to 2021. San Diego and Phoenix have grown consistently since 2020, although growth in Phoenix slowed in the most recent year.

Figure 2. Percent Change in Population 10 Largest U.S. Cities, April 1, 2020 to July 1, 2023, April 1, 2020 to July 1, 2021, July 1, 2021 to July 1, 2022, and July 1, 2022 to July 1, 2023



Components of Population Change, 2020 to 2023

Demographers divide population change into components. **Natural increase** represents the difference between births and deaths. **Net migration** represents the balance between persons entering and leaving an area. Together, these components describe how populations change over time. The U.S. Census Bureau constructs population estimates for all counties in the United States by separately estimating the components of change. Births and deaths are compiled using data from the national vital statistics system. Net migration is a summation of two flows: migration of persons coming in from, and leaving for, other places within the 50 states (**net domestic migration**) and the balance of people coming in from, and leaving for, areas beyond the 50 states (**net international migration**). The net domestic migration rate is derived using income tax returns from the Internal Revenue Service and Medicare enrollment data, as well as data from the Social Security Administration. The methods used by the Population Estimates Program are discussed in more detail below.

Since the 1940s, more people have moved out of New York City than have moved in. New York City's long-term trends of population growth is a result of natural increase and net international inflows offsetting net domestic outflows. The city's negative net migration figure also masks the remarkable volume of inflows and outflows each year, typically measuring in the hundreds of thousands. This "churn" has long characterized the city.

As shown in Table 2, the most recent estimates from the U.S. Census Bureau indicate the following for the July 2022 to July 2023 period:

- Positive natural increase—The surplus of births over deaths added 32,000 persons to New York
 City's population between July 2022 and July 2023.
- Net out-migration—In New York City's customary pattern of migration, the city experienced losses through migration during the 2022 to 2023 period. The population decrease due to net migration totaled 109,000, the result of net domestic losses (-160,000) offset by net international gains (52,000).

Table 2. Estimates of the Components of Population Change New York City and Boroughs, Change from April 1, 2020 to July 1, 2023, and Annual Change from July 1, 2020 to July 1, 2023

			Na	tural Chan	ge	Net Migration				
		Total Population Change	Total	Births	Deaths	Total	Net Domestic Migration	Net International Migration		
Jul 2022 to Jul 2023	NYC Total	-77,763	31,795	89,213	57,418	-108,507	-160,012	51,505		
	Bronx	-25,332	5,966	16,614	10,648	-31,249	-41,473	10,224		
	Brooklyn	-28,306	14,174	31,066	16,892	-42,016	-55,308	13,292		
	Manhattan	2,908	3,021	13,309	10,288	196	-10,303	10,499		
	Queens	-26,362	7,760	23,304	15,544	-33,871	-50,161	16,290		
	Staten Island	-671	874	4,920	4,046	-1,567	-2,767	1,200		
Jul 2021 to Jul 2022	NYC Total	-126,418	30,555	91,688	61,133	-164,341	-218,282	53,941		
	Bronx	-42,276	5,650	16,893	11,243	-50,776	-61,394	10,618		
	Brooklyn	-47,991	14,357	32,458	18,101	-64,083	-78,188	14,105		
	Manhattan	16,488	2,697	13,623	10,926	13,453	2,450	11,003		
	Queens	-50,450	7,102	23,688	16,586	-60,071	-77,029	16,958		
	Staten Island	-2,189	749	5,026	4,277	-2,864	-4,121	1,257		
Jul 2020 to Jul 2021	NYC Total	-278,076	29,700	91,466	61,766	-291,195	-311,192	19,997		
	Bronx	-37,067	5,547	16,929	11,382	-40,579	-44,747	4,168		
	Brooklyn	-80,925	14,736	33,117	18,381	-90,805	-95,883	5,078		
	Manhattan	-99,177	2,055	13,363	11,308	-94,526	-98,504	3,978		
	Queens	-59,856	6,746	23,189	16,443	-63,383	-69,771	6,388		
	Staten Island	-1,051	616	4,868	4,252	-1,902	-2,287	385		
	<u></u>									
Apr 2020 to Jul 2023	NYC Total	-546,155	80,009	296,396	216,387	-611,288	-737,712	126,424		
	Bronx	-116,178	14,455	54,827	40,372	-130,599	-155,903	25,304		
	Brooklyn	-174,849	40,614	105,036	64,422	-210,946	-243,676	32,730		
	Manhattan	-96,800	6,022	44,001	37,979	-94,071	-119,744	25,673		
	Queens	-153,268	17,314	76,421	59,107	-168,743	-208,611	39,868		
	Staten Island	-5,060	1,604	16,111	14,507	-6,929	-9,778	2,849		

Note: Population change was calculated using the 2020 Census, July 1, 2020, 2021, 2022, and 2023 population estimates. The estimated components of population change may not equal the numerical population change because of a residual.

Source: U.S. Census Bureau, Population Estimates Program (Vintage 2023)

150,000

Net International Migration

Deaths

50,000

-50,000

-100,000

-150,000

-250,000

-250,000

-350,000

-350,000

-350,000

-350,000

-350,000

Figure 3. Annual Components of Population Change New York City, July 1, 2000 to July 1, 2023

Source: U.S. Census Bureau, Population Estimates Program (Vintage 2010, Vintage 2020, and Vintage 2023)

Figure 3 above shows estimated annual births, deaths, net domestic, and net international migration for New York City for 2000 to 2023 from the Population Estimates Program. The long-term trajectories of the components of change clearly show the impact of Covid-19. The most dramatic impact is to net domestic migration, which consistently shows net outflows, and fluctuates in volume substantially over the years; after a period of elevated net domestic outflows early in the pandemic, volumes are close to prepandemic estimates. International migration trended downward in the second half of the 2010s, reaching a nadir between 2020 and 2021, then rebounding to levels last experienced in the middle of the 2010s. Births, which have trended downward for the past decade, decreased at an elevated clip during the first year of the pandemic, and have not recovered to pre-pandemic levels. Deaths increased during the first year of the pandemic but have decreased somewhat since. Taken together, the components indicate that

the short-term shock to population patterns due to the pandemic are in the process of reverting back to pre-pandemic trends of population growth, with natural increase and net international inflows offsetting net domestic losses.

Underestimated Group Quarters and Household Populations

The population can be split into two groups—those living in households and those living in group quarters. Table 3 below shows the estimated household and group quarters populations from 2020 to 2023. The group quarters population includes those that live in facilities such as college dormitories, military barracks, correctional facilities, and shelters. The Census Bureau estimated only marginal change in the group quarters population between 2022 and 2023. As shown in Figure 4 below, between 2022 and 2023, New York City's population living in shelters has increased by roughly 50,000.¹ This increase in the shelter population is not reflected in the population estimates, and there is no reason to believe that there are meaningful changes in the populations of other types of group quarters. The NYC Department of City Planning is working with the Census Bureau through their Challenge Program to incorporate the increase in individuals living in city shelters between 2022 and 2023. The omitted increase in the shelter population offsets approximately two-thirds of the Census Bureau's estimated decrease in New York City's population between 2022 and 2023. If the omitted increase in the group quarters population is incorporated into the population estimates, the decrease in New York City's population would be adjusted to about 25,000, a negligible change given uncertainty in the estimation process.

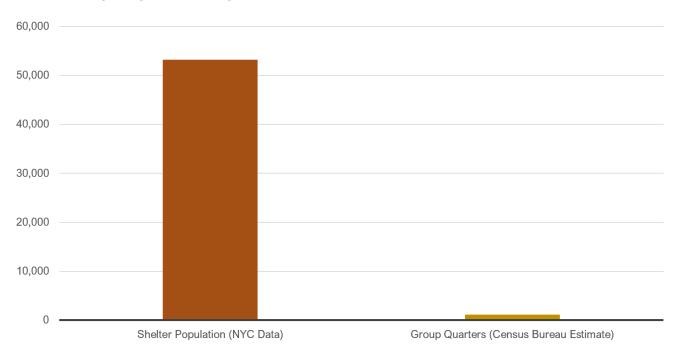
¹ NYC Department of Homeless Services; NYC Office of Asylum Seeker Operations; NYC Department of Youth and Community Development; NYC Department of Housing Preservation and Development

Table 3. Estimates of the Household and Group Quarters Populations and Change New York City and Boroughs, April 1, 2020 and July 1, 2020 to 2023

	Census Estimates					Change				
	Apr 2020	Jul 2020	Jul 2021	Jul 2022	Jul 2023	Apr 2020 - Jul 2023	<u>Jul 2020 -</u> <u>Jul 2021</u>	<u>Jul 2021 -</u> <u>Jul 2022</u>	<u>Jul 2022 -</u> <u>Jul 2023</u>	
						Number (Percent)	Number (Percent)	Number (Percent)	Number (Percent)	
Total Population	8,804,190	8,740,292	8,462,216	8,335,798	8,258,035	-546,155 (-6.2)	-278,076 (-3.2)	-126,418 (-1.5)	-77,763 (-0.9)	
Household Population	8,585,462	8,537,786	8,246,713	8,118,201	8,039,276	-546,186 (-6.4)	-291,073 (-3.4)	-128,512 (-1.6)	-78,925 (-1.0)	
GQ Population	218,728	202,506	215,503	217,597	218,759	31 (0.0)	12,997 (6.4)	2,094 (1.0)	1,162 (0.5)	

Source: U.S. Census Bureau, Population Estimates Program (Vintage 2023)

Figure 4. Change in Shelter Population (NYC Data) and Change in Estimated Group Quarters Population (Census Bureau Estimates)
New York City, July 2022 to July 2023



Source: U.S. Census Bureau, Population Estimates Program (Vintage 2023); NYC Department of Homeless Services; NYC Office of Asylum Seeker Operations; NYC Department of Youth and Community Development; NYC Department of Housing Preservation and Development; NYC Department of City Planning, Population Division

It is also possible that the population living in households has been underestimated. Between April 2020 and July 2023, approximately 88,000 housing units have been completed on net.² Meanwhile, the 2023 New York City Housing and Vacancy Survey (NYCHVS) found a rental vacancy rate of 1.41 percent, one of the lowest on record in the six decades the survey has been conducted, dropping from 4.54 percent in 2021, one of the highest rental vacancy rates on record,³ reflecting increased pressure on the housing market in recent years. Despite the increase in housing units and occupancy, estimates of the household population have fallen. Increases in the housing supply and occupancy rates suggest the population is rebounding, even though the average number of people in each household may have decreased.

Despite robust methods and access to a wide array of data sources, the Census Bureau's population estimates are *estimates*, and as such are subject to a degree of uncertainty. This uncertainty is reflected, in part, by the Census Bureau's annual revisions to its own estimates as it receives additional data and adjusts its estimation methodology. The Census Bureau's estimates already indicate a rebound in, or mitigation of, most of the components of population change in recent years, which will be more significant if the estimates are adjusted to reflect the increase of roughly 50,000 people⁴ in the shelter population. This would offset about two-thirds of the estimated decline between 2022 and 2023. An adjusted population estimate implies a population decrease of about 25,000, a figure small enough to suggest minimal or no population change given the uncertainty inherent in the population estimates. Strong demand for housing also suggests a rebounding population, with an increase in housing supply in recent years accompanied by historically low rental vacancy rates. Taken together, indicators suggest that New York City's Covid-related population losses have ended, and that New York City may have returned to population growth.

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² NYC Department of City Planning, Housing Database release 23Q2, available at https://www.nyc.gov/site/planning/data-maps/open-data/dwn-housing-database.page, retrieved March 7, 2024

³ Gaumer, E. 2024. "The 2023 New York City Housing and Vacancy Survey: Selected Initial Findings." *New York City Department of Housing Preservation and Development*. Available at https://www.nyc.gov/assets/hpd/downloads/pdfs/about/2023-nychvs-selected-initial-findings.pdf. Retrieved February 29, 2024.

⁴ Provision figure, pending additional data collection by the NYC Department of City Planning.

U.S. CENSUS BUREAU POPULATION ESTIMATES METHODOLOGY

The U.S. Census Bureau's Population Estimates Program (PEP) produces annual estimates of the population of the nation, states, counties, as well as cities and other places. Starting with a population base, the PEP estimates the population using the components of change, i.e. births, deaths, and migration, as well as data on changes in the population living in group quarters.

Before 2020, the latest decennial census was used to produce the estimates base. In recent years, additional data have been needed to produce the base populations for the estimates. The 2020 Census included new privacy protection procedures that precluded the estimates program from accessing certain necessary pieces of information. In addition, delays in processing and releasing data required the incorporation of additional, readily available data sources. To address these issues, the PEP has adopted a blended base for recent population estimates, including the Vintage 2023 estimates. The following description of the blended base applies to the most recent vintage population estimates. The blended base draws information from multiple sources: the 2020 Census (Census Edited File and PL 94-171 Redistricting File), the 2020 Demographic Analysis (DA) Estimates, and the Vintage 2020 Population Estimates. The 2020 Census Edited File was infused with differentially private noise at the subcounty level, then summed to county, state, and national population totals, and provides population totals for the blended base. Hispanic/non-Hispanic population totals from the 2020 Census PL 94-171 Redistricting File were also used. The age and sex distributions from the DA and the race distributions from the Vintage 2020 estimates for April 1, 2020 were applied to the national population total to produce national estimates. At the state and county levels, age, sex, and race distributions from the Vintage 2020 estimates were applied to the 2020 Census population by Hispanic origin.

Population estimates are produced for the population living in group quarters (GQ) separately from the total population. The GQ population is assumed to remain constant unless updated data are provided to the Census Bureau as part of the Group Quarters Report (GQR), which includes time series data supplied by the military, the Department of Veterans Affairs, and representatives from the Federal-State

Cooperative for Population Estimates. Changes in GQ population estimated through the GQR are applied to the estimates base.

For each county in the U.S., the Census Bureau subtracts the annual number of resident deaths from the annual number of resident births to derive annual growth due to **natural change**. Births are tabulated by residence of the mother, regardless of where the birth occurred. Similarly, deaths are tabulated by the most recent residence of the decedent, regardless where the death occurred. Data are from the National Center for Health Statistics (NCHS), derived from birth and death certificates, as well as from the Federal-State Cooperative for Population Estimates. Data on births and deaths are made available to the Census Bureau with a two-year delay. NCHS also provided provisional data on births (through March 2023) and deaths (through June 2023) at the state level. Data are distributed down to the county level using the last year of final data (2021) and reconciled with the FSCPE data on county-level vital events.

Net domestic migration represents the net exchange between one county and all other counties in the 50 states and the District of Columbia. This component is estimated for three age groups (0-17, 18-64, and 65 years of age and older).

For ages 0 to 64, the U.S. Census Bureau uses data on filers, spouses, and dependents from federal income tax returns supplied by the Internal Revenue Service (IRS). In-migrants to and out-migrants from counties, as well as non-migrants, are identified by comparing the addresses of income tax filers from one year to the next to determine residence at two points in time. For example, in-migrants to a given county in 2021 are defined as those with an address in the county in 2021, but outside the county in 2020; out-migrants as those with an address in the county in 2020, but outside the county in 2021; and non-migrants as individuals who filed tax returns in the same county at both points in time. Since not every U.S. resident files a tax return or is claimed as an exemption, these data cannot be used to directly estimate the number of county-to-county migrants. Instead, a net domestic migration rate is calculated by taking the difference between the number of in- and out-migrants (net migrants) and dividing it by the sum of the non-migrants and out-migrants, calculated separately for those age 0-17 and those age 18-64, and applied to the population within the applicable age range.

Since many retired persons do not file tax returns, to determine domestic migration for the population 65 years of age and older the U.S. Census Bureau compares addresses from one year to another in the individual Medicare enrollee records in much the same way as they use IRS data. The NUMIDENT and Demographic Characteristics File are used to allocate age, sex, race, and Hispanic origin.

Net international migration is the balance of migration flows to and from foreign countries and Puerto Rico. These flows are sub-divided into five sub-components: non-U.S.-born immigration, non-U.S.-born emigration, net migration between the U.S. and Puerto Rico, net migration of the U.S.-born population to and from the United States, and net movement of the Armed Forces population to and from the United States.

To account for Covid-19, non-U.S.-born immigration, non-U.S-born emigration, and U.S.-born net migration totals were adjusted at the national level based on trends in visa issuances, new student enrollments, refugee admissions, and humanitarian migration cases. Migration totals for July 1, 2019 to June 30, 2020 were set to 76% of 2019 levels, with about 2.6% of the annual total allocated to the quarter from April 1, 2020 to June 30, 2020. Totals for July 1, 2020 to June 30, 2021 were set to 40% of 2019 levels. The total for July 1, 2021 to June 30, 2022 non-U.S.-born immigration was set to 103% of 2019 levels and all other components of international migration were computed as normal. Estimation procedures for the five sub-components of net international migration are discussed below.

Net international migration sub-components are estimated at the national level, and then distributed down to states and counties using American Community Survey 1-year and 5-year data, except for estimating the movement of the Armed Forces population, which is estimated using a combination of data from the Defense Manpower Data Center and pooled American Community Survey 1-year data.

The Census Bureau relies on the ACS Residence-One-Year-Ago (ROYA) question to estimate non-U.S.-born immigration. Non-U.S.-born immigration is estimated separately for Mexico and All Other Countries. Net migration between the United States and Puerto Rico is also estimated using the ROYA question in the ACS and the Puerto Rico Community Survey, as well as Bureau of Transportation

Statistics Airline Passenger Traffic data. Emigration of the non-U.S.-born is estimated using the residual

method-by comparing change in the foreign-population that would be expected based on mortality and

recent immigration to change in the foreign-born population estimated using ACS 1-year files. The

difference between the expected non-U.S.-born population and the estimated change based on ACS data

serves as the basis for estimating emigration rates. Emigration rates are estimated separately for several

groups based on country or region of origin and number of years since entry into the United States.

Net emigration of the U.S.-born is estimated by the residual method on population register and census

data from approximately 100 countries, comparing U.S.-born or U.S. citizen populations at two points in

time after accounting for deaths. Country totals are aggregated to a global total, which is periodically

updated as additional data become available.

First posted: March 14, 2024

Updated: June 28, 2024

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