Pennsylvania Demographic Outlook

2022

Independent Fiscal Office

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INDEPENDENT FISCAL OFFICE

October 5, 2022

The Honorable Members of the Pennsylvania General Assembly:

Section 604-B (a)(2) of the Administrative Code of 1929 specifies that the Independent Fiscal Office (IFO) shall "provide an assessment of the state's current fiscal condition and a projection of what the fiscal condition will be during the next five years. The assessment shall take into account the state of the economy, demographics, revenues and expenditures." In fulfillment of the demographics obligation, the IFO submits this report to the residents of the Commonwealth and members of the General Assembly. In accordance with the mission of the office, this report does not make any policy recommendations.

Demographic projections presented in this report are from the IFO based on data from the 2020 and 2021 Population Estimates by the U.S. Census Bureau. Various other Census products, data from the U.S. Centers for Disease Control and Prevention and data from the Pennsylvania Department of Health were also used. Other data sources are noted in the relevant sections of this report.

Questions and comments can be submitted to contact@ifo.state.pa.us.

Sincerely,

Dr. Matthew J. Knittel
Director

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Introduction and Methodology

Section 604-B (a)(2) of the Administrative Code of 1929 specifies that the Independent Fiscal Office (IFO) shall "provide an assessment of the state's current fiscal condition and a projection of what the fiscal condition will be during the next five years. The assessment shall take into account the state of the economy, demographics, revenues and expenditures." This report fulfills the demographics obligation for the IFO's release of the *Economic and Budget Outlook for Fiscal Year 2022-23 to 2027-28*.

Demographics are a critical factor that motivate long-term economic, revenue and expenditure trends. Demographics determine key populations, such as the potential labor force that affects economic growth, elementary and secondary students who require educational services and elderly residents who may require long-term care. All population projections contained in this report are made by the IFO based on data from the U.S. Census Bureau, U.S. Centers for Disease Control and Prevention (CDC) and Pennsylvania Department of Health (DOH). Other data sources are noted in the table footnotes.

Methodology

The IFO demographics forecast uses a cohort-component model in which birth, death and migration rates are projected separately for males and females. Projections are made by single-year ages using data from the U.S. CDC and the U.S. Census Bureau. The base year is 2021 and the forecast is constructed using age group data from the U.S. Census Vintage 2021 Population Estimates.[1] From the base year, the IFO projects birth, death and net migration rates for Pennsylvania residents. The impacts from the COVID-19 pandemic are detailed in the births, deaths and migration sub-sections that follow.

Births

For 2021, births are based on CDC preliminary data. For 2022, births are informed by preliminary data from DOH and the CDC for trends following the peak of COVID-19. The number of births in the United States rose 1% from 2020 to 2021, following a decline of 4% from 2019 to 2020.[2] Provisional birth data for the first quarter of 2022 suggest a continuation of the 2020 to 2021 trend. The projections for births for 2023 and beyond are based on historical birth rates by age group and disregard the years impacted by COVID-19. The projections apply average birth rates to seven groups of females: age 13 to 18, age 19 to 22, age 23 to 29, age 30 to 34, age 35 to 39, age 40 to 44 and age 45 and over. The birth rate forecast assumptions are as follows:

- Age groups 34 years or younger decline slightly and gradually flatten out in the long term.

- Age group 35 to 39 increases slightly over several years, but levels out in the long term.

- Age group 40 and older are assumed to increase in the next few years based on recent historic trends but moderate over the forecast window.

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[1] The U.S. Census population estimates for states only provide single-year age allocations to age 84. However, the U.S. estimates provide single-year allocations to age 99. Therefore, estimates of the Pennsylvania distribution of age 85+ residents were approximated using the U.S. distribution from age 85 to 100+.
[2] Martin, Joyce et al., "National Vital Statistics Reports," U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, Number 442, August 2022.

All birth rate trends across various age groups are consistent with the longer-term trend of females having children in later life stages.

Deaths

For 2021, total estimated deaths are from the CDC and apportioned out by age group. The number of deaths was unusually high in 2020 and 2021 due to the COVID-19 pandemic, and the IFO estimates that the pandemic caused 19,800 excess deaths in 2020 and 18,900 in 2021.[3] The data show that roughly 75% of excess deaths due to COVID-19 impacted individuals age 65 and older. Currently, it is unclear if those who contracted the virus and recovered will suffer any long-term complications or health impacts, and the death rate forecast does not include any longer-term impact from COVID-19.

Based on state provisional death counts for the beginning of 2022, the full-year death rate is projected to be similar to 2021. The U.S. Social Security Administration projects that elevated mortality rates will revert to pre-pandemic levels in 2023.[4] For 2023 to 2030, death rates are based on the most recent three-year pre-pandemic average (2017 to 2019) across various age groups. Projected death rates are then applied to the forecasted population.

Migration

For 2020 and 2021, the U.S. Census Bureau estimates that the COVID-19 pandemic significantly disrupted international migration flows both to and from the United States, resulting in some of lowest levels of international migration in decades.[5] Since then, many COVID-19 restrictions have been lifted and migrant flows have started to recover. For 2022, total net migration (domestic and international) by individual age is calculated using the four-year average migration rate prior to COVID-19.[6] Total model net migration is then distributed proportionally between males and females using historical averages. For future years, the forecast applies a (pre-pandemic) long-term migration rate to population projections to determine net migration.

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[3] Independent Fiscal Office, "COVID-19 Impact on Pennsylvania Deaths," February 2022.

[4] Social Security and Medicare Boards of Trustees, "Status of the Social Security and Medicare Programs, A Summary of the 2022 Annual Reports," Social Security Administration, August 2022.

[5] Schachter, Jason et al., "New Population Estimates Show COVID-19 Pandemic Significantly Disrupted Migration Across Borders," United States Census Bureau, December 2021.

[6] Historical 2010 through 2019 data are based on U.S. Census population estimates, vintage 2020, which do not incorporate the 2020 Decennial Census. As a result, there was an unusual pattern from 2019 to 2020. The analysis smooths the population trends from 2010 through 2019 and recreated historical migration trends by using actual birth and death data from the U.S. CDC with residual growth of residents from migration.

Demographic Trends by Age Group

Table 2.1 presents data and average annual growth rates for various age cohorts for three time periods: historical (2010 to 2020); near term (2020 to 2025) and long term (2025 to 2030). In the near term, birth, death and migration rates are likely to revert to pre-pandemic trends. However, it is possible that long-term birth, death or migration rates could change substantially due to changing economic conditions, immigration policies, domestic migration incentives and health care.

Table 2.1 reveals the following trends for the three time periods:

- The total population grew 0.2% per annum from 2010 to 2020 and is projected to remain flat in the near term and decrease slightly in the long term (-0.1% per annum).

- The school age cohort (age 0 to 19) declined 0.4% per annum from 2010 to 2020 and is projected to decline 0.9% per annum in the near and long term.

- The working-age cohort (age 20 to 64) remained flat from 2010 to 2020 and is projected to contract by 0.6% per annum in the near term and 0.5% per annum in the long term. In 2025, this group includes mostly Generation X (born 1965 to 1980) and Millennials (born 1981 to 1997) and a portion of Generation Z (born 1998 to 2015). If labor force participation rates (LFPRs) do not increase, then this trend will constrain economic and revenue growth in the future. See the section titled Labor Force Trends and Projections for a more detailed review of LFPRs.

- The retiree cohort (age 65 to 79) increased 3.2% per annum from 2010 to 2020 and is projected to expand 2.8% per annum in the near term and 0.9% per annum in the long term. In 2025, this group includes most of the Baby Boom Generation (born 1946 to 1964). The increase in this age cohort and the next age cohort implies strong demand for health care and long-term care services moving forward.

- The elderly cohort (age 80+) decreased 0.7% per annum from 2010 to 2020 and is projected to expand by 1.6% per annum in the near term and 4.0% per annum in the long term. In 2025, this group mostly includes the Silent Generation (born 1926 to 1945) and a small number of individuals from the Greatest Generation (born 1905 to 1925).

The subsections that follow provide further discussion of demographic trends in the near and long term. Single-year demographic detail through 2030 can be found in the Appendix.

Table 2.1
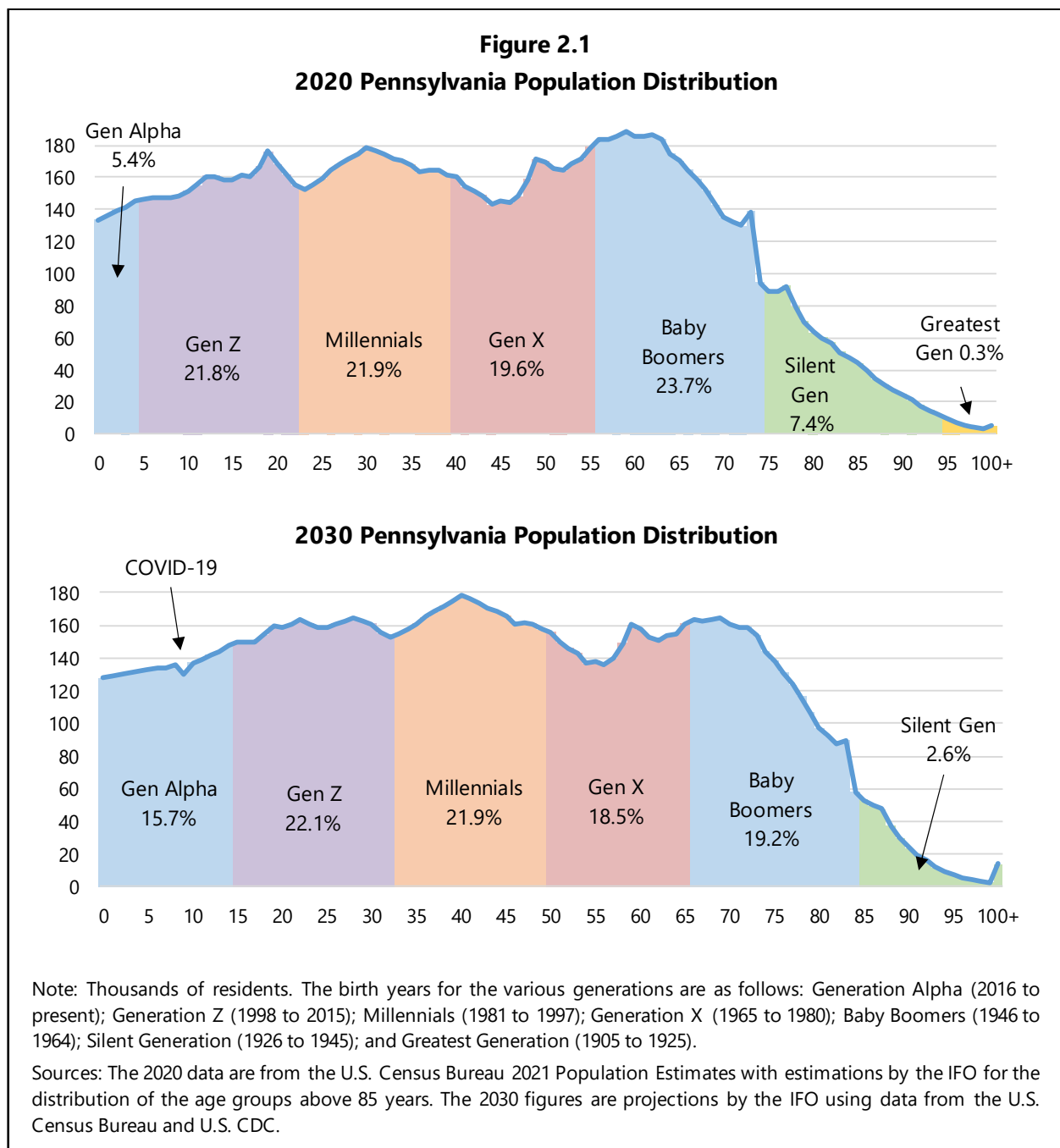**Pennsylvania Demographic Trends and Projections**

Age Cohort	Number of Residents (000s)				Avg. Annual Growth		
	2010	2020	2025	2030	2010-20	2020-25	2025-30
0-4	729	696	659	650	-0.5%	-1.1%	-0.3%
5-9	752	737	705	667	-0.2	-0.9	-1.1
10-14	790	788	743	710	0.0	-1.2	-0.9
15-19	901	823	809	764	-0.9	-0.4	-1.1
20-24	875	794	818	803	-1.0	0.6	-0.4
25-29	783	838	780	810	0.7	-1.4	0.8
30-34	732	873	844	782	1.8	-0.7	-1.5
35-39	756	822	872	842	0.8	1.2	-0.7
40-44	848	757	818	867	-1.1	1.5	1.2
45-49	951	767	748	807	-2.1	-0.5	1.5
50-54	985	840	749	731	-1.6	-2.3	-0.5
55-59	885	920	810	724	0.4	-2.5	-2.2
60-64	752	917	873	770	2.0	-1.0	-2.5
65-69	555	789	853	816	3.6	1.6	-0.9
70-74	428	630	714	777	3.9	2.5	1.7
75-79	360	419	540	616	1.5	5.2	2.7
80-84	311	278	327	425	-1.1	3.3	5.4
85-89	202	176	184	218	-1.4	0.9	3.4
90-94	82	90	77	81	0.9	-3.0	1.1
95-99	21	29	27	23	3.3	-1.2	-3.1
100+	3	5	10	14	5.1	14.9	6.6
Total	**12,701**	**12,990**	**12,960**	**12,897**	**0.2**	**0.0**	**-0.1**
Age Cohort Summary							
0-19	3,173	3,044	2,916	2,790	-0.4%	-0.9%	-0.9%
20-64	7,566	7,528	7,311	7,136	0.0	-0.6	-0.5
65-79	1,343	1,839	2,108	2,208	3.2	2.8	0.9
80+	620	578	626	762	-0.7	1.6	4.0
Total	**12,701**	**12,990**	**12,960**	**12,897**	**0.2**	**0.0**	**-0.1**

Note: Detail may not sum to total due to rounding.

Sources: The 2010 data are from the U.S. Census Bureau 2020 Population Estimates with estimations by the IFO for the distribution of the age groups above 85 years. The 2020 data are from the U.S. Census Bureau 2021 Population Estimates with estimations by the IFO for the distribution of the age groups above 85 years. 2025 and 2030 are projections by the IFO using data from the U.S. Census Bureau and U.S. CDC.

Pennsylvania Population Distribution

Figure 2.1 displays the Pennsylvania projected population distribution for 2020 and 2030 by generation. The 2020 distribution is shaped by the three largest generations: Baby Boomers (age 56 to 74, 23.7% of total population), Millennials (age 23 to 39, 21.9%) and Generation Z (age 5 to 22, 21.8%). By 2030, Millennials (21.9%) and Generation Z (22.1%) become the largest two generations, while the Baby Boomer share of total state population declines to 19.2%.

Figure 2.1

2020 Pennsylvania Population Distribution

2030 Pennsylvania Population Distribution

Note: Thousands of residents. The birth years for the various generations are as follows: Generation Alpha (2016 to present); Generation Z (1998 to 2015); Millennials (1981 to 1997); Generation X (1965 to 1980); Baby Boomers (1946 to 1964); Silent Generation (1926 to 1945); and Greatest Generation (1905 to 1925).

Sources: The 2020 data are from the U.S. Census Bureau 2021 Population Estimates with estimations by the IFO for the distribution of the age groups above 85 years. The 2030 figures are projections by the IFO using data from the U.S. Census Bureau and U.S. CDC.

Dependency Ratios

Working-age residents remit the majority of state tax revenues that support dependents who attend school and elderly residents who require dedicated healthcare services. Demographers use two metrics known as dependency ratios to illustrate the relationships between these three groups. The two ratios are the working-age (age 20-64) to youth (age <20) and working-age to retiree (65+) populations. From 2010 to 2030, the working-age to youth ratio is projected to remain stable at roughly 2.4 to 2.6 for Pennsylvania and 2.2 to 2.4 for the U.S. For Pennsylvania, this implies that there are roughly 2.4 to 2.6 working-age adults per youth.

Unlike the working-age to youth ratio, the working-age to retiree ratio is trending downward for both Pennsylvania and the U.S. **Figure 2.2** displays this ratio for Pennsylvania (blue) and the U.S. (purple) for 2010, 2015, 2020, 2025 (projected) and 2030 (projected). In 2010, there were 3.9 working-age residents per retiree in Pennsylvania and 4.6 for the U.S. Both ratios declined substantially by 2020 (3.2 for Pennsylvania, 3.5 for the U.S.) and continue to decline through 2030 (2.4 for Pennsylvania, 2.7 for the U.S.). The downward trend directly corresponds to the retirement of Baby Boomers and the resulting contraction of the working-age population.

Figure 2.2
Pennsylvania and U.S. Working-Age (20-64) to Retiree (65+) Ratios

Sources: Pennsylvania data for 2010, 2015 and 2020 are from U.S. Census Bureau various Population Estimates with adjustments by the IFO for 2015. Data for 2025 and 2030 are projections by the IFO. U.S. data are from the U.S. Census Bureau. International Database (last accessed on August 16, 2022).
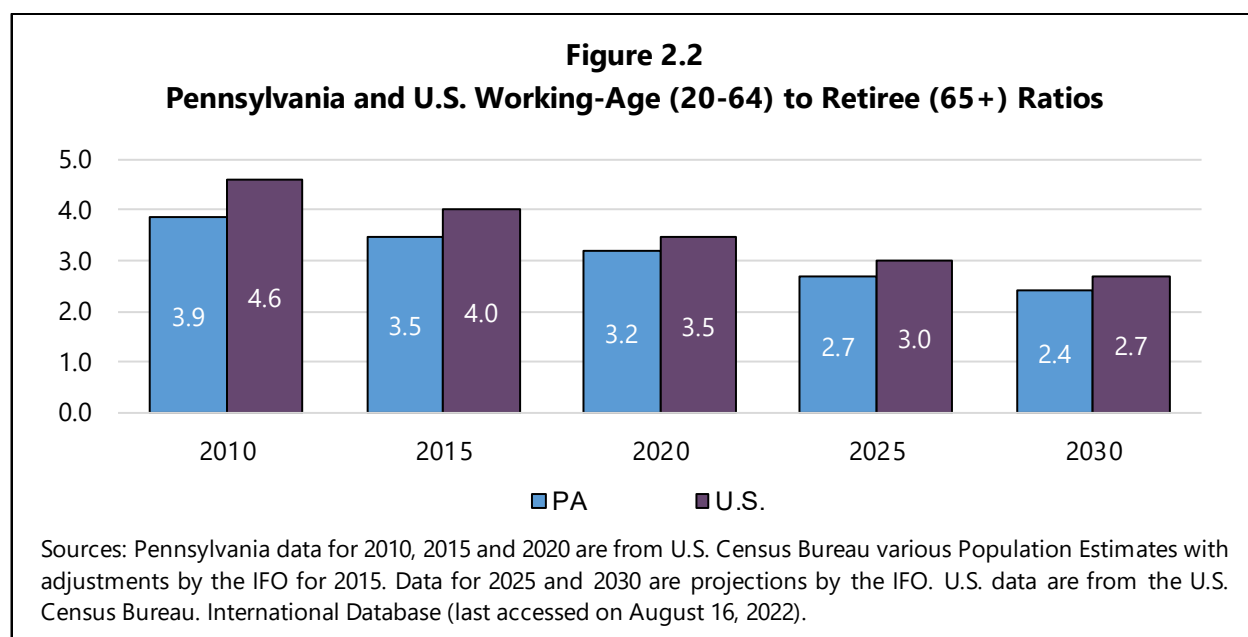
Figure 2.2 illustrates the challenges that policymakers will encounter during the next decade. Over time, there will be relatively fewer working-age residents to support the needs of rapidly expanding retiree and elderly populations. Stated differently, the burden of support will fall on a smaller group of taxpayers. The actual contraction of the working-age cohort, which remits the great majority of state taxes, suggests that real per capita tax levels for that age group must increase to keep pace with the anticipated increase in demand for healthcare and other services.

Components of Population Change

Table 3.1 decomposes the change in state population from 2010 to 2030 to illustrate the factors that motivate low population growth rates. Two factors drive the trends during the 20-year time period:

- The forecast projects that the number of births will decline while the number of deaths increases. In the previous decade (2010 to 2020), births outnumbered deaths by 93,000 or 9,300 per annum. For 2020 to 2025, deaths are projected to outnumber births by 62,000 (12,400 per annum).

- In the previous decade, net migration was 195,000 (19,500 per annum). For 2020 to 2030, the projections assume a reduction to an average net inflow of 7,700 per annum. Net migration is lower moving forward because the forecast is based on migration patterns from 2016 to 2019, which were notably lower than 2010 to 2015.

Table 3.1
Components of Pennsylvania Population Change

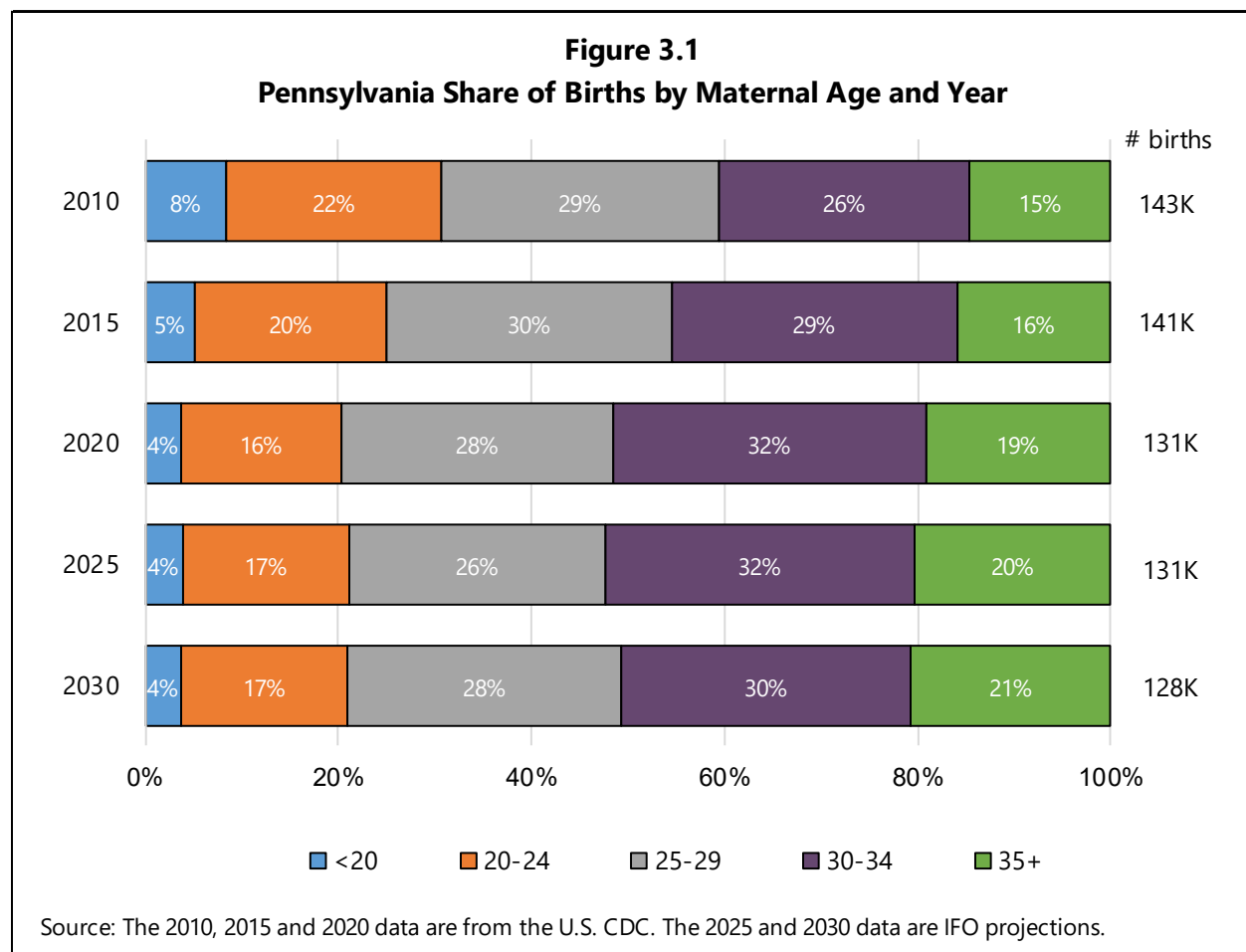| | By Time Period | | |
	2010-20	2020-25	2025-30
Start of Period	12,701	12,990	12,960
Natural Increase	93	-62	-108
Births	1,400	660	645
Deaths	-1,307	-722	-753
Net Migration	195	33	44
Age 0 to 17	121	30	33
Age 18 to 24	11	-7	-2
Age 25 to 64	83	25	18
Age 65 to 79	-12	-7	-4
Age 80+	-8	-8	-1
End of Period	12,990	12,960	12,897
Total Population Gain	288	-29	-63

Note: Thousands of residents.

Sources: The 2010 through 2019 data are from the U.S. Census Bureau 2020 Population Projections and U.S. CDC with adjustments by the IFO. 2020 through 2021 data are from the U.S. Census Bureau 2021 Population Projections. 2022 through 2030 data are projections by the IFO using data from the U.S. Census Bureau and U.S. CDC. Calculations by the IFO.

Birth Trends

Figure 3.1 illustrates the gradual decline in the annual number of births from 2010 (143,000) through 2030 (128,000). The decline in births is due to a contraction in younger females of child-bearing age and declining fertility rates among those females. The decline in fertility rates is not unique to Pennsylvania. The U.S. CDC reports that birth rates for females age 15 to 24 declined from 2020 to 2021 but rose for females age 25 to 44.[7] Reasons for this trend include couples waiting longer to get married and have children, financial concerns among younger adults on whether they can afford to have children, more females wanting to establish a career before having children and more effective birth control methods to prevent unwanted pregnancies.[8]

Figure 3.1 separates births based on maternal age group at birth. The gradual increase in births for women age 30 or older (purple and green) and the decline in births for women under age 30 (blue, orange and dark gray) assume current trends continue into the future. The projections also assume that the number of 2022 births will be similar to births in 2021.

Figure 3.1
Pennsylvania Share of Births by Maternal Age and Year

Year	<20	20-24	25-29	30-34	35+	# births
2010	8%	22%	29%	26%	15%	143K
2015	5%	20%	30%	29%	16%	141K
2020	4%	16%	28%	32%	19%	131K
2025	4%	17%	26%	32%	20%	131K
2030	4%	17%	28%	30%	21%	128K

Source: The 2010, 2015 and 2020 data are from the U.S. CDC. The 2025 and 2030 data are IFO projections.

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[7] Martin, Joyce et al., "National Vital Statistics Reports," U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, Number 442, August 2022.
[8] "Here's Why the Birth Rate Is So Low in the United States," Healthline Parenthood, January 2019.

Table 3.2 displays the share of females by age group giving birth for the same five-year increments as Figure 3.1. For example, in 2010, 10.5% of all Pennsylvania females age 25 to 29 gave birth to a child. The share of females under age 30 who give birth is projected to decrease, while the share of females age 30 and older who give birth is projected to increase. As a result, the average maternal age at birth is projected to increase from age 27.9 (2010) to age 29.5 (2030).
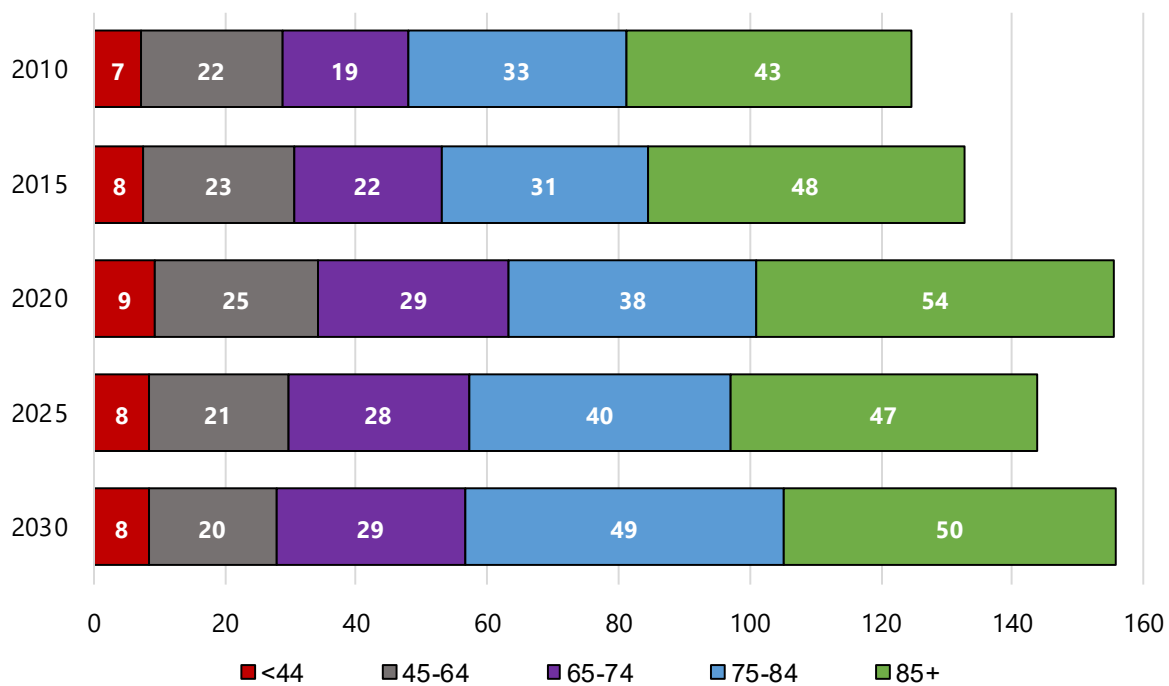
| | | **Table 3.2** | | | |
| | **Share of Females Giving Birth by Age Group and Year** | | | | |
	2010	**2015**	**2020**	**2025**	**2030**
Age 13-19	2.0%	1.3%	0.9%	0.9%	0.9%
Age 20-24	7.4	6.5	5.5	5.6	5.6
Age 25-29	10.5	9.8	9.0	9.0	9.0
Age 30-34	10.2	10.5	9.8	10.2	9.9
Age 35-50	1.5	1.8	2.0	2.1	2.0
Total[1]	**4.5**	**4.6**	**4.3**	**4.3**	**4.2**
Average Maternal Age	**27.9**	**28.7**	**29.5**	**29.6**	**29.5**

1 The total is the share of females age 13 to 50 giving birth in a given year.

Source: The 2010, 2015 and 2020 data are from the U.S. CDC. The 2025 and 2030 data are IFO projections.

Decedent Trends

Figure 3.2 (next page) illustrates the gradual increase in the number of decedents from 2010 (124,600) through 2030 (155,700) in Pennsylvania with a spike in 2020 due to the COVID-19 pandemic. The figure separates decedents by age group. The total number of decedents in the 75 and older age groups is projected to increase from 2020 to 2030 due to the aging of the Baby Boomer cohort.

Table 3.3 (next page) displays each age group's decedent rate for the same five-year increments as Figure 3.2. For example, in 2010, 5.0% of all state residents age 75 to 84 passed away. While the overall decedent rate is projected to increase slightly over time, that outcome is mostly due to the general aging of the population. Table 3.3 shows a significant reduction in the share of decedents for residents age 85 and older. The reduction is partially due to the large influx of Baby Boomers during the forecast period that reduces the median age and decedent rates for that age group.

Figure 3.2
Pennsylvania Number of Deaths (000s) by Age and Year

Source: The 2010, 2015 and 2020 data are from the U.S. CDC. The 2025 and 2030 data are IFO projections.

Table 3.3
Deaths as a Share of Population by Age Group and Year

	2010	2015	2020	2025	2030
Age 0-44	0.1%	0.1%	0.1%	0.1%	0.1%
Age 45-64	0.6	0.6	0.7	0.7	0.6
Age 65-74	2.0	1.9	2.0	1.8	1.8
Age 75-84	5.0	4.8	5.4	4.6	4.7
Age 85+	14.1	14.1	18.2	15.6	15.0
Total	**1.0**	**1.0**	**1.2**	**1.1**	**1.2**

Sources: The 2010, 2015 and 2020 data are from the U.S. CDC with calculations by the IFO. The 2025 and 2030 data are projections by the IFO.

Recent Domestic Migration Trends

Table 3.4 (next page) displays the U.S. Census Bureau's estimate of net domestic migration by state over the last two years. The 2020 data are net migration estimates from July 1, 2019 to June 30, 2020 and the 2021 data are from July 1, 2020 to June 30, 2021. The total net domestic migration for Pennsylvania over

the last two years was an out-flow of roughly 8,500 residents, which ranks the Commonwealth 39th across all states. The shaded states are border states and show that Pennsylvania recorded more net out-migration than Delaware, West Virginia and Ohio but less than Maryland, New Jersey and New York.

Nationwide, the data show continued migration to southern states, likely the result of individuals moving to states with warmer climates. Prior to COVID-19 pandemic, the general domestic migration trends throughout the country showed movement from northern states to southern and western states.[9]

Table 3.4
Recent Net Domestic Migration by State (000s)

	State	2020	2021	Total		State	2020	2021	Total
1	Florida	43.1	220.9	**264.0**	26	Wisconsin	-0.8	3.3	**2.5**
2	Texas	41.0	170.3	**211.3**	27	Wyoming	0.3	1.3	**1.5**
3	Arizona	26.6	93.0	**119.7**	28	West Virginia	-1.2	2.3	**1.1**
4	North Carolina	18.2	88.7	**106.9**	29	Rhode Island	-0.6	0.9	**0.3**
5	South Carolina	14.0	64.8	**78.8**	30	Connecticut	-4.9	5.1	**0.2**
6	Tennessee	12.1	61.4	**73.5**	31	Iowa	-2.0	0.8	**-1.2**
7	Georgia	9.3	50.6	**60.0**	32	New Mexico	0.3	-2.2	**-1.9**
8	Idaho	7.6	48.9	**56.4**	33	Nebraska	-1.1	-3.3	**-4.4**
9	Utah	3.9	32.2	**36.1**	34	Alaska	-2.0	-3.9	**-5.9**
10	Nevada	9.0	25.3	**34.3**	35	North Dakota	-0.7	-6.5	**-7.1**
11	Oklahoma	2.9	24.7	**27.6**	36	Mississippi	-2.9	-4.2	**-7.1**
12	Alabama	3.3	22.1	**25.5**	37	Ohio	-4.5	-3.1	**-7.6**
13	Montana	2.2	19.2	**21.5**	38	Kansas	-2.5	-5.2	**-7.8**
14	Colorado	7.0	13.1	**20.0**	**39**	**Pennsylvania**	**-5.3**	**-3.2**	**-8.5**
15	Arkansas	1.6	16.0	**17.6**	40	Virginia	-2.3	-9.0	**-11.3**
16	Maine	1.5	15.5	**17.0**	41	Michigan	-6.8	-7.9	**-14.7**
17	Missouri	0.7	14.9	**15.5**	42	Minnesota	-2.5	-13.5	**-15.9**
18	New Hampshire	1.1	13.6	**14.7**	43	Hawaii	-3.6	-12.6	**-16.2**
19	Indiana	0.3	14.3	**14.6**	44	Maryland	-6.8	-19.9	**-26.7**
20	Delaware	2.2	12.2	**14.4**	45	Louisiana	-6.5	-30.3	**-36.9**
21	Oregon	5.2	8.1	**13.3**	46	New Jersey	-12.2	-27.8	**-40.0**
22	Kentucky	0.3	10.0	**10.3**	47	Massachusetts	-8.2	-46.2	**-54.3**
23	Washington	9.4	0.0	**9.4**	48	Illinois	-29.1	-122.5	**-151.5**
24	South Dakota	0.0	5.6	**5.6**	49	New York	-54.1	-352.2	**-406.3**
25	Vermont	-0.1	4.6	**4.5**	50	California	-62.1	-367.3	**-429.4**

Note: Rank based on total net domestic migration for 2020 and 2021.

Source: U.S. Census Bureau.

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[9] Historical migration data are not shown here because Census data for 2010 to 2019 are based on 2010 Decennial Census figures while data from 2020 to 2021 on are based on 2020 Decennial Census figures. As a result, the migration rates are not directly comparable. However, historical net domestic migration trends are reported in last year's *Pennsylvania Demographic Outlook* (November 2021).

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Labor Force Trends and Projections

The labor force participation rate (LFPR) is published by BLS and represents the share of residents age 16 or older that are working or actively seeking employment. If the LFPR declines, then it suggests that less labor resources are available, which generally has negative implications for economic growth. Changes in the overall size of the working-age population and other demographic and economic factors will impact the LFPR. For example, as individuals reach retirement age and leave the labor force, the LFPR will decline unless that individual is replaced by a new entrant to the labor force.

Table 4.1 displays LFPRs by available age cohort data from 2018 to 2022. The figures for 2022 are estimates based on monthly data through August 2022. Prior to the COVID-19 pandemic, the overall state LFPR was 63.2%, nearly identical to the U.S. rate (63.1%). Although the 16-and-older rate is commonly cited, Table 4.1 also includes an adjusted rate to isolate trends for the primary working-age population. For that rate, Pennsylvania is consistently higher than the U.S. average.[10]

Starting in 2020, LFPRs declined dramatically, with the contraction largely in the younger workforce for the U.S. (age 20 to 34) and older workers for Pennsylvania (age 65 to 74). Preliminary data for 2022

Table 4.1
LFPR by Age Group for PA and U.S. (2018 - 2022)

Age Group	2018	2019	2020	2021	2022
Pennsylvania					
16-19	42.5%	41.5%	41.4%	45.1%	--
20-24	71.8	75.9	76.1	74.8	--
25-34	83.9	85.4	84.6	83.9	--
35-44	84.7	85.2	85.1	83.2	--
45-54	83.4	80.6	80.2	80.7	--
55-64	66.3	67.5	66.7	66.1	--
65-74	27.2	29.6	26.8	25.1	--
75+	8.8	9.6	9.0	8.4	--
Total (16+)	**62.6**	**63.2**	**62.1**	**61.3**	**61.5**
Adjusted (16-74)	*68.2*	*68.8*	*67.8*	*67.0*	*--*
United States					
16-19	35.1%	35.3%	34.5%	36.2%	36.7%
20-24	71.1	72.2	69.3	70.8	70.8
25-34	82.5	82.9	81.4	81.9	83.5
35-44	82.9	83.1	82.2	82.0	83.2
45-54	80.8	81.4	80.6	80.7	81.1
55-64	65.0	65.3	64.7	64.6	65.2
65-74	27.0	27.8	26.6	25.8	26.5
75+	8.7	9.1	8.9	8.6	8.2
Total (16+)	**62.8**	**63.1**	**61.7**	**61.6**	**62.3**
Adjusted (16-74)	*67.6*	*68.0*	*66.7*	*66.7*	*67.4*

Source: U.S. Bureau of Labor Statistics. Local Area Unemployment Statistics. Pennsylvania 65-74 and 75+ data estimated by IFO. 2022 is estimated by IFO using BLS data through August 2022.

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[10] The adjusted rate excludes residents age 75 or older from the computation. National data show that the LFPR for those age 75 or older is 8%. Therefore, the adjusted rates shown in the table are slightly overstated by 0.1 to 0.2 percentage points but provide a more accurate depiction of trends that controls for the rapid aging of state and national populations. Moreover, it is likely that many individuals age 75 and older could not work even if desired due to physical or other limitations (e.g., transportation).

suggest that the Commonwealth's LFPR has remained steady since 2021, while the U.S. LFPR increased. However, both rates remain below pre-pandemic levels.
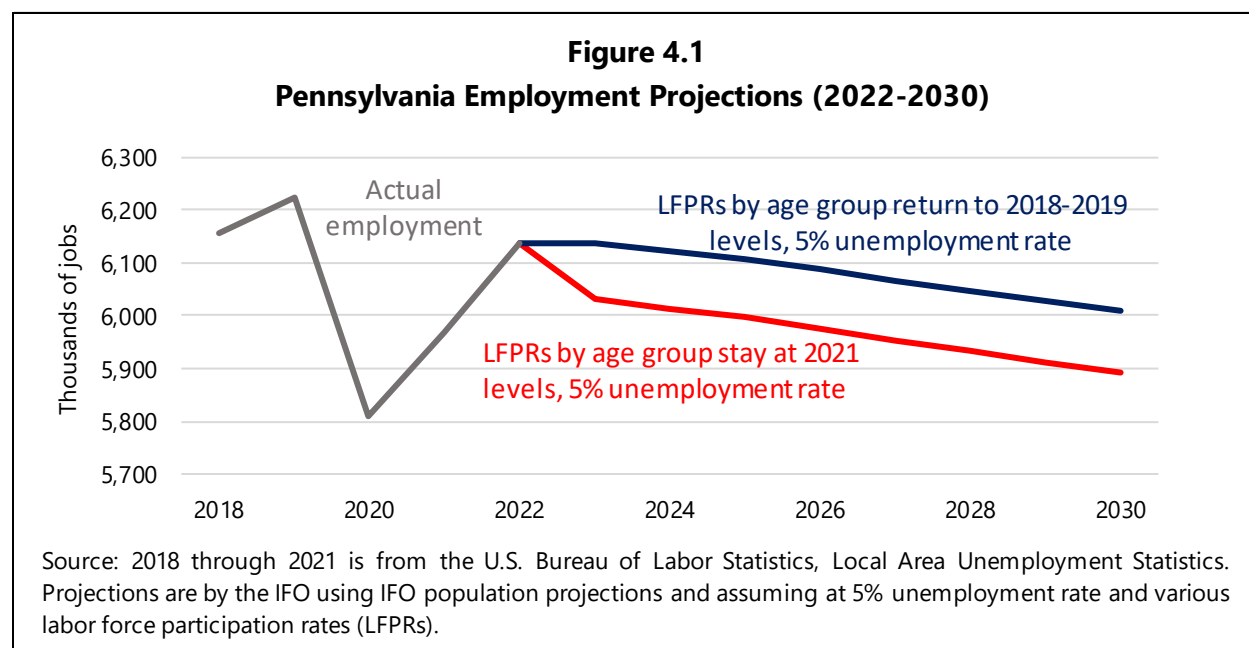
Figure 4.1 presents historical (2018 to 2021) and projected (2022 to 2030) employment levels for two scenarios. Assumptions are as follows:

- For 2022, the unemployment rate is 4.3% based on the latest monthly BLS data. The unemployment rate is assumed to be 5.0% from 2023 forward.

- **Scenario 1** (blue line) assumes that LFPRs for each age group return to levels just prior to the COVID-19 pandemic (average of 2018 and 2019 rates).

- **Scenario 2** (red line) assumes that LFPRs for each age group do not change from 2021 (most recent full year of historical data, which is largely reinforced by preliminary data through August 2022).

For Scenario 1, projected average annual employment declines gradually from 2022 to 2030 (-0.3% per annum on average). Employment for those over age 65 increases (2.9%), while employment for those under 65 decreases (-0.6%) at a slower rate. These relative employment growth rates are motivated by the growth of the various age groups and assume that LFPRs for each age group remain constant.

For Scenario 2, employment from 2022 to 2030 declines by 0.5% per annum on average. In this scenario, employment for the retiree and other older cohorts do not increase as strongly as they do in Scenario 1, resulting in a lower overall LFPR into the next decade.

These outcomes demonstrate how demographic factors influence statewide employment. Even if LFPRs revert to levels prior to the sharp decline in 2020, employment levels are considerably lower due to the fact that older residents have much lower LFPRs. For employment to increase, either (1) LFPRs need to increase notably and/or (2) a sizable influx of working age residents must occur.

Figure 4.1
Pennsylvania Employment Projections (2022-2030)

Source: 2018 through 2021 is from the U.S. Bureau of Labor Statistics, Local Area Unemployment Statistics. Projections are by the IFO using IFO population projections and assuming at 5% unemployment rate and various labor force participation rates (LFPRs).

Due to these demographic constraints, maintaining a certain level of employment in the Commonwealth will likely require a higher LFPR. **Figure 4.2** estimates the LFPRs necessary to reach a net gain of 50,000 jobs per year for two age categories: (1) individuals 16 years of age or older and (2) individuals age 16 to 74 years of age. (Note: Prior to the COVID-19 pandemic, the Pennsylvania economy produced an average of 50,000 payroll jobs per annum.) These projections assume the following:

- All workers age 75 and older are less than 80 years old.

- LFPRs for different age cohorts all change proportionately to the LFPR for the total population.

- The unemployment rate is 5.0%.

The forecast shows that the state LFPR for those age 16 to 74 will need to increase around 0.5 to 1.0 percentage points each year to sustain 50,000 jobs annually. The LFPR for those age 16 and older requires a lower annual increase at 0.5 percentage points each year. From 2018 to 2019, the age 16 to 74 LFPR grew 0.7% from the year prior. The age 16 and older LFPR increased 0.6% for the same period.

Figure 4.2
Estimated LFPR for Pennsylvania to Gain 50K Jobs per Year

Notes: Assumes IFO estimated population group by age group and unemployment rate of 5% in 2023 on. Assumes only nominal jobs held by individuals age 80+ and limited number in 75 to 79 age age group. 2018 - 2021 from BLS. 2022 estimates by IFO. Labor force data for age 65+ are estimated by IFO in all years.
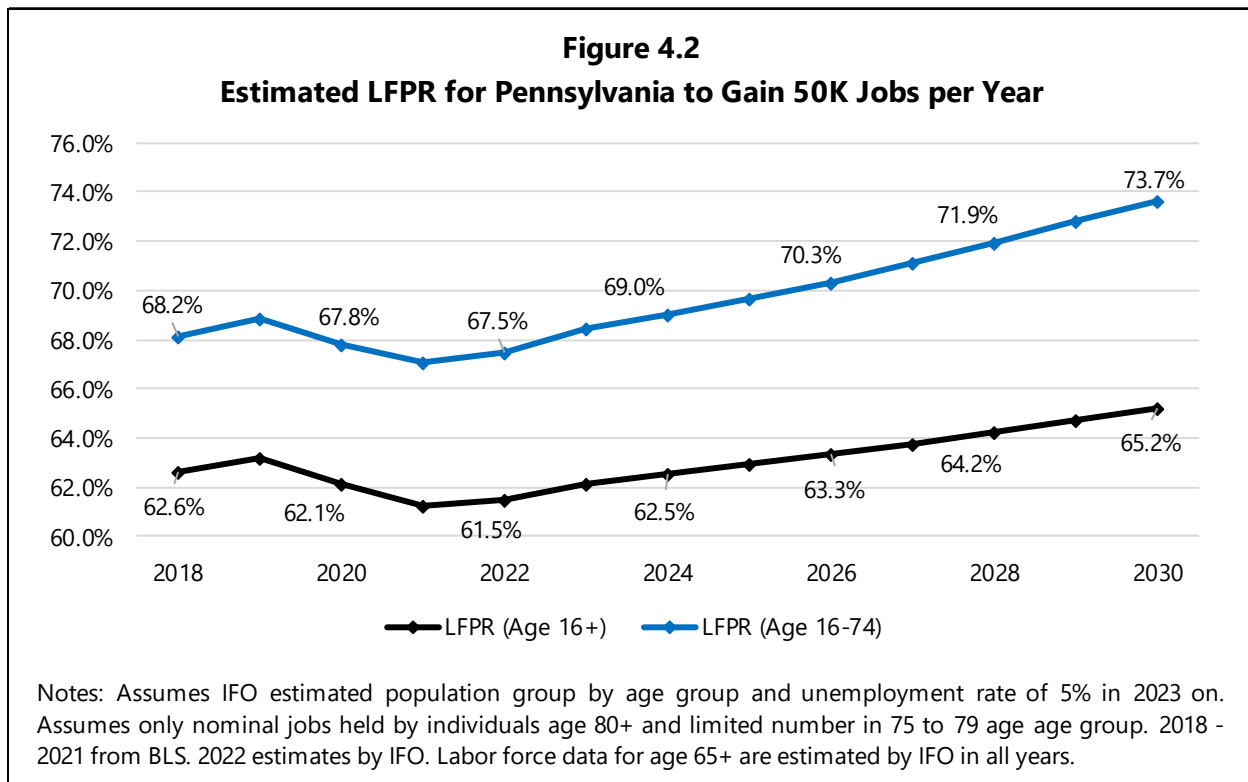
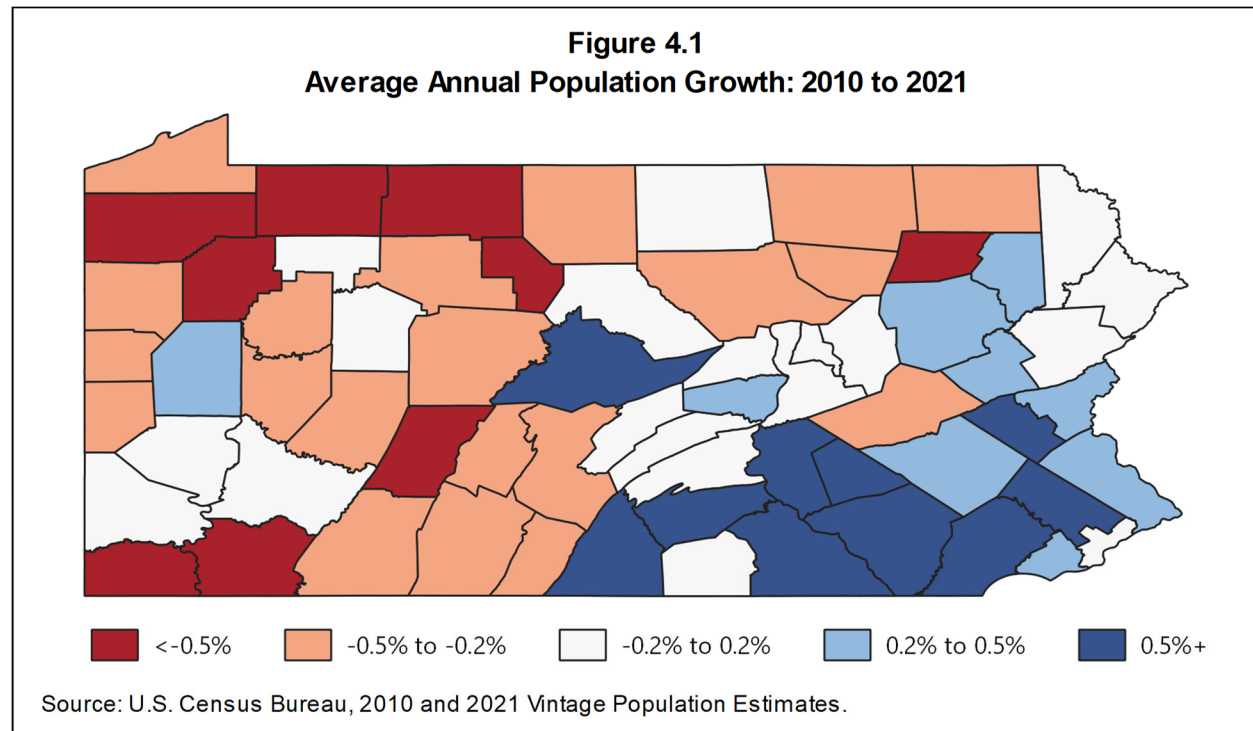- This page intentionally left blank. -

Regional and National Population Trends

The following series of maps display notable, longer-term demographic trends at the county and national levels. Although state-level data are useful in the analysis of demographic trends, geographic detail provides policymakers context for these data and may assist in the development of policy solutions appropriate to certain regions of the state.

Pennsylvania County Population Growth

Figure 4.1 presents the average annual population growth rates for all counties in Pennsylvania from the 2010 to 2021 Census population estimates.[11] The following trends were observed:

- The South Central (0.7% average growth per annum) region grew fastest, driven by Cumberland (1.1%), Dauphin (0.9%) and Lebanon (0.9%) counties. These counties were the top three in the state for average annual population growth over the period.

- The Northern region recorded the highest negative average annual growth (-0.4%) due primarily to Cameron County (-1.3%). Forest County (0.1%) was the only county in the region that expanded.

- After little to no growth from 2010 to 2020, the Northeast region recorded a modest gain (0.2%), with Luzerne (0.4%) and Lackawanna (0.3%) counties leading that trend.

**Figure 4.1
Average Annual Population Growth: 2010 to 2021**

Legend: <-0.5% | -0.5% to -0.2% | -0.2% to 0.2% | 0.2% to 0.5% | 0.5%+

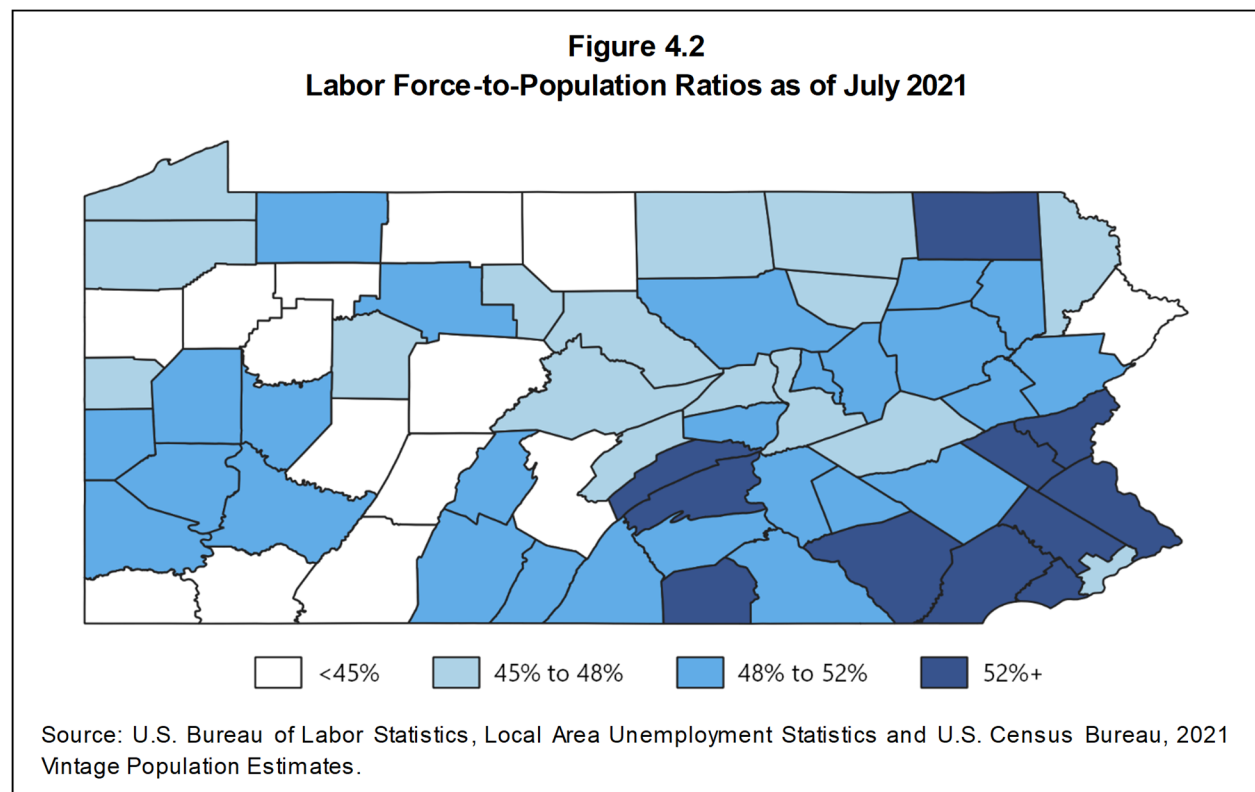Source: U.S. Census Bureau, 2010 and 2021 Vintage Population Estimates.

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[11] A reference map of all county names is included at the end of this section.

County Labor Force in 2021

For July 2021, approximately 6.5 million Pennsylvania residents were part of the labor force, equating to 50.2% of the state population. **Figure 4.2** presents labor force-to-population ratios for all counties. The following trends were observed:
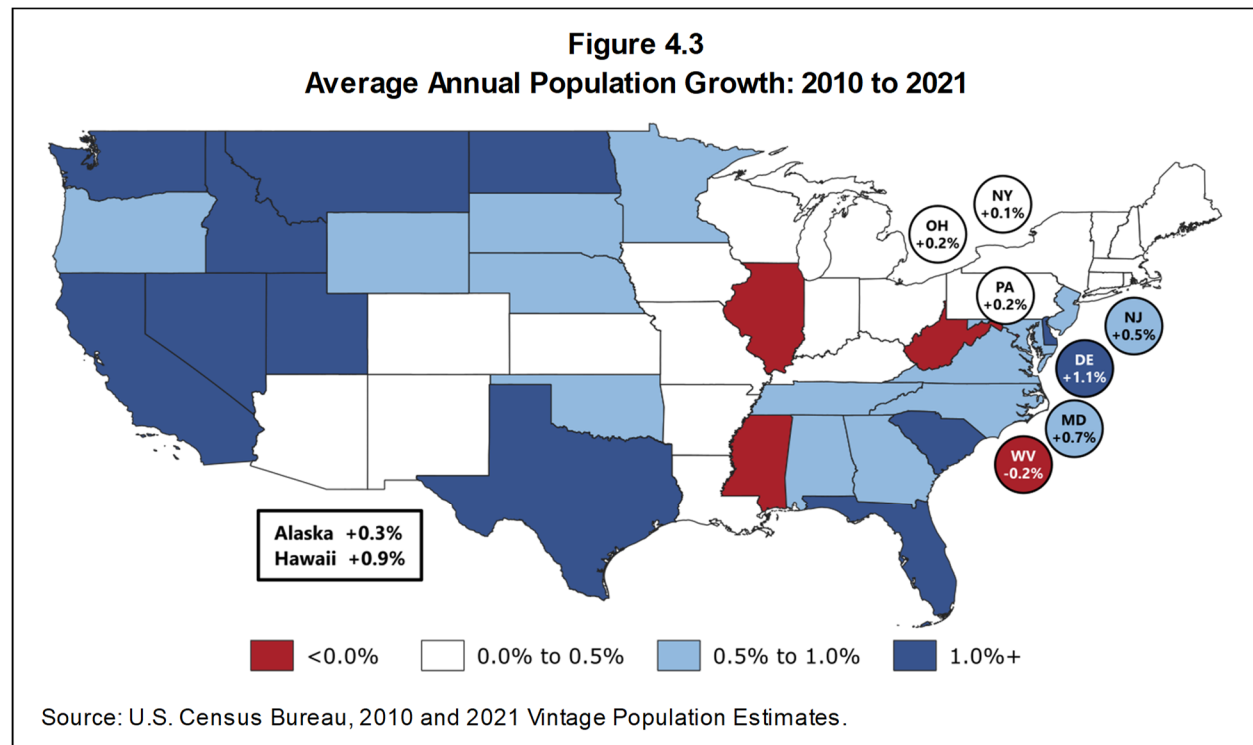
- Labor force-to-population ratios generally trended with the statewide population distribution. However, some rural counties (e.g., Juniata, Susquehanna, Perry) recorded ratios above 52%.

- The South Central region (51.8%) had the highest regional ratio due to above-average ratios for high-population counties like Lancaster (52.4%) and York (51.9%).

- Counties in the North recorded the lowest average regional ratio (46.7%). Susquehanna (53.0%) and Wyoming (51.2%) were the only two counties in that area to record ratios above 50%.

- Four counties (Juniata, Chester, Bucks and Montgomery) had ratios above 54%.

Figure 4.2
Labor Force-to-Population Ratios as of July 2021

Legend: <45% | 45% to 48% | 48% to 52% | 52%+

Source: U.S. Bureau of Labor Statistics, Local Area Unemployment Statistics and U.S. Census Bureau, 2021 Vintage Population Estimates.

Population Growth Across States

Figure 4.3 displays average annual population growth across all states based on 2010 and 2021 population estimates. The following points were observed:

- Pennsylvania (0.24%) was fourth among border states for the fastest average annual growth over the period, with Ohio (0.19%) at a slightly lower rate.

- Pennsylvania and its border states grew by 0.28% per annum from 2010 to 2021, slightly slower than the entire Northeast region (0.33%).

- Mississippi (-0.03%), Illinois (-0.19%) and West Virginia (-0.21%) were the only states to record negative average annual growth for the period.

- The Southwest (Arizona, New Mexico, Texas and Oklahoma) recorded the strongest average annual population increase over the period (1.20%) due almost entirely to Texas (1.45%).

- The Midwest (0.25%) grew the slowest on average due to slow or negative growth rates in its most populous states (Illinois, -0.19%; Michigan, 0.11%; and Ohio, 0.19%).[12]

Figure 4.3
Average Annual Population Growth: 2010 to 2021

Alaska +0.3%
Hawaii +0.9%

NY +0.1%
OH +0.2%
PA +0.2%
NJ +0.5%
DE +1.1%
MD +0.7%
WV -0.2%

<0.0%   0.0% to 0.5%   0.5% to 1.0%   1.0%+

Source: U.S. Census Bureau, 2010 and 2021 Vintage Population Estimates.

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[12] The Midwest includes Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota and Wisconsin.

County Reference Map

Appendix

Age	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
				Table A.1							
		Pennsylvania Population Projections 2020 to 2030									
0-4	696	681	674	667	663	659	662	659	656	653	650
5-9	737	735	731	725	716	705	689	681	674	670	667
10-14	788	778	766	753	746	743	740	736	731	721	710
15-19	823	820	819	819	815	809	800	788	775	768	764
20-24	794	793	803	814	820	818	815	812	812	808	803
25-29	838	823	806	790	780	780	786	796	806	811	810
30-34	873	879	879	873	861	844	825	808	792	782	782
35-39	822	831	838	847	861	872	877	877	871	860	842
40-44	757	775	790	802	811	818	826	833	843	856	867
45-49	767	736	724	725	734	748	765	780	792	800	807
50-54	840	835	821	801	776	749	719	708	709	718	731
55-59	920	895	870	845	823	810	806	793	774	750	724
60-64	917	917	909	897	887	873	850	827	804	783	770
65-69	789	805	823	839	849	853	856	849	838	829	816
70-74	630	660	659	674	693	714	732	749	764	773	777
75-79	419	425	468	489	514	540	569	569	581	598	616
80-84	278	282	292	309	320	327	334	369	386	405	425
85-89	176	175	177	180	182	184	187	195	207	214	218
90-94	90	85	83	80	78	77	78	78	80	80	81
95-99	29	28	29	29	28	27	26	25	24	24	23
100+	5	5	6	8	9	10	11	12	13	13	14
Total	**12,990**	**12,964**	**12,965**	**12,966**	**12,965**	**12,960**	**12,954**	**12,944**	**12,932**	**12,916**	**12,897**

Note: Thousands of residents.

Source: Data are projections by the IFO using data from the U.S. Census and U.S. CDC.