

Looking at Population and Demographic Change in Butler County, 2010-2020

A Report and Discussion Guide for County Leaders



PennState Extension

Penn State Center for Economic and Community Development



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ABOUT THIS REPORT

Purpose

Leaders, county staff, community stakeholders, and residents can utilize the information in this report as a tool to help understand the key population and demographic trends that have occurred in your county over the past ten years. Discussion questions are included to spark important conversations about demographic change and its implications, specifically as it relates to governance and policy or decision making around topics such as resource and service allocation, attracting and retaining workforce, and placemaking strategies to help improve the quality of life for all county residents. As you read through the report information, consider how you could adapt or respond to your county's population changes in the short-term, as well as how you might anticipate and plan for future demographic shifts. This publication is part of a statewide series. Reports are available for each county in the Commonwealth and can be downloaded at the Penn State Center for Economic and Community Development's website <https://aese.psu.edu/research/centers/cecd>.

Data

This report examines the most recent publicly available data about your county's population from the U.S. Census Bureau. Decennial census (full population count) data from 2010 and 2020 are used to look at changes for the total population as well as for the population by race and ethnicity; age and sex information has yet to be released for decennial 2020. Report data for demographic characteristics such as the components of population change, age, and sex are derived from the U.S. Census Bureau's Population Estimates Program, which serves as the official population estimates for non-decennial years. These "population estimates" are based on the 2010 decennial count and provide the most accurate and up-to-date information available from the U.S. Census Bureau for certain demographic characteristics at the time this report was published.

Each section of the report includes discussion questions to help contextualize population information and stimulate conversations about demographic change in your county.

The Decennial Census: What is it and why does it matter?

The United States Constitution requires that all residents of the country are officially counted every ten years. This foundational element of our democracy is known as the decennial census, which is necessary for “apportionment” to ensure a fair distribution of seats in the U. S. House of Representatives for states, based on the complete population count. Additionally, the U.S. Census Bureau’s decennial count serves to inform “redistricting” or any necessary revisions to established voting district boundaries within states when population changes do occur.¹

This officially collected population and demographic information is especially critical at the state, county, and local levels, because it helps to determine where (and how much) federal funding is allocated over the next ten-year period for a variety of vital programs and services for residents such as SNAP, Head Start, Medicare Part B, and Medicaid, as well as infrastructure support for highways and bridges.

We would really appreciate your feedback! Please scan the code below with a smartphone to share your thoughts about the report and help us to understand how the tool is being utilized by leaders and communities across the state.



¹ <https://www.census.gov/programs-surveys/decennial-census/about/census-constitution.html>

LOOKING AT: TOTAL POPULATION CHANGE

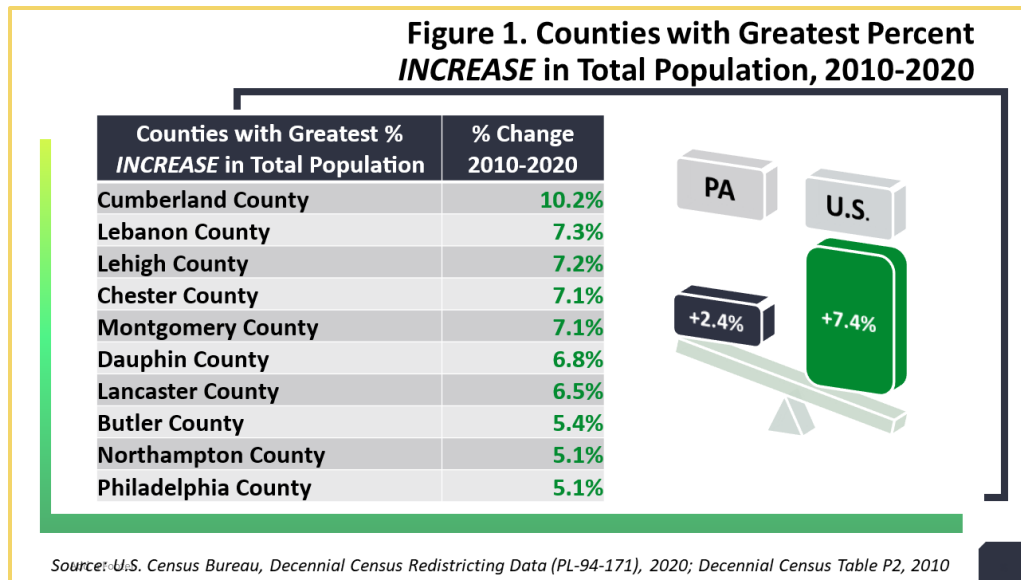
Total Population Change: 2010-2020

According to the 2020 decennial census results, the total population of Pennsylvania grew by about 2.4% since 2010. Yet, the same decade brought significantly varied rates of population growth and decline by county across the state. **Table 1** reports the total population count and percent change in residents of your county, as compared to Pennsylvania from 2010 to 2020.

	Butler County	Pennsylvania
Population -2010	183,862	12,702,379
Population -2020	193,763	13,002,700
Percent Change, 2010-2020	5.4%	2.4%

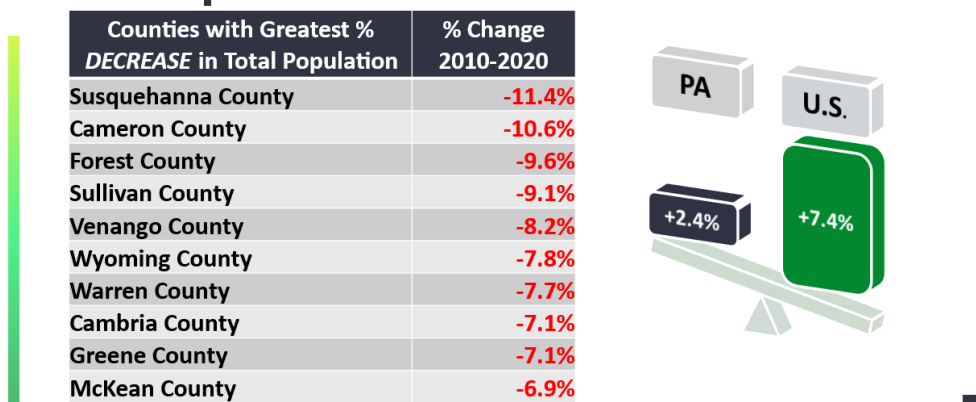
Source: U.S. Census Bureau, Decennial Census Redistricting Data (PL-94-171), 2020; Decennial Census Table P2, 2010

You can see which Pennsylvania counties had the greatest **percent increase** in total population from 2010-2020 in **Figure 1**. Data for the percent change in the total population across Pennsylvania and the United States from 2010-2020 are also pictured in the figure for comparison.



The Pennsylvania counties with the greatest **percent decrease** in total population are shown in **Figure 2**. More than half of Pennsylvania counties (65.7%) experienced a **decline** in total resident population over the past ten years.

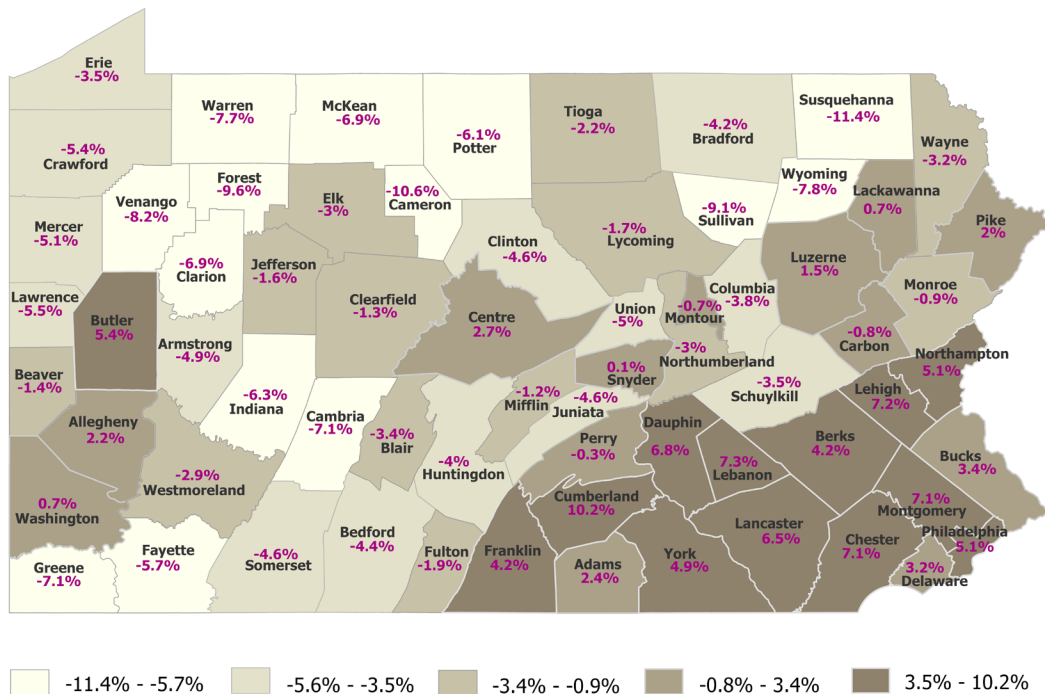
Figure 2. Counties with Greatest Percent DECREASE in Total Population, 2010-2020



Source: U.S. Census Bureau, Decennial Census Redistricting Data (PL-94-171), 2020; Decennial Census Table P2, 2010

Over the same period, **Map 1** highlights that some patterns of population **increase** were largely concentrated in Pennsylvania's southcentral and southeastern counties. The range of county population changes that took place as well as clustered trends of growth and shrinkage across

Map 1. Percent Change in Total Population for Pennsylvania Counties, 2010-2020



Source: U.S. Census Bureau, Decennial Census Redistricting Data (PL-94-171), 2020; Decennial Census Table P2, 2010

the state are clearly visible when viewing the data this way. It is important to note that many of the spatial patterns of population increase and decrease that we see in certain areas of the state have been trending this way for the past twenty years.

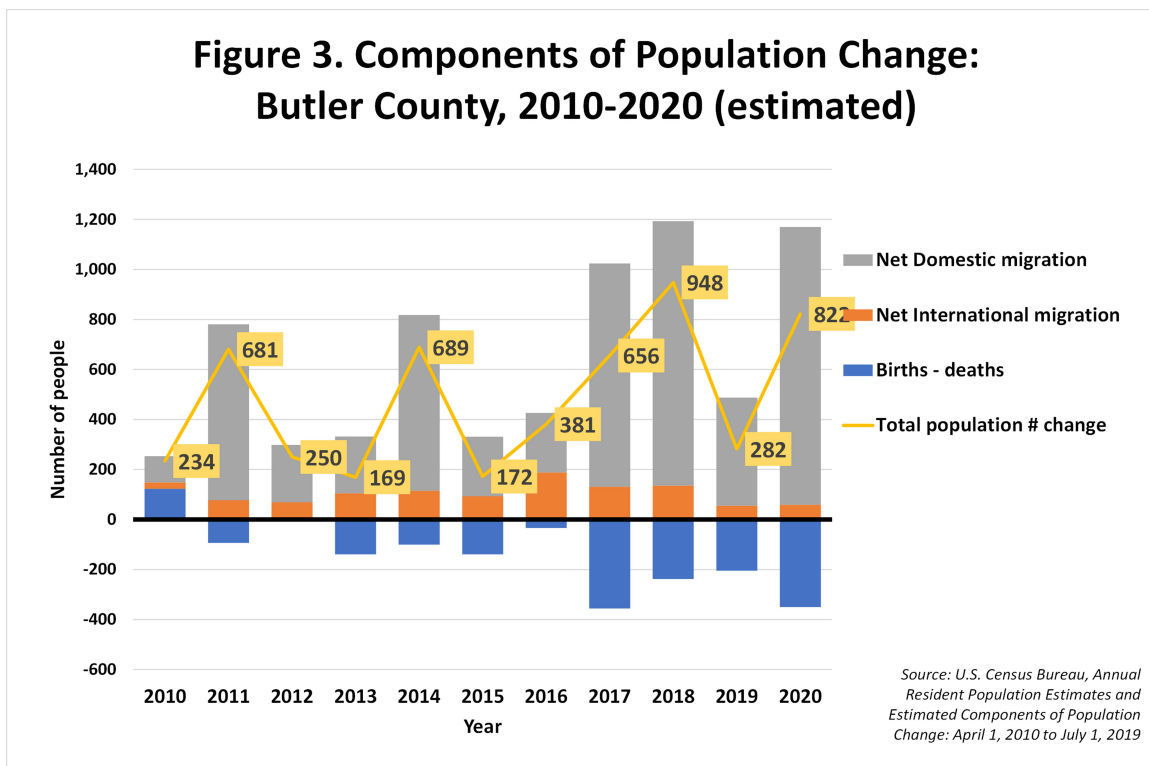
Discussion questions

1. How did your county's population change in size between 2010 and 2020?
2. If your county experienced population growth or shrinkage, what factors do you believe might have contributed to the change? Are you aware of any factors that may have contributed to changes in the counties with the greatest percentage of growth or shrinkage by comparison? Engaging in conversation with leaders who have local knowledge in these counties might provide important insights about the conditions that may have led to the changes they experienced.
3. Refer to Map 1 and Table 1: how does the rate of change in your county compare to surrounding counties and the state? What factors do you believe might account for any differences that you see?
4. Do you think it's likely that the size of your county's population will change over the next 5 years? What do you expect the population size will be in 10 years? If you do anticipate changes, what factors do you believe will lead to such changes?
5. How might current or future population changes in your county impact education, workforce, and employment opportunities for county residents? How might population changes affect property values, tax revenues, or other fiscal conditions in your county?
6. Recognizing that the commuting patterns of workers may cross county lines, and thus that county economies are sometimes interconnected with neighboring counties, in what ways might population changes impact regional economies and related conditions such as housing supply (and demand) or transportation?
7. Have you experienced any change in the demand for services managed or provided by county government that track with any recent population shifts illustrated in the data? If so, how have you responded to this change? Do you anticipate any change in the demand for services by populations over the next 5-10 years? What strategies and resources might be needed to address this?

LOOKING AT: COMPONENTS OF RESIDENT POPULATION CHANGE

Changes to the resident population can occur due to three dynamic factors: natural change, domestic migration, and international migration. **Natural changes** to the population are measured by subtracting the number of resident deaths that occur within a geography (during a given time) from the number of resident births that occur over the same period. **Net domestic migration** quantifies the net number of people who move to or from other places *within the United States*. **Net international migration** accounts for the net number of people who move to or from places *outside of the United States*. It's important to note that international migration estimates are calculated by the U.S. Census Bureau from several factors such as relocation across borders by military personnel, foreign and native residents, and migration patterns of people between the U.S. and Puerto Rico. ²

Figure 3 estimates how births and deaths, along with net domestic and next international migration patterns, contributed to changes in your county's population from 2010-2020. Each component of population change is represented proportionally by color in the bar graph as it contributed to the total population changes for each year. When a color section of the bar



² <https://www2.census.gov/programs-surveys/popest/technical-documentation/methodology/2010-2019/natstcopr-methv2.pdf>

appears above the thick black line, the net change is estimated to be positive for that population component; if a color section appears below the thick black line, the net change is estimated to be negative for that population component. The yellow line on the graphs shows how the total number of residents grew (+) or declined (-) from year to year. **Figure 4** estimates how these factors contributed to population changes across the state for comparison.

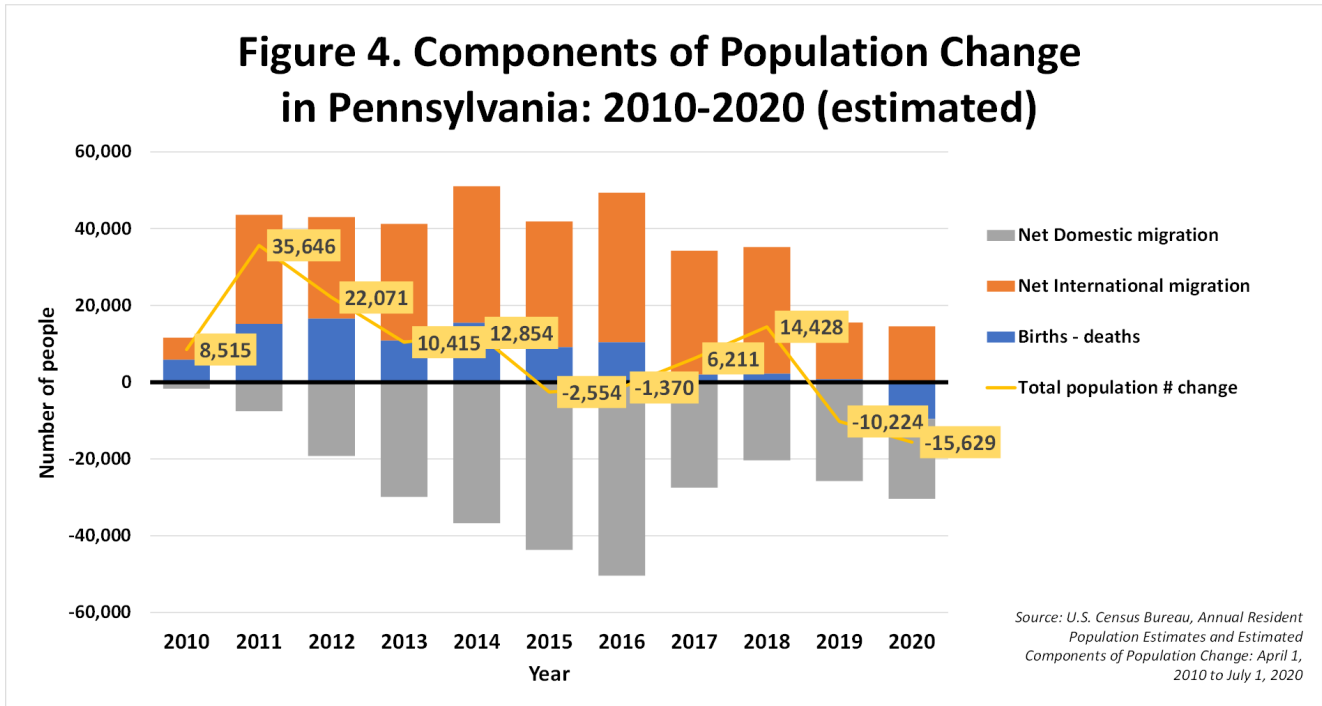


Figure 5 illuminates the cumulative number of residents your county either gained or lost from 2010-2020 through natural changes, net domestic migration, and net international migration. If a component of population change appears above the thick black line on the graph, it indicates a

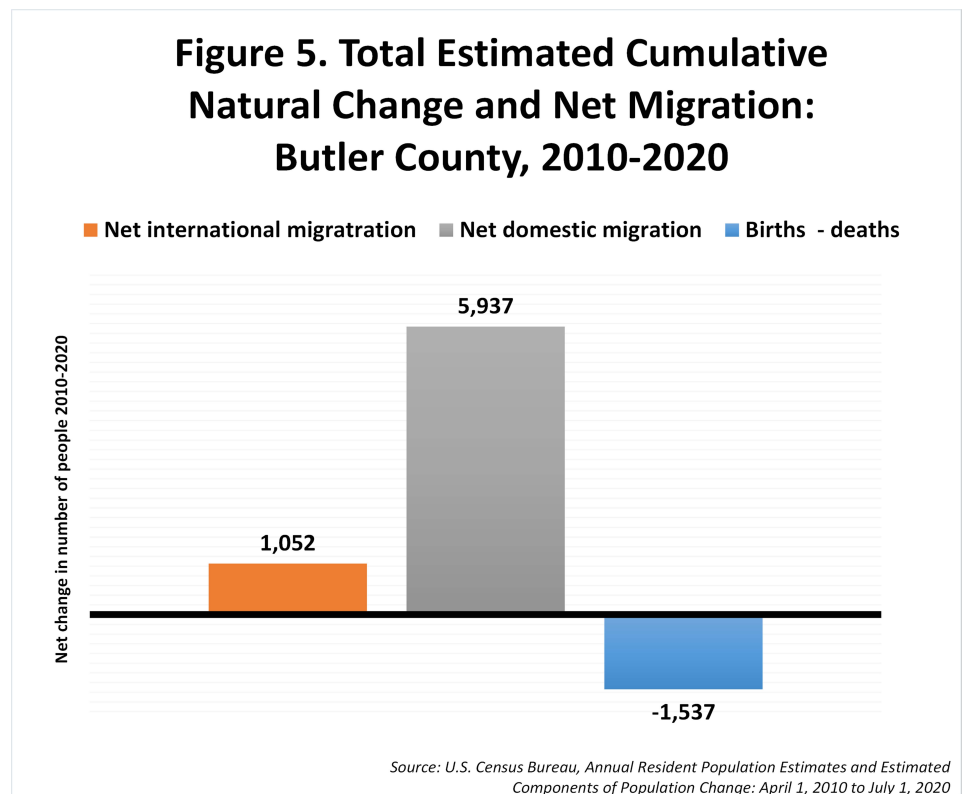
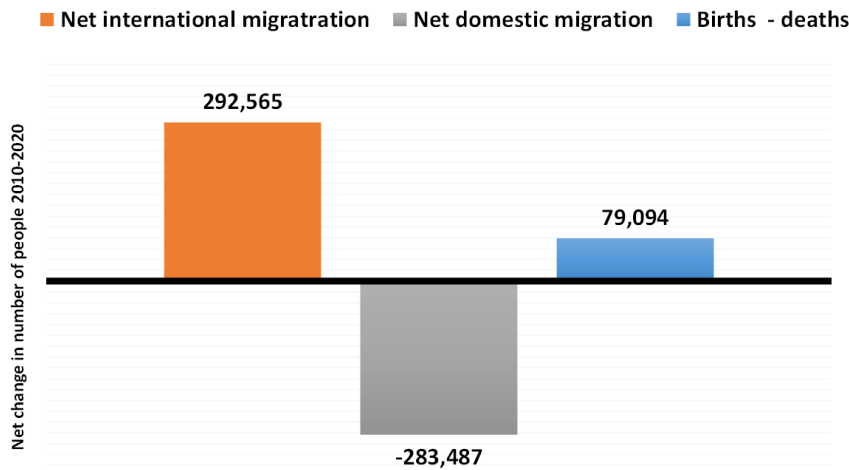


Figure 6. Total Estimated Cumulative Natural Change and Net Migration: Pennsylvania, 2010-2020



Source: U.S. Census Bureau, Annual Resident Population Estimates and Estimated Components of Population Change: April 1, 2010 to July 1, 2020

cumulative net gain in residents due to that factor, and those below the black line represent a net loss of residents due to that factor. The estimated cumulative changes for the state can be seen in **Figure 6** for comparison.

Discussion questions

1. How did natural changes (births minus deaths) impact your county's population over time? How does it relate to the other components of change in your county? How does this factor in your county compare to the state? What are the implications of this change for your county? If you experienced population loss due to natural changes, what strategies might be needed to mitigate or offset future decline?
2. What role did domestic and international migration play in your county's cumulative change (Figure 5) and how does it compare with data for the state (Figure 6)? What about from year to year (Figures 3 and 4)? What might be the implications of these changes for your county? What strategies could you employ to attract and retain domestic or international residents in the future?
3. It's often interesting (and sometimes surprising) to see how the components of population change interact and tend to offset each other in some ways. What (if anything) strikes you about the factors that contributed to your county's population changes since 2010? Is it what you expected to see?
4. Do you notice any patterns in the factors that contributed to your county's population change from year to year in Figure 3? Can you think of any specific events or occurrences that might help explain some of the changes you experienced? How do your county changes for each year compare with the state?

LOOKING AT: POPULATION BY RACE AND ETHNICITY

The 2020 decennial census revealed an increasingly diverse race and ethnic composition of residents in many places throughout the United States. This may represent actual changes within the demographic makeup of the population, **but the U.S. Census Bureau also notes that some newer patterns may be partly attributed to changes in the way the decennial census asks and analyzes how residents identify by race and ethnicity.**³ To help distinguish between these factors, this section of the report utilizes data from non-overlapping race and ethnic categories to observe changes, meaning that we'll look at non-Hispanic groups by race alone and people who identify as Hispanic or Latino from any race.

Hispanic and Non-Hispanic Population in 2010 and 2020

Between 2010 and 2020, the number of United States residents who identified as Hispanic or Latino by any race increased at a rate of approximately 23%. Over that same period, the Hispanic and Latino population of Pennsylvania grew by 45.8% (329,955 people) a comparatively higher rate than in the U.S., while experiencing a -.2% decline in the population of non-Hispanic residents (29,634 people). You can view the number and percent changes to your county's Hispanic and non-Hispanic population in **Table 2**.

	2010	2020	# Change	% Change
Not Hispanic or Latino	181,921	190,098	8,177	4.5%
Hispanic or Latino	1,941	3,665	1,724	88.8%

Source: U.S. Census Bureau, Decennial Census Redistricting Data (PL-94-171), 2020; Decennial Census Table P2, 2010

Race and Ethnicity of Population

Census results show that the race and ethnic makeup of Pennsylvania's residents has shifted somewhat since 2010, but the state is still considerably less diverse than the overall United States population in 2020. **Table 3** compares 2020's share of each race and ethnic group as a percent of the total population in your county, in Pennsylvania, and in the United States.

³ <https://www.census.gov/library/stories/2021/08/2020-united-states-population-more-racially-ethnically-diverse-than-2010.html>

As you can see, the three largest race and ethnic groups across the U.S. and in Pennsylvania are White, Black or African American, and Hispanic or Latino of any race. However, Pennsylvania’s proportion of White residents within the total population is about 27.1% larger than the share of White residents in the United States. Further, the shares of all other race and ethnic groups in the Commonwealth are smaller when compared to the nation.

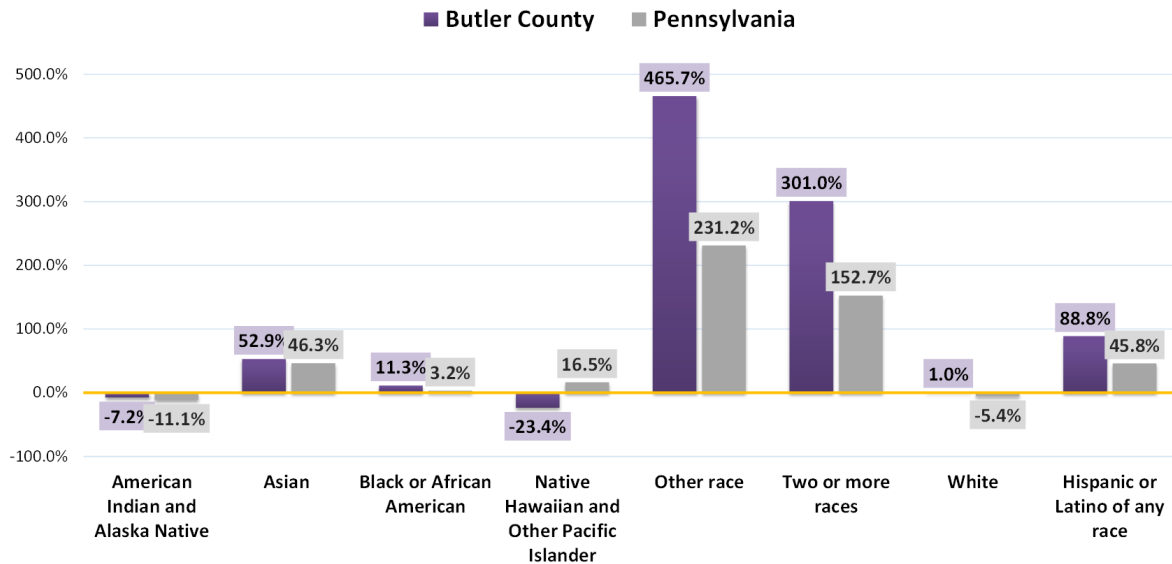
Table 3. Share of Total Population by Race and Ethnicity in 2020: Butler County, Pennsylvania, and the United States

	Butler County	Pennsylvania	United States
American Indian and Alaska Native	0.1%	0.1%	0.7%
Asian	1.4%	3.9%	5.9%
Black or African American	1.1%	10.5%	12.1%
Native Hawaiian and Other Pacific Islander	0.0%	0.0%	0.2%
Other race	0.3%	0.4%	0.5%
Two or more races	3.2%	3.5%	4.1%
White	91.9%	73.5%	57.8%
Hispanic or Latino of any race	1.9%	8.1%	18.7%

Source: U.S. Census Bureau, Decennial Census Redistricting Data (PL-94-171), 2020; Decennial Census Table P2, 2010

Of all race and ethnic groups, people who identified as “other race” in 2020 grew by the largest percentage across the population in Pennsylvania at 231.2% since 2010, followed by a 152.7% increase in residents who identified as “two or more races”. You can see how much each race or ethnic group grew or declined in your county as compared to changes that occurred across the state in **Figure 7**.

Figure 7. Percent Change in Population by Race and Ethnic Group, 2010-2020



Source: U.S. Census Bureau, Decennial Census Redistricting Data (PL-94-171), 2020; Decennial Census Table P2, 2010

Discussion questions

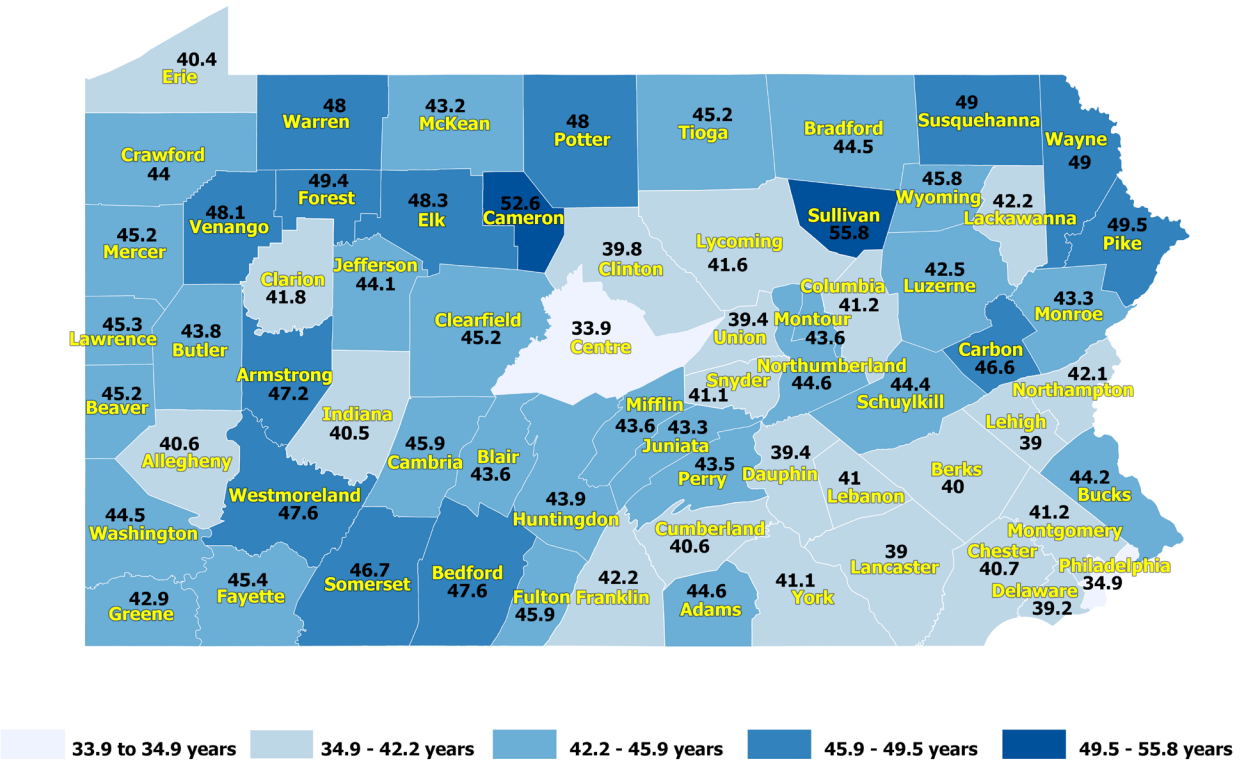
1. What race or ethnic group is the largest one in your county? What is the smallest race or ethnic group? How does your county's race and ethnic composition compare to the state and nation?
2. In what ways has the race and ethnic composition of your county's residents changed over the past ten years? Which groups had the most significant increase and decrease? What might have led to any changes you see? How might these changes relate to changes in migration that you considered earlier? What changes (if any) do you anticipate in the future? What are the possible implications of these changes?
3. How welcoming is your county to new and existing residents across all race and ethnic groups? What could you do to make your county more welcoming to new and existing residents across all race and ethnic groups? What challenges do you think people in various racial and ethnic groups might face in your county?
4. Do county leaders, elected officials, and county staff in your region reflect the diversity of your residents? What strategies could you use to attract and retain a larger pool of talent and applicants with a diversity of life experiences to work in county government?
5. Looking at the race and ethnic composition of your county in 2020, would you say that all groups have equitable access to opportunities and resources in your region? Can you think of any barriers that might exist for certain groups?

LOOKING AT: POPULATION BY AGE AND SEX

The age composition of a population (commonly referred to as “**age structure**”) is important to look at because it is often closely linked to the economic health, viability, and resilience of a place or region. In other words, the age of residents can directly influence a county’s tax base, workforce availability, and natural population growth, as well as drive the demand for certain types of goods and amenities, education, housing, transportation, health services, or specialized care.

There are several ways to consider elements of a county’s age structure. The median age of residents indicates the midpoint of a county’s age structure, meaning that there are equal proportions of the population above and below that age. The median age for each Pennsylvania county’s population is displayed in **Map 2**.

Map 2. Median Age by County, Pennsylvania 2020



Source: U.S. Census Bureau, Annual Resident Population Estimates : April 1, 2010 to July 1, 2020

Intuition might infer that the lower the median age, the more resilient the county's age structure. However, the distribution of the population above and below a county's median age may not always be symmetrical or tell the whole story.

Population pyramids provide a more detailed way to observe a county's age structure, along with age distribution by sex. Note the visual patterns that emerge for the distribution of Pennsylvania residents in **Figure 8**.

As you can see, Pennsylvania's population "bulges" near the 55-64 age groups (approaching retirement, social security eligibility, and older age), with a slightly less pronounced curve for the 25-34 age groups (potentially working, contributing to the tax base, buying homes, and/or starting families).

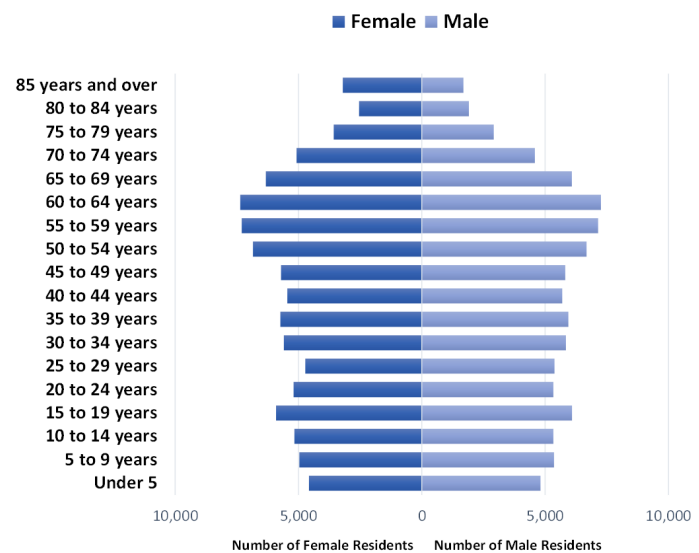
Your county's population pyramid appears in **Figure 9**, for comparison. Viewing the share of residents by age and sex like this can highlight the current makeup of your county's population and help you anticipate future trends as residents mature through life cycles. For example, a smaller number of young residents may have negative effects to hold the population in the long term.

Figure 8. Distribution of Pennsylvania Population by Age and Sex: 2020



Source: U.S. Census Bureau, Annual Resident Population Estimates : April 1, 2010 to July 1, 2020

Figure 9. Distribution of Butler County Population by Age and Sex: 2020

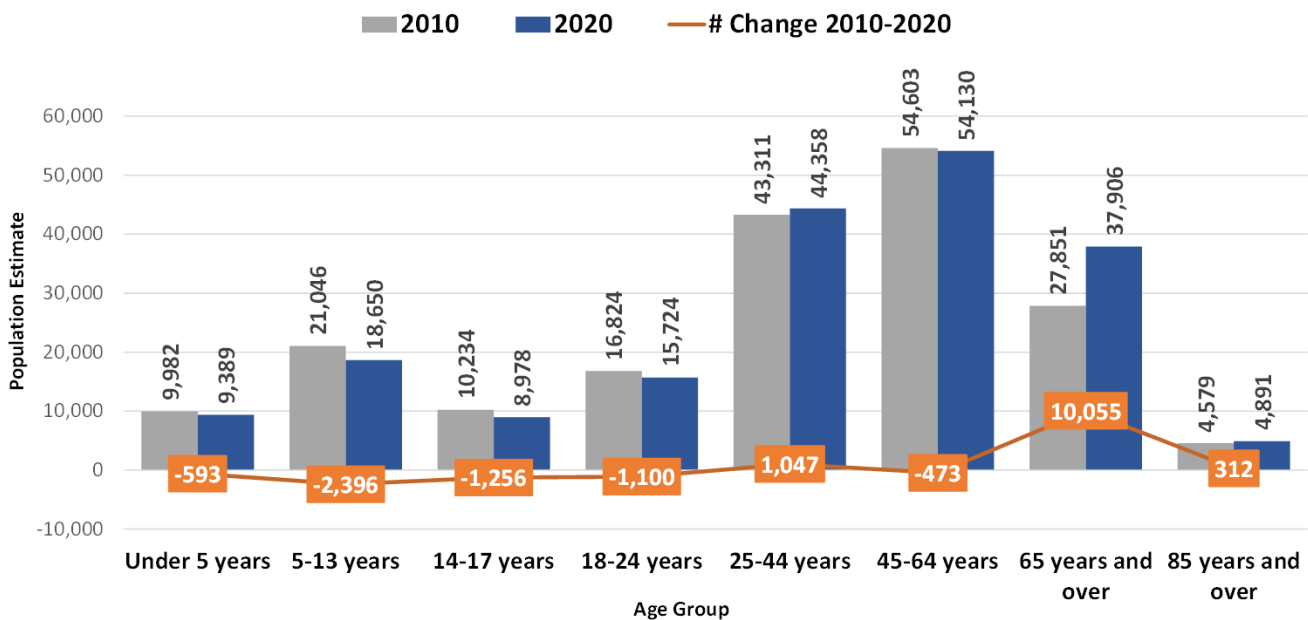


Source: U.S. Census Bureau, Annual Resident Population Estimates : April 1, 2010 to July 1, 2020

Additionally, take note of how many residents are in traditionally childbearing or child-rearing years (approximately 25-44 years of age), which could similarly impact the resilience of your county's age structure in the future.

For further insights about how your county's population is changing by age over time, the estimated breakdown of your county's population by the number of residents across different age groups in 2010 and 2020 can be seen in **Figure 10**. As you view the graph information, think about what the reasons and implications may be for population growth or decline within each group. The cumulative number change in residents per age group is illustrated on the graph as a trend line in orange.

Figure 10. Population by Age Group: Butler County, 2010-2020



Source: U.S. Census Bureau, Annual Resident Population Estimates : April 1, 2010 to July 1, 2020

Discussion Questions

1. What is the median age in your county and how does it compare to the median age in neighboring counties? Do you see any patterns that emerge in counties across the state? What factors might help explain any similarities or differences in median age? Does the median age tell the "whole story" about your county's age structure? Why or why not?

2. Do you see any population “bulges” near certain age groups in your county's population pyramid? What specific resources, amenities, or public services might be needed for residents in these age groups? How does your county's age structure compare with the state's?
3. Which age groups in your county experienced a population increase between 2010 and 2020? Which age groups experienced a population decline? What factors might explain what you see?
4. Referring to the information about age groups in your county, what changes do you anticipate over the next five to ten years? Which age groups might increase in population and which age groups do you expect to see decrease...and why?
5. What other impacts to your community do you potentially foresee as results of changing age demographics? How can you as community leaders plan for these changes to ensure continuity of service?

This report was prepared by Cristy Halerz Schmidt of Penn State Extension and Penn State's Center for Economic and Community Development with assistance from Melissa Gates of the County Commissioners Association of Pennsylvania (CCAP), and Penn State's Center for Economic and Community Development (CECD).

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County governments are responsible for a wide variety of critical services, including provision of human services (i.e., mental health, intellectual disabilities, juvenile justice, children and youth, long-term care, drug and alcohol services, housing) to people in need in our communities. In addition, counties are responsible for emergency management and 911 services, administration of the courts and corrections system, elections, maintenance of county bridges, and the county property assessment rolls, and are also involved in environmental and land use planning, protection of open space and community and economic development.

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