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Demographic Determinants

Demographics have the power of gravity. It is a quiet constant that shapes the futures of communities and nations. Like gravity, demographic trends are inevitable. It is why futurists can say with confidence that the populations of countries with low birth rates and disproportionate numbers of seniors (e.g., Japan and Italy) will shrink during the coming decades.

It is also why healthcare futurists can say with confidence that the U.S. healthcare system as currently configured is incapable of handling projected levels of patient volume without significant risk of collapse. The COVID pandemic proved these futurists right as the U.S. healthcare system buckled in response to intensified service demands.

The U.S. Census Bureau makes detailed projections to profile the evolving composition and characteristics of the nation's population. The Bureau supplements these projections with periodic reports that analyze statistical trends within the census data. These reports also incorporate interviews with polling participants to gain greater insights into the underlying reasons for their opinions.

The Bureau's most recent demographic projection and analysis of U.S. population trends occurred in 2017 (with an update in 2020) based on 2010 census data.¹ Their projections reveal that the United States is becoming more populous, older, and longer-living (see Figure 1.1). The Bureau's

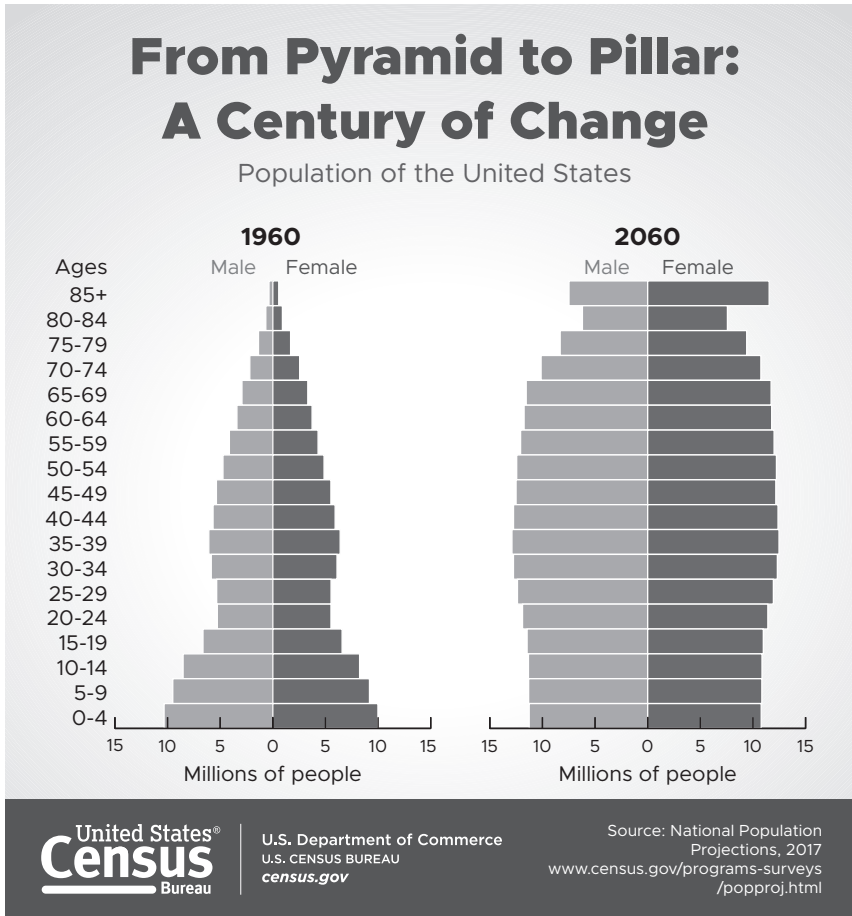


Figure 1.1 A larger and older projected U.S. population (1960 vs. 2060).

Source: Census/U.S. Department of Commerce/Public domain.

projections and analysis also reveal that America is becoming more racially and ethnically diverse.

These projected demographic changes within the U.S. will profoundly impact the nation's healthcare system. An aging society will need/demand more care services even as the supply of potential caregivers available to provide these services shrinks.

Demographics also informs how these population characteristics and trends will manifest. For example, the "age ratio" measures the mathematical

relationship between workers and retirees. The shrinking age ratio within the U.S. informs assessments of the healthcare system's decreasing capacity to care for its aging citizens.

Overall, demographics is a formidable top-down force that places unrelenting pressure on the current U.S. healthcare system.

DEMOGRAPHICS, PSYCHOGRAPHICS, AND THE SEARCH FOR MEANING

In 1855, the Belgian statistician Achille Guillard first used the word "demography" in describing the mathematical characteristics of European populations during the nineteenth century. History credits Great Britain's John Graunt for conducting the first demographics study in 1662. Graunt detailed the characteristics of London's population, including its people's ages, sex, employment, and mortality rates.

Demographics literally takes its name from the Greek word "demos" for people. It is a subfield within sociology that studies populations. Demographers collect and assess statistical information on populations to understand historical and future trends. They evaluate how a population's evolving physical attributes (births, deaths, genders, ethnicity, employment patterns, income, age profiles, etc.) will shape a society's economic and communal future.

In 1838, French philosopher and mathematician Auguste Comte coined the term "sociology" from Latin and Greek root words to describe the study of human societies. Thought by many to be the "father of sociology," Comte famously observed, "Demographics is destiny." He believed that statistically measuring the hard facts of demographics was essential to understanding how people within societies evolve, function, and interact with one another.

Demographics don't lie but they do change. Understanding and anticipating those changes requires the examination of past and present population characteristics and trends. As such, demographics provide essential information for government planners. Demographic data also provide essential information for business leaders making product and service-line investments within an ever-evolving marketplace.

Used less frequently than demographics but equally important is psychographics. Psychographics measure a population's attitudes and beliefs. Knowledge of a population's opinions, choices, interests, values, and goals

can provide key policy and product insights. Marketing relies on psychographics to shape advertising campaigns, to literally win consumers' hearts and minds.

Psychographics complement demographics. Demographics detail a population's statistical profile. Psychographics explore that population's motivations. They try to figure out what's in their heads. Demographics and psychographics interconnect in an almost organic fashion, so we toggle back and forth between them to examine and explain the evolving healthcare ecosystem. As the U.S. population ages, it is crucial to understand both the statistical character of the nation's aging profile (the demographics) as well as our collective attitudes and opinions about aging (the psychographics).

Legendary baseball pitcher Satchel Paige defied expectations by pitching professionally into his late 40s. At age 59 in September 1965, the Kansas City Athletics signed Paige to pitch in a single game against the Boston Red Sox. He faced 10 batters, allowed one hit, no runs, and "relaxed" in a rocking chair between innings. Paige once asked, "How old are you when you don't know how old you are?" Echoing Mark Twain, Paige also observed, "Age is a state of mind over matter. If you don't mind, it don't matter." Demographics beg to differ.²

Paige's story is exceptional. It defies the law of averages. That's why it's so humorous and interesting. Demographics, however, depend on reversion to the mean (i.e., the law of averages) and other statistical measures to chronicle a society's demographic characteristics and assess their implications. Consequently, demographics emphasize that aging does matter. This is particularly true for U.S. healthcare as it prepares for the oncoming senior tsunami.

THE TWO-PRONGED DEMOGRAPHIC THREAT

The demographic profile of the U.S. population is changing rapidly. Two macro factors have driven the aging of American society during the last several decades. Those factors are longer life expectancy and a declining national birth rate.

An aging society requires more healthcare services for its senior citizens. Fewer births translate into a smaller labor pool for future caregivers

and less societal capacity to generate the funding necessary through taxation to pay for seniors' social and healthcare needs.

These twin demographic trends are placing enormous pressure on America's current healthcare system: increasing demand for services; limiting worker supply; and diminishing capacity for societal funding support. Addressing this pincer movement will require creativity, innovation, and disruption to solve.

To paraphrase Plato, necessity is the mother of invention. It will have to be for the United States to bridge the demographic challenges confronting its fragmented and under-resourced elder care delivery system.

Boomer Time

Baby boomers, those born in the post–World War II “boom” years between 1946 and 1964, are driving the aging of America's population. The oldest and youngest boomers turned 78 and 60 respectively in 2024. *Due to their cohort's size, age, and social welfare needs, boomers will either break the United States' healthcare and retirement systems or force their transformation.*

The 71 million boomers still alive in 2024 represent only 21% of the total U.S. population but control 57% of the nation's wealth.³ Boomers have disrupted American society in fundamental ways as they've aged, challenging established conventions and redefining social mores.

Demographers describe boomers as “independent, assertive, hard-working, ambitious, spoiled, and demanding.” Not surprisingly given these descriptors, boomers are powerful and demanding consumers. They want what they want when they want it and will pay for it.

With close to 60% of the nation's wealth, boomers are now focusing on the last quarter of their lives. They are paying particular attention to health and wellbeing. Impossible to ignore, boomers will reinvent retirement, the concept of “golden years,” and the role seniors should play in American society. More worrisome, at least 60% of boomers already suffer from at least one chronic disease.⁴ Their care needs will strain an already overtaxed healthcare system.

Boomers are the tip of the spear as America confronts an epidemic of chronic disease. While Americans are living longer, they are not living healthier lives. Unfortunately for boomers, the onset of chronic illness still occurs as individuals enter their 60s.

Chronic illness for those past the age of 60 is ongoing and ever-present. Once Americans reach age 65, they live on average for another 13 years, often with increasingly debilitating chronic illnesses. Their lives dissipate into a long and slow chronic decline that becomes more complex and expensive to manage and treat.

Older and Sicker (Increasing Demand for Healthcare Services)

Let's first examine how American society has and will continue to age. Figure 1.2, from the U.S. Census Bureau, depicts aging trend lines over time for native and foreign-born U.S. residents.

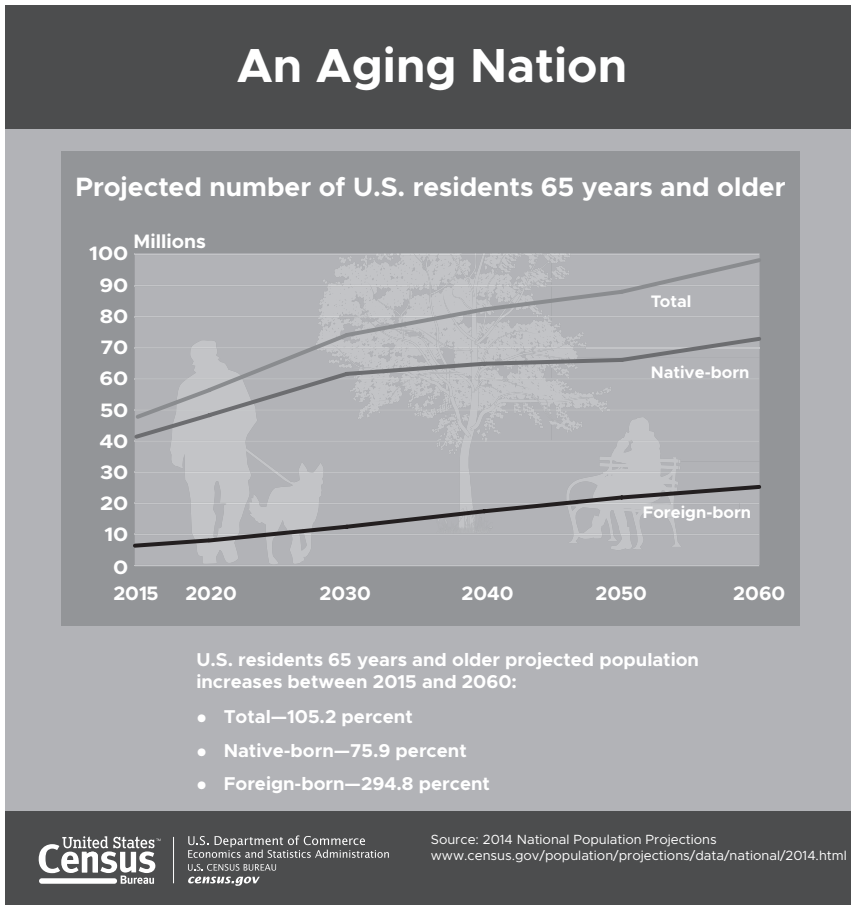


Figure 1.2 The rapidly aging U.S. population (2015–2060).

Source: Census/U.S. Department of Commerce/Public domain.

During the Roaring 1920s, the average lifespan for American men and women was 53.6 years and 54.6 years respectively. Fifty years later in the 1970s, the average lifespan for men had increased dramatically to 67.1 years and even more dramatically for women to 74.7 years. By then, women lived almost eight years longer than men.

Fast-forward to 1998. Men and women on average now lived 73.8 and 79.5 years respectively. The average lifespan for both men and women had slightly increased again by 2020, to 74.5 years for men and to 80.2 years for women.

The 2020 longevity figures were the lowest for men since 2003 and for women since 2005. In essence, the average American lifespan has plateaued. Averages can obscure powerful trends. The fastest growing demographic group in the U.S. is aged 90-plus. Their upward aging trend is offset by declining longevity in middle age, particularly in low-income communities and among ethnic populations.

On an actuarial basis, American lifespans peaked in 2019. The pandemic accelerated “expected deaths” by roughly one million people. In this way, COVID triggered a decline in American lifespans for the first time in decades. America’s declining longevity has additional causes beyond COVID. They include increases in deaths due to despair (suicide, overdoses, and alcoholism), income inequality, gun violence, inequitable access to healthcare services, and unhealthy lifestyle choices.

The expectation, however, is that the average American lifespan will increase again. The U.S. Census Bureau estimates that by 2050 the average life expectancy for American men and women will be 80.9 years and 85.3 years respectively – below life expectancies of other advanced economies but longer than they are now.

Several recent reports predict that the current generation in their teens and 20s will live into their 90s. A 2009 research brief in *The Lancet* concludes that current 10-year-old children have a 50% chance of living to 100 years or beyond. Better education, advances in pharmacology, earlier diagnoses, targeted therapies, a deeper understanding of the aging process, and more effective chronic disease interventions will fuel this longevity trend.⁵

These collective advances in medical care, however, are insufficient to overcome accelerated chronic disease associated with the Standard American Diet, Lifestyle, and Environment (what we call SADLE). Medicine has

become proficient at keeping sick people alive longer, often with diminished life quality, at a very high cost. It intervenes when symptoms present, often at advanced stages of disease.

As a society, the U.S. invests little in preventive care and health promotion. American consumers often prefer a pill, surgical procedure, and/or hospital visit when combatting chronic conditions instead of long-term lifestyle modification. These very American demographic and psychographic attributes compound the medical, financial, and societal ramifications of the nation's battle with chronic disease.

Obesity is the most predictive indicator of future levels of chronic disease within a population. America's obesity epidemic constitutes a clear and present danger to the nation's long-term health and wellbeing. Over two-thirds of U.S. adults are overweight or obese.

The Centers for Disease Control and Prevention (CDC) reports that "obesity prevalence" among adults increased almost 40% between 1999 and 2018, from 30.5% in 1999–2000 to 42.4% in 2017–2018 (see Figure 1.3). The average adult man and woman in America today weigh 200 and 171 pounds respectively.⁶ It gets worse. A *New England Journal of Medicine* study estimates that by 2030, 67% of adult women and 75% of adult men will be either overweight or obese.⁷

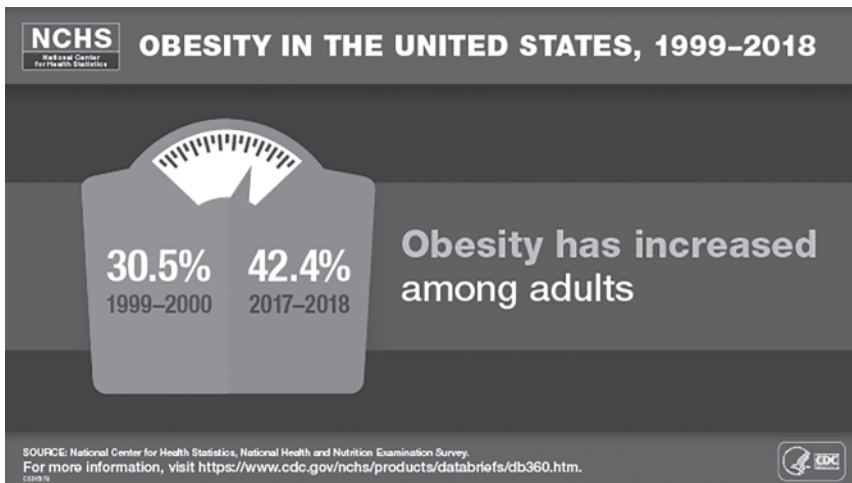


Figure 1.3 Increasing obesity in the United States, 1999–2018.

Source: CDC/U.S. Department of Health & Human Services/Public domain.

According to the CDC, individuals with chronic disease and mental health conditions now account for 90% of total annual U.S. health expenditures (projected by CMS to be more than \$4.9 trillion during 2024).⁸ Mathematically, this translates into a whopping \$4.4 trillion in projected 2024 expenditures for treating chronic disease and mental health conditions.

As depicted in Figure 1.4 this expenditure level is greater than the entire gross domestic products of the world's third and fourth largest economies (Japan and Germany) according to World Bank data for 2022.⁹

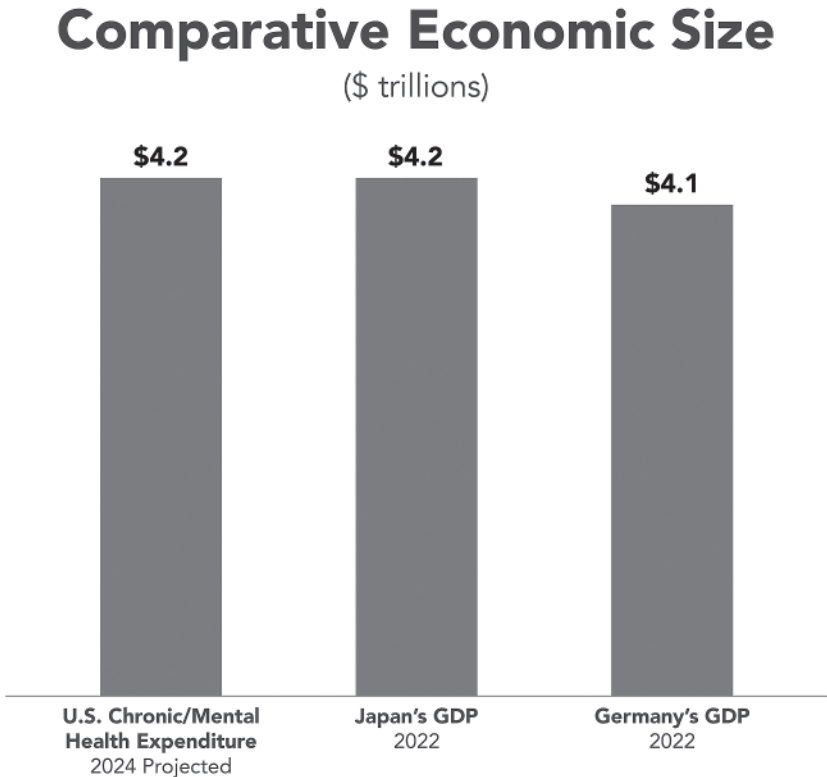


Figure 1.4 U.S. healthcare expenditures for chronic disease equivalent to the annual GDP for Japan and Germany.

Source: Adapted from CDC.

This is an astronomical and unsustainable level of expenditure to treat the rapidly increasing numbers of Americans with chronic and/or mental health conditions. The center is collapsing. Funding chronic care costs on its current trajectory is the principal reason that CMS projects the Medicare trust fund will exhaust its funding by 2036.

Absent a fundamental change in American lifestyles and a reduction in childhood and adult obesity, the levels of chronic disease, mental health conditions, and related treatment costs will skyrocket. This will increase the economic and social burden on an already beleaguered U.S. healthcare system. Policymakers will confront Hobbesian-like choices between funding healthcare and other vital services. In this inexorable way, population demographics are exerting significant top-down volume/demand pressure on the healthcare ecosystem.

Fewer Children (Decreasing Labor Supply and Reduced Funding Capacity)

While children being born today can expect to live longer, the U.S. Census Bureau projects there will be fewer American children born in the coming decades. The Great Recession of 2008–2009 initiated an absolute decline in the number of children being born each year in the U.S. (see Figure 1.5). Most forecasters believed the birth rate would return to pre-recession levels, but it has continued its slow, methodical decline.

Several factors contribute to the nation's falling birth rate. The chief ones being economic uncertainty, maternal and child health concerns, and climate change. There also are fewer "coupled households," which correlates with lower birth rates. Fewer couples mean fewer babies (see Figure 1.5).

These lower birth rates correspond with psychographic research data. A study by University of North Carolina and Ohio State researchers found that women now want fewer children than a generation ago. Their research found that women born between 1965 and 1969 at age 20–24 wanted 2.2 children. The same-aged women born between 1995 and 1999 wanted 2.1 children.

This later generation of potential mothers still want children but question whether they will have the financial means and support to raise their children without undue hardship. These concerns lead many to postpone or decide against having children.

Exploring Age Groups in the 2020 Census

Learn About Age, Sex, and Racial and Ethnic Diversity for States, Counties, and Census Tracts

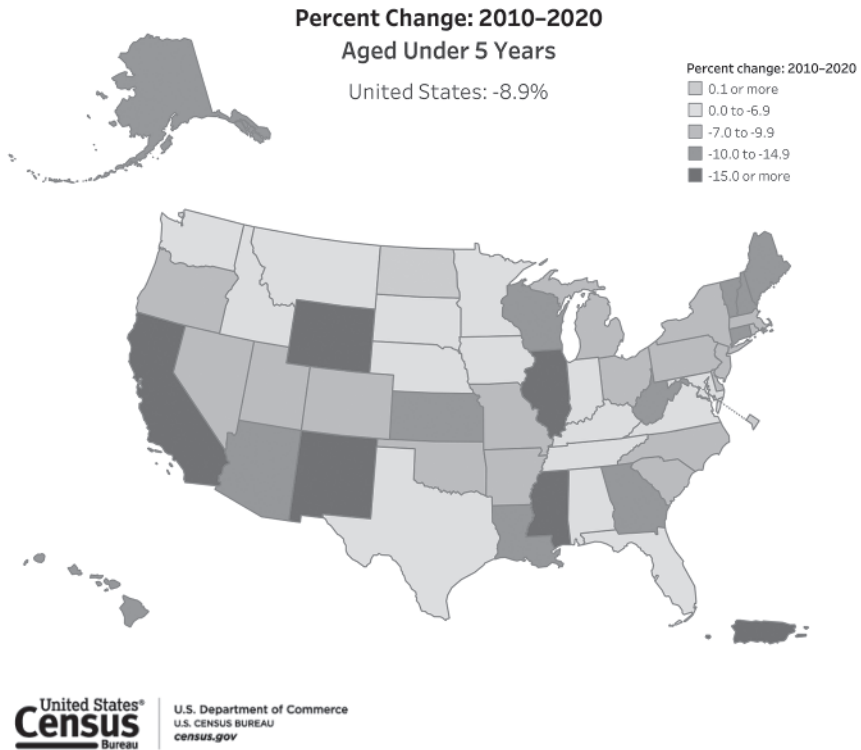


Figure 1.5 Falling U.S. birth rate (2010–2020).

Source: Census/U.S. Department of Commerce/Public domain.

Consistent with these findings, more adult couples are opting out of parenting altogether. According to a 2021 Pew Foundation study, 85% of non-parents over 40 say they do not intend to have children. Perhaps more startling, 37% of non-parents under 40 say they also do not intend to have children.

When asked why they are less interested in having children, survey respondents most frequently answer “personal independence.”¹⁰ This answer encompasses a range of environmental and economic factors, including housing prices, climate change, safety, economic uncertainty, and the increasingly hostile political and social climates.

In essence, fewer younger American adults want children. Those who do are having fewer of them and having them later in life when they are more economically secure.

Unintended and/or unplanned births also have declined precipitously. Consistent with this decrease, teen pregnancies in the U.S. have declined an astounding 78% since their 1991 peak.¹¹ Corresponding with this decrease in teenage pregnancies the median age for women giving birth has increased from 27 years old in 1990 to 30 in 2015.

Absent immigration, the decline in U.S. births would be even more dramatic. Immigrants accounted for two-thirds of U.S. population growth in 2022.¹² This shift to immigrant-led population growth is occurring even as the nation's largest ethnic population, Hispanics, have experienced significant declines in their population growth during the last 15 years.

The conclusion from these demographic and psychographic studies is clear. There is less enthusiasm in the United States for having children and fewer children are being born. When combined with the overall aging of the U.S. population, the nation is on the cusp of a monumental demographic paradigm shift. By 2030, for the first time in its history, the U.S. will have more seniors than children (see Figure 1.6).

By 2030, 20% of Americans will be over the age of 65. By that time, all baby boomers will be eligible for government-sponsored retirement and health benefits. As projected by the Bureau, the seniors–children ratio widens over time. In 2060, there will be 95 million American adults aged 65 and older representing 23.4% of the population with 80 million children representing 19.8% of the population.

Fewer children today translate into a smaller labor pool tomorrow from which to draw future caregivers. It also means there will be fewer workers paying the Social Security and Medicare taxes that fund health and social care services for America's elderly population.

The corollary to the seniors–children ratio is the worker–retiree ratio that measures a society's capacity to fund safety-net services for its elderly citizens. The higher the ratio of workers to retirees, the greater the funding capacity. A high ratio also translates into less financial burden for individual workers.

Unfortunately, but not surprisingly, the worker–retiree ratio in the U.S. has declined precipitously in recent decades (see Figure 1.7). According to University of Vermont research, there were 42 workers per retiree in

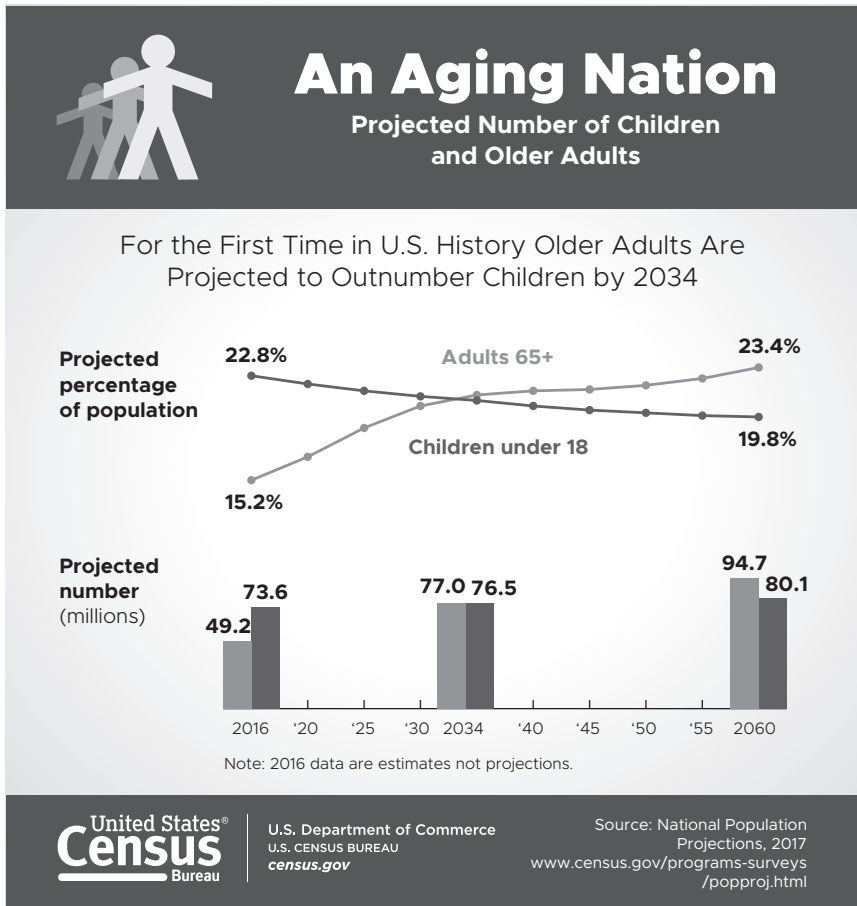


Figure 1.6 Crossover point in 2035: More seniors (65-plus) than children under 18.

Source: Census/U.S. Department of Commerce/Public domain.

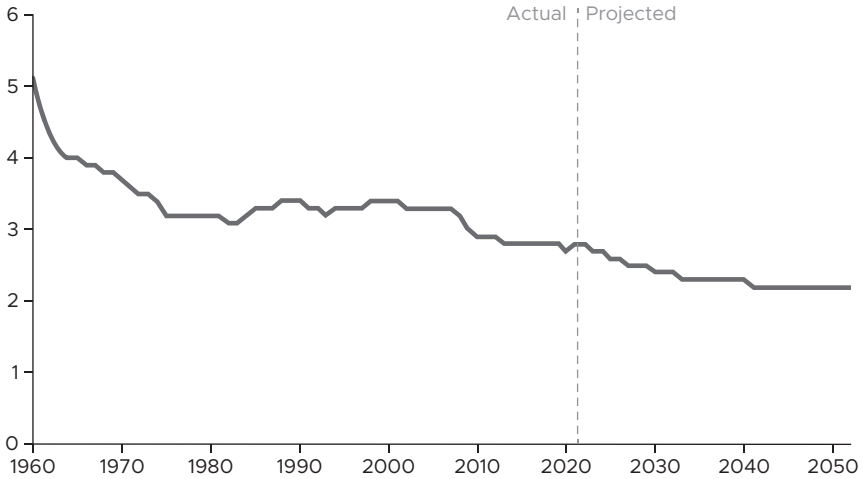
1940 when the federal government began monthly payment of Social Security benefits.¹³ According to research by the Peterson Foundation, that number had declined to 5.1 and 2.9 workers per retiree by 1960 and 2020 respectively (see Figure 1.7).

Combined with higher spending, the declining worker–retiree ratio is the other principal reason why both the Medicare and Social Security trust funds are under enormous financial pressure. Each will eventually go bankrupt without additional funding and/or spending cuts. Population imbalances



The ratio of workers to Social Security beneficiaries has been declining for decades

COVERED WORKERS TO OASDI BENEFICIARIES RATIO



NOTE: Calculated ratio uses beneficiaries from both the OASDI and DI Trust Funds. Projections reflect the Trustees' intermediate assumptions.

Figure 1.7 Declining ratio of workers to Social Security beneficiaries.

Source: ©Peter G. Peterson Foundation.

driven by the nation's aging demographics is a massive top-down force pressing against America's current safety-net programming for its elderly population. Ignoring it will accelerate and deepen the financial reckoning required to balance payment inflows and outflows.

CONCLUSION: DEMOGRAPHICS ARE NOT DESTINY

Thomas Robert Malthus (1766–1834) was a prominent English economist, cleric, and scholar who made significant academic contributions in political economy and demographics. In 1798, Malthus published *An Essay on the Principle of Population*, which explored relationships between food production, population growth, and standard of living.

Malthus opined that increased food production led temporarily to both improved living standards and population growth with the caveat that this parallel growth was not sustainable. Eventually, a larger population would

consume all available foods and push the lower classes into hardship as food stores diminished.

Malthus believed that population would grow exponentially while agricultural production would grow arithmetically. This mathematical approach to the relationship between population growth and food production led Malthus to the conclusion that society would cycle between periods of surplus and scarcity to force equilibrium between food production and consumption.

The following quote captures the essence of Malthus' argument: "The power of population is infinitely greater than the power in the earth to produce subsistence for man."¹⁴

Malthus' description of the conflict between population growth and subsistence has become known as the "Malthusian Trap." It maintains relevance today when applied to current and unsustainable consumption patterns.

Of course, Malthus was spectacularly wrong. Advances in food production have enabled the earth's population to grow from 1 billion people in 1800 to over 8 billion people and counting today (see Figure 1.8).

Technological advances often delay and thwart dire demographic projections. The invention of the automobile overcame the "Great Horse Manure Crisis of 1894." In that year, overwhelmed by the growth of horse-drawn carriages, *The Times of London* predicted, "In 50 years, every street in London will be buried under nine feet of manure."¹⁵

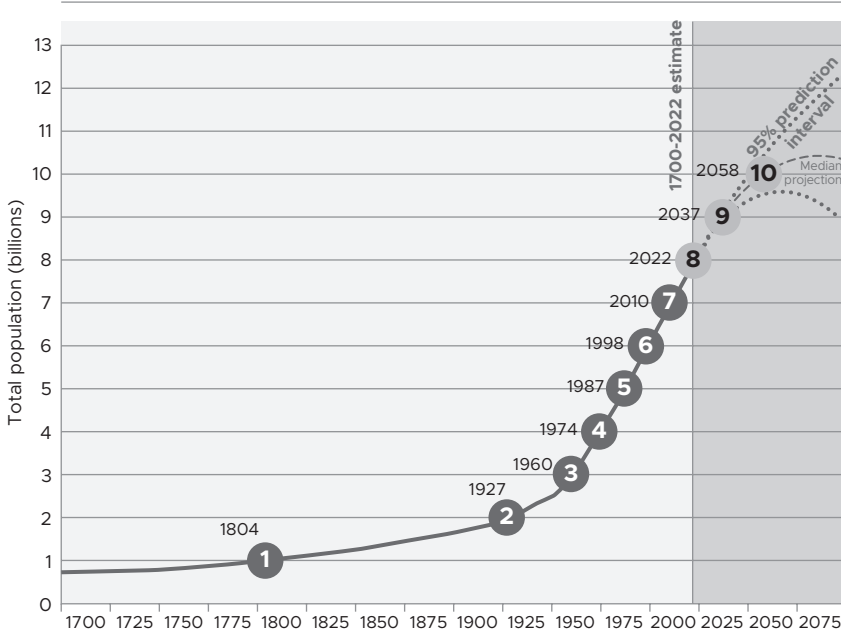
U.S. healthcare confronts its own unique version of the "Malthusian Trap" that demographic trends are exposing to be unsustainable. The nation operates a high-cost, centralized, and fragmented delivery system ill-suited to efficiently address the expansive chronic disease that plagues the American populace.

This chronic disease "trap" is particularly alarming for baby boomers. As they approach and surpass age 65, their risk of contracting a debilitating chronic condition increases significantly.

Concurrently, the supply of caregivers available to treat this growing demand to care for these aging boomers is shrinking along with the nation's wherewithal to fund the exploding treatment costs for their chronic conditions. As *The Wall Street Journal* reports, the absolute number of American workers will decline by 4 million between 2022 and 2040.

Failure to address demographics' two-pronged attack on status-quo healthcare practices will trigger a massive funding crisis with profound moral implications for allocating societal resources. Like the war vet in

Global population size: estimates for 1700-2022 and projections for 2022-2100



Note: The solid blue line is the estimates from 1700 to today, the dotted red line the projection for the future up to 2100, and the dashed red line the upper and lower bounds of the 95% prediction interval for the projections.

Figure 1.8 Malthus’ mistake: Global population estimates for 1700–2022 and projections for 2022–2100.

Source: United Nation, DESA, Population Division (2022). World Population Prospects 2022.

Hemingway’s *The Sun Also Rises* who experienced bankruptcy “gradually, then suddenly,” the conditions contributing to the systematic failure in U.S. healthcare have been building for decades and are about to explode. Either the healthcare system will transform itself to deliver more appropriate services at lower costs or it will break in fundamental ways.

Demographics constitute a powerful macro force zeroing in on U.S. healthcare. Demographic math paints an irrefutable and grim picture for the future of the current U.S. healthcare system. Like Thelma and Louise, U.S. healthcare is speeding toward a cliff. The industry needs to slam on the brakes and change direction. Failure to do so will be catastrophic.

Rahm Emanuel famously made the following observation when he was White House Chief of Staff in the Obama administration:

You never want a serious crisis to go to waste. And what I mean by that is an opportunity to do things that you think you could not do before.

Demographics amplify the coming crisis confronting U.S. healthcare. Contrary to Auguste Comte's assertion, demographics is not destiny. It simply cannot be. The U.S. has the knowledge and wherewithal to reinvent its dysfunctional and dystopian healthcare system. The question is whether we have the collective will to transform healthcare payment and delivery to provide appropriate healthcare services for the American people now and for the foreseeable future.

Healthcare's current existential crisis could enable revolutionary reformers to pursue fundamental system redesign to deliver better healthcare services at lower costs for all Americans. Time will tell, sooner rather than later, whether America can avoid the demographic avalanche tumbling toward its social welfare system.

KEY INSIGHTS ON DEMOGRAPHIC DETERMINANTS

- U.S. demographics will exert a powerful influence on healthcare's evolving future, which manifests through an aging population, increasing levels of chronic disease, decreasing workforce capacity to provide care services, and increasing demand for healthcare workers.
- Trends that cannot continue, won't. The current system is breaking in fundamental ways under the weight of increasing demands, ineffective operations, and rising costs.
- An inescapable conclusion is that healthcare must transform to accommodate anticipated demographic changes by creating more effective and distributed care delivery models.
- Reducing the demand for high-cost services where possible through better prevention, less waste, and more appropriate end-of-life care could liberate sufficient resources and personnel to offer enhanced elder care service provision.

