

# ISSUE BRIEF **02.25.21**

## The Macroeconomic Scars of the Pandemic

Jorge Barro, Ph.D., Fellow, Center for Public Finance

In her pitch to encourage Congress to pass a \$1.9 trillion stimulus package, Treasury Secretary Janet Yellen spoke of preventing “long-term scarring of the economy,” due to the COVID-19 pandemic.<sup>1</sup> Grim memories of the 2008–2009 financial crisis and its prolonged recovery prompted policymakers to implement extreme economic measures in March 2020 to avoid a similar outcome. In doing so, the U.S. economy may have avoided a worst-case scenario, as the Congressional Budget Office projects a stabilization of near-term economic growth even without the additional fiscal package.<sup>2</sup> As the economy tends back toward its full productive capacity, the data will likely confirm this improvement in the coming months. Optimism surrounding the near-term recovery could, however, obfuscate the pandemic’s deep and lasting economic impact.

Macroeconomists think about economic trends over time in two different ways: short-term cycles and long-term trends. In discussions of the economy, these short-term fluctuations are generally called *business cycles*, and they are usually characterized by sudden changes in the unemployment rate and gross domestic output (GDP). These fluctuations can be caused by disruptions in the economy—such as oil price swings, terrorist attacks, and pandemics—or they can even be caused by changes in business sentiment or consumer confidence. Although Secretary Yellen likely described the economic scars of the pandemic in reference to the possibility of a prolonged business cycle recovery, the early evidence points to much deeper disruptions in the fabric of the U.S. economy.

Long-term trends in the economy are driven by factors like population growth, educational attainment, and tax policy. Since the baby boom following World War II, persistently declining fertility rates have created demographic headwinds in the U.S. economy. In the years leading up to the pandemic, robust immigration flows and sustained growth in educational attainment dampened the macroeconomic declines corresponding to demographics changes. Setbacks in each of these, as well as the surge in government debt, however, indicate that Americans will feel the economic impact of the pandemic long after the recession ends.

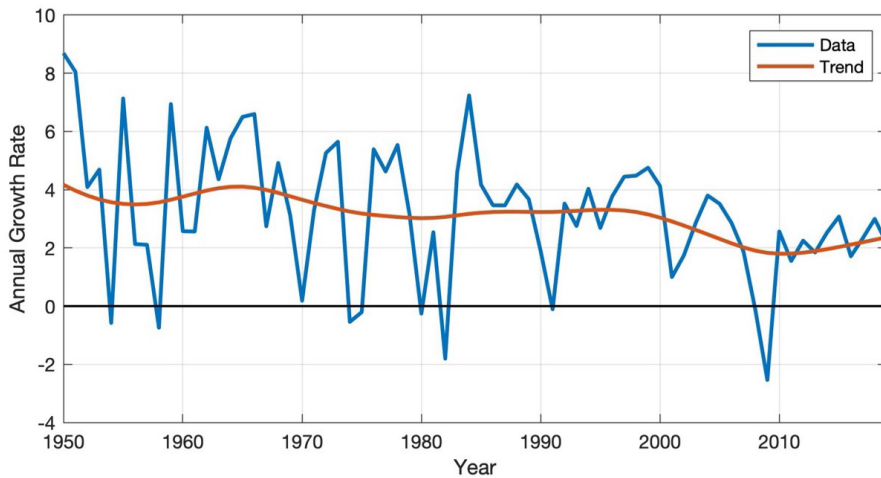
---

### FERTILITY RATES AND IMMIGRATION

Before the pandemic, the U.S. demographic outlook was at a critical turning point. Steadily declining fertility rates over the last several decades coupled with increasing life expectancy had resulted in a persistent decline in population growth and an aging of the population. A corresponding decline in labor force growth has contributed—and will continue contributing—to slowing U.S. economic growth. These demographic trends are extremely slow to unfold and may only become apparent after decades of lag time. Understanding how these demographic variables changed in the aftermath of the pandemic is key to projecting the pandemic’s long-term economic consequences.



**Setbacks in each of these, as well as the surge in government debt, however, indicate that Americans will feel the economic impact of the pandemic long after the recession ends.**

**FIGURE 1 — ANNUAL U.S. REAL GDP GROWTH, 1950–2019**

**SOURCE** U.S. Bureau of Economic Analysis, via Federal Reserve Bank of St. Louis, and the author's calculations.

Evidence suggests that certain events, such as low-category hurricanes, can lead to a transitory rise in fertility rates.<sup>3</sup> At the onset of the pandemic, some researchers projected a similar kind of spike in birth rates. Acting as an opposing force, however, the pandemic also triggered a recession, which is generally associated with a decline in fertility rates.<sup>4</sup> Researchers measured the net effect of these opposing forces and estimated that there will be nearly 300,000 fewer births in 2021 resulting from the pandemic—a so-called *baby bust*.<sup>5</sup> While some of the decline involves a shift in the timing of childbearing, a share of it reflects a permanent reduction in the number of children born.<sup>6</sup>

Historically, immigration has ameliorated tepid population growth, but it was no panacea. The U.S. Census Bureau periodically generates domestic population projections, and the most recent one in 2017 highlights the precarious demographic outlook. The results show an extensive dependence on immigration; without it, the U.S. population will decline in the coming decades.

In the aftermath of the pandemic, the demographic situation took a big step toward the worst-case scenario. Travel restrictions, reduced mobility, and the disruption of immigration services impacted the natural flow of immigration, as well as

the process for admitting immigrants. The number of lawful permanent resident (LPR) applications submitted fell by about 5%, indicating an overall decline in immigration.<sup>7</sup> Although the share of employment-based LPR applications processed rose by about 13%, overall applications processed actually fell by roughly 23%. The number of naturalization applications submitted rose in fiscal year (FY) 2020, possibly reflecting a proposed fee increase, but pandemic-related disruptions in the administrative process caused processed applications to fall by about 24%.

Some of the near-term issues with immigration flows can be alleviated by program funding, but the decline in LPR application submissions may also signal an unsettling possibility. The shift to remote work will continue changing workplace dynamics in a way that allows intellectual resources to spread all over the world. As companies and technologies adapt to this new business environment, fewer employees will need to migrate to the United States to seek domestic employment opportunities.<sup>8</sup> While the productive efforts of remote foreign workers will still contribute to U.S. productive capabilities, the indirect economic impact of outsourced labor could eventually contribute to slowing economic growth.

## EDUCATIONAL ATTAINMENT

At the onset of the pandemic in early 2020, social distancing standards caused widespread school closures. Nearly all forms of instruction—from early elementary school to postsecondary education—transitioned to remote learning. While some institutions quickly returned to in-person classes, several remained online well into 2021. The decline in access to education caused by these disruptions set students back in their schooling, which will translate into reduced future productivity and earnings potential. Research suggests that the K–12 school closures reduce affected students' lifetime earnings by as much as 3% on average.<sup>9</sup>

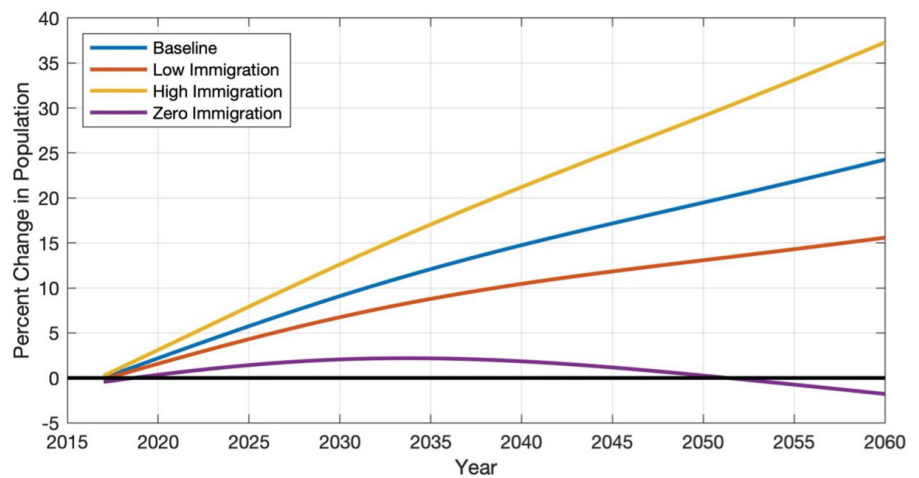
Although people often question whether a college degree is still worthwhile, academic research shows significant gains from postsecondary education.<sup>10</sup> Despite the benefits of higher education, overall fall 2020 undergraduate enrollment declined 4.4% across all types of institutions (public, private, 2-year, and 4-year), with community colleges seeing the largest drop at -9.5%, relative to the previous year.<sup>11</sup> Some portion of these students will simply delay enrollment, while others will forgo higher education altogether. Either case reflects setbacks in individuals' educational attainment, which will eventually dampen macroeconomic progress.<sup>12</sup>

The pandemic disrupted the American education system at every level of instruction. This transitory shift to remote learning will eventually manifest into aggregate economic consequences. Estimates suggest that countries that reopened schools in the fall of 2020 could experience as much as 1.5% lower annual GDP for the remainder of this century, resulting from the shock to educational attainment.<sup>13</sup> At a time when many economists look to improvements in educational attainment as a mechanism for resurgent economic growth and declining economic inequality, the outlook dampened with the disruption to the education system.

### FEDERAL DEBT

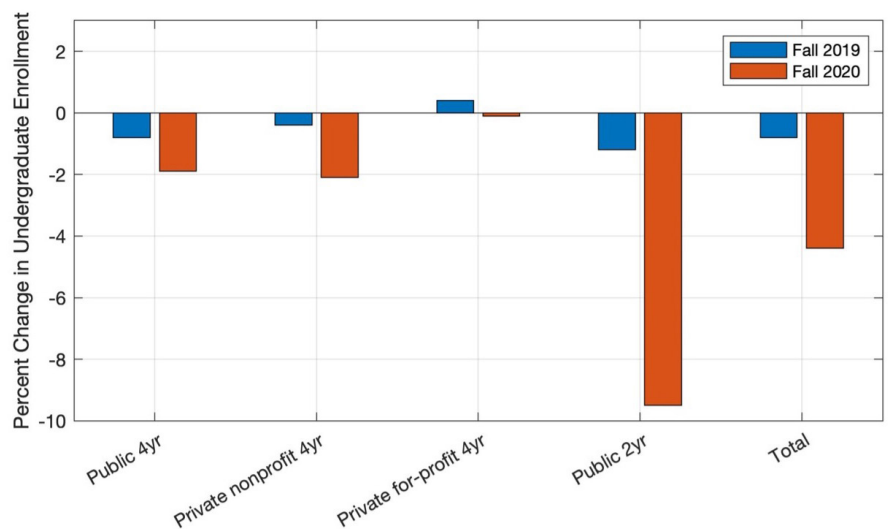
The economic fallout of the pandemic prompted a significant fiscal response by the federal government. A combination of business support, enhanced unemployment insurance, means-tested stimulus payments, and other aid increased a large and growing federal debt stock. Before the pandemic, federal debt as a share of the economy was projected to eclipse its historic peak of 106% in 2033. A Congressional Budget Office update at the end of 2020 projected that pandemic-related spending would cause federal debt to reach its historic peak a full decade sooner. Although growing debt may not cause near-term harm to the economy, the risk of adverse macroeconomic outcomes will increase over time.<sup>14</sup>

**FIGURE 2 — PROJECTED POPULATION GROWTH (RELATIVE TO 2017) BY IMMIGRATION SCENARIO, 2017-2060**



SOURCE U.S. Census Bureau, Population Division.

**FIGURE 3 — PERCENT CHANGE IN UNDERGRADUATE ENROLLMENT (YEAR-OVER-YEAR), FALL 2019 AND FALL 2020**



SOURCE National Student Clearinghouse Research Center.

The Congressional Budget Office attributes the growing federal debt projection to several factors, including costs related to the aging of the population, rising health care costs, and net interest payments on federal debt.<sup>15</sup> Even before the pandemic, financing Social Security was seen as one of the biggest fiscal challenges facing the United States in the coming decades. Although the pandemic disproportionately affected mortality in the elderly population, leading to a reduction in its outlays, the impact of the pandemic could cause even greater detriment to the program's projected receipts.

Social Security is financed through a so-called pay-as-you-go system, where current beneficiaries are financed by current taxpayers. An aging of the population increases the program's outlays, relative to its receipts, placing a strain on the system and causing policymakers to choose between levying higher taxes or reducing benefits. Increases in immigration and fertility rates can tip the balance in favor of the program's receipts, but as described above, the pandemic pushed each in the wrong direction. Accounting for the demographic and economic impact of the pandemic, Social Security's retirement trust fund is now projected to deplete its resources between one and five years sooner, while the disability trust fund will exhaust its resources at least 10 years sooner.<sup>16</sup>

As the U.S. fiscal outlook continues deteriorating, the timeline to fiscal austerity shortens. Whether policymakers eventually stabilize the federal budget with tax increases or reductions in outlays, each outcome will have a set of associated costs. Either case results in long-term macroeconomic headwinds that only grow nearer in the aftermath of the pandemic.

---

## CONCLUSION

As the U.S. economy recovers from the deep pandemic-induced recession, policymakers may feel like the economy is back on track. In reality, many of the pandemic's adverse macroeconomic consequences may lag the business cycle recovery by several years. Policymakers can prepare for the impending

macroeconomic shortfalls by maintaining a commitment to improving education, prioritizing immigration, and resolving fiscal imbalances, particularly regarding Social Security financing.

Although the pandemic dampened the macroeconomic outlook, it also introduced some reasons to remain hopeful about the future. Social distancing standards accelerated a transition to remote work, which could ultimately lead to improvements in productivity and employment opportunities.<sup>17</sup> Remote work also reduced the reliance on residency in densely populated areas, resulting in migration to suburban and rural areas. The decline in the cost of living in more sparsely populated areas improves the financial and logistical feasibility of having larger families, which could improve demographic imbalances. While these could be large enough to offset the macroeconomic losses corresponding to the pandemic, policymakers should not count on them to resolve the existing fiscal and macroeconomic issues.

---

## ENDNOTES

1. Kate Davidson, "Yellen Calls for More Aid to Avoid Longer, More Painful Recession," *The Wall Street Journal*, January 18, 2021, <https://www.wsj.com/articles/yellen-sees-risk-of-longer-more-painful-recession-absent-more-economic-aid-11610999772>.

2. "An Overview of the Economic Outlook: 2021 to 2031," Congressional Budget Office report, February 2021, <https://www.cbo.gov/system/files/2021-02/56965-Economic-Outlook.pdf>.

3. Richard W. Evans, Yingyao Hu, and Zhong Zhao, "The fertility effect of catastrophe: US hurricane births," *Journal of Population Economics* 23, no. 1 (2010): 1-36, <https://doi.org/10.1007/s00148-008-0219-2>.

4. Shoumitro Chatterjee and Tom Vogl, "Escaping Malthus: Economic growth and fertility change in the developing world," *American Economic Review* 108, no. 6 (2018): 1440-67, <https://doi.org/10.1257/aer.20170748>.

5. Melissa S. Kearney and Phillip B. Levine, "The coming COVID-19 baby bust: Update," *Up Front* (blog), Brookings Institution, December 17, 2020, <https://www.brookings.edu/blog/up-front/2020/12/17/the-coming-covid-19-baby-bust-update/>.

6. Lindberg, Laura D., Alicia VandeVusse, Jennifer Mueller, and Marielle Kirstein, *Early impacts of the COVID-19 pandemic: Findings from the 2020 Guttmacher Survey of Reproductive Health Experiences*, New York: Guttmacher Institute, June 2020, <https://www.guttmacher.org/report/early-impacts-covid-19-pandemic-findings-2020-guttmacher-survey-reproductive-health>.

7. "2020 USCIS Statistical Annual Report," U.S. Citizen and Immigration Services, January 2021, <https://www.uscis.gov/sites/default/files/document/reports/2020-USCIS-Statistical-Annual-Report.pdf>.

8. Clay Kellog, "Digital Immigration: Could Global Hiring Be The Future?" *Forbes*, October 12, 2020, <https://www.forbes.com/sites/forbestechcouncil/2020/10/12/digital-immigration-could-global-hiring-be-the-future/?sh=739f586295e5>.

9. Eric A. Hanushek and Ludger Woessmann, "The economic impacts of learning losses," *OECD Education Working Papers*, no. 225, September 10, 2020, <https://doi.org/10.1787/21908d74-en>.

10. William Emmons, Ana Hernández Kent, and Lowell Ricketts, "Is College Still Worth It? It's Complicated," *St. Louis Fed on the Economy Blog*, February 7, 2019, <https://www.stlouisfed.org/on-the-economy/2019/february/is-college-still-worth-it-complicated>.

11. National Student Clearinghouse Research Center's Monthly Update on Higher Education Enrollment, November 12, 2020, <https://nscresearchcenter.org/stay-informed/>.

12. Graduate school enrollment actually increased over this time period, likely reflecting adverse labor market conditions.

13. Hanushek and Woessmann, "The economic impacts of learning losses."

14. Jorge Barro, *U.S. Debt at 100% of GDP: Why This Time Will Be Different*, Issue brief no. 11.30.20. Rice University's Baker Institute for Public Policy, Houston, Texas, 2020, <https://www.bakerinstitute.org/media/files/files/4c9e673b/bi-brief-113020-cpf-debt100.pdf>.

15. "The 2020 Long-Term Budget Outlook," Congressional Budget Office report, September 2020, <https://www.cbo.gov/system/files/2020-09/56516-LTBO.pdf>.

16. Nicko Gladstone and Shai Akabas, "How Will COVID-19 Affect the Social Security Trust Funds?" Bipartisan Policy Center report, October 2020, [https://bipartisanpolicy.org/wp-content/uploads/2020/10/BPC\\_SS\\_TrustFunds\\_FinalPDF.pdf](https://bipartisanpolicy.org/wp-content/uploads/2020/10/BPC_SS_TrustFunds_FinalPDF.pdf).

17. Roy Maurer, "Study Finds Productivity Not Deterred by Shift to Remote Work," SHRM report, September 16, 2020, <https://www.shrm.org/hr-today/news/hr-news/pages/study-productivity-shift-remote-work-covid-coronavirus.aspx>.

## AUTHOR

**Jorge Barro, Ph.D.**, is a fellow in public finance at the Baker Institute. His area of research involves the development of dynamic macroeconomic models for fiscal policy evaluation. He previously was an economist at the University of Pennsylvania's Wharton Public Policy Initiative, where he led the development of their dynamic macroeconomic model and helped launch the nonpartisan Penn Wharton Budget Model.

center for  
**PUBLIC FINANCE**

Rice University's Baker Institute for Public Policy

See more issue briefs at:

[www.bakerinstitute.org/issue-briefs](http://www.bakerinstitute.org/issue-briefs)

This publication was written by a researcher (or researchers) who participated in a Baker Institute project. Wherever feasible, this research is reviewed by outside experts before it is released. However, the views expressed herein are those of the individual author(s), and do not necessarily represent the views of Rice University's Baker Institute for Public Policy.

© 2021 Rice University's Baker Institute for Public Policy

This material may be quoted or reproduced without prior permission, provided appropriate credit is given to the author and Rice University's Baker Institute for Public Policy.

Cite as:

**Barro, Jorge. 2021. *The Macroeconomic Scars of the Pandemic*. Issue brief no. 02.25.21. Rice University's Baker Institute for Public Policy, Houston, Texas.**

<https://doi.org/10.25613/R94H-AG26>