



Photo: VioletaStoimenova/iStock

Inequality Research Review

Intergenerational Economic Mobility

America is known as the land of opportunity, but our children are not destined to do better than us.

Bryan A. Stuart

Economic Advisor and Economist
FEDERAL RESERVE BANK OF PHILADELPHIA

The views expressed in this article are not necessarily those of the Federal Reserve.

According to “the American Dream,” if we work hard enough and play by the rules, we’ll improve our situation and do better than our parents. But the data show that this is not equally true for all Americans. This is a concern for anyone who cares about the economy, because intergenerational economic mobility—defined as the relationship between children’s and parents’ economic outcomes—shapes the economy’s overall

productive capacity.¹ Newly available data have generated novel insights into the nature of economic mobility, and in this article I use that data to describe the key patterns and determinants of mobility in the U.S. Understanding economic mobility also helps us assess shifts in the economy that have occurred in recent decades and evaluate the long-run consequences of policies.

Key Patterns of Intergenerational Mobility

Thanks to the recent availability of tax data that contain high-quality information on parent-child linkages, income, and place of residence, we can now identify some of the key patterns in intergenerational mobility.

First, the share of children who earn more income than their parents did at the same age has decreased over time (Figure 1).² Over 90 percent of children born in 1940 earned more income than their parents. However, only 50 percent of the children born in 1980 earned more than their parents. Two factors explain this decline: the slowdown in income growth after 1970, and the fact that this slowdown was most pronounced at the lower and middle sections of the income distribution.

Second, a child's rank in the nationwide household income distribution is related to their parents' rank, but these variables do not simply move one-for-one with each other. This is made clear when comparing the rank of individuals born in the same year to their parents' rank.³ Specifically, there is considerable upward mobility for children born to parents with lower incomes. For example, children born to the poorest parents—in the 1st percentile of the income distribution—rise on average to the 31st percentile. There is also considerable downward mobility for children born to parents with higher incomes. Children born to the richest parents—in the 100th percentile—on average fall to the 73rd percentile. When averaging over all parents and children in the data, each 1 percentile increase in parents' income rank is associated with a 0.37 percentile increase in children's income rank. This relationship lies between the benchmarks of perfect mobility—where a child's income rank would be unrelated to their parents' income rank—and no mobility—where a child's income rank would equal their parents' rank.

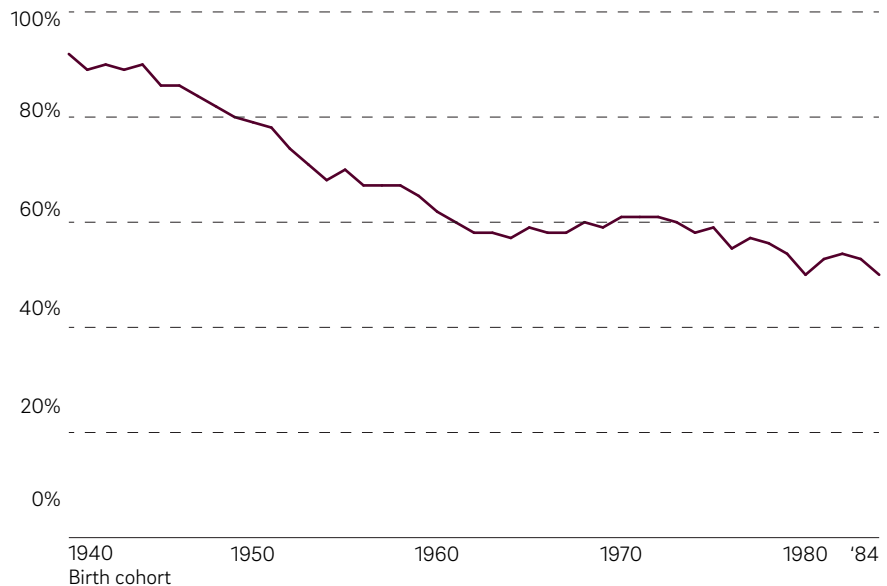
This relationship can also be used to gauge convergence across multiple generations. For example, parents in the 25th percentile of the income distribution on average have a child who rises to the 41st percentile, and parents in the 41st percentile of the income distribution on average have a child who rises to the 47th percentile, which implies that the grandchild of the 25th percentile earner

FIGURE 1

A Shrinking Share of Americans Earn More Than Their Parents

This is because sluggish income growth has been most pronounced for lower- and middle-income households.

Share of children who grew up to earn more than their parents did, 1940–1984



Data Source: Chetty, Grusky, Hell, et al. (2017).

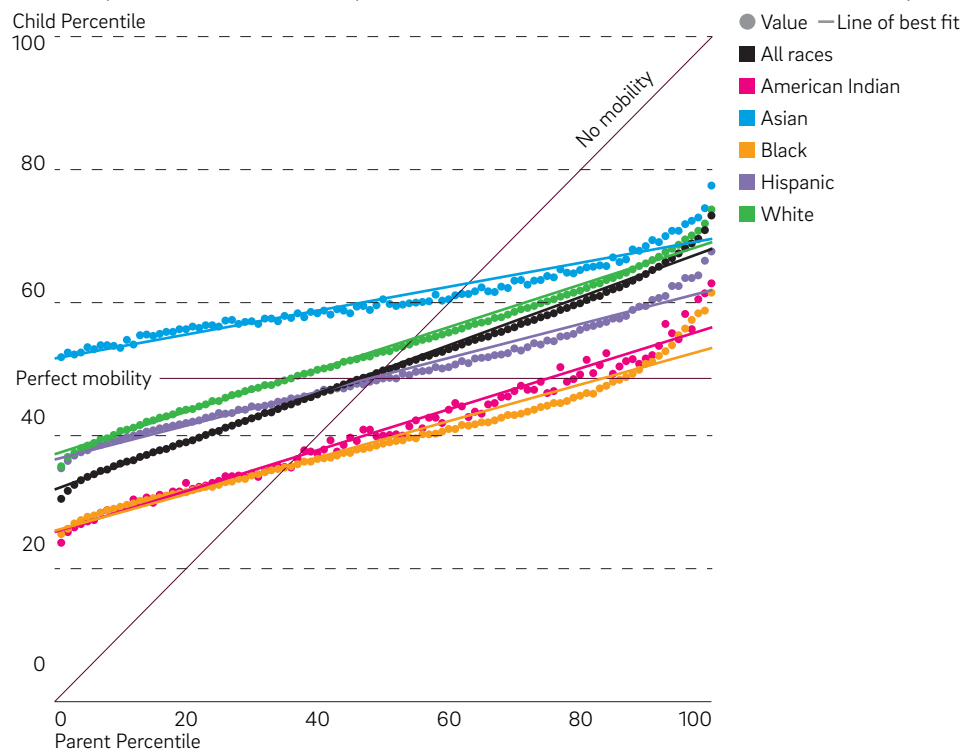
Note: Calculations based on inflation-adjusted, pre-tax household (including spouse's) income at age 30.

FIGURE 2

A Child's Income Is Related to Their Parents' Income

However, some races experience more intergenerational mobility than others.

Relationship between a child's and their parents' rank in the nationwide household income distribution, by race



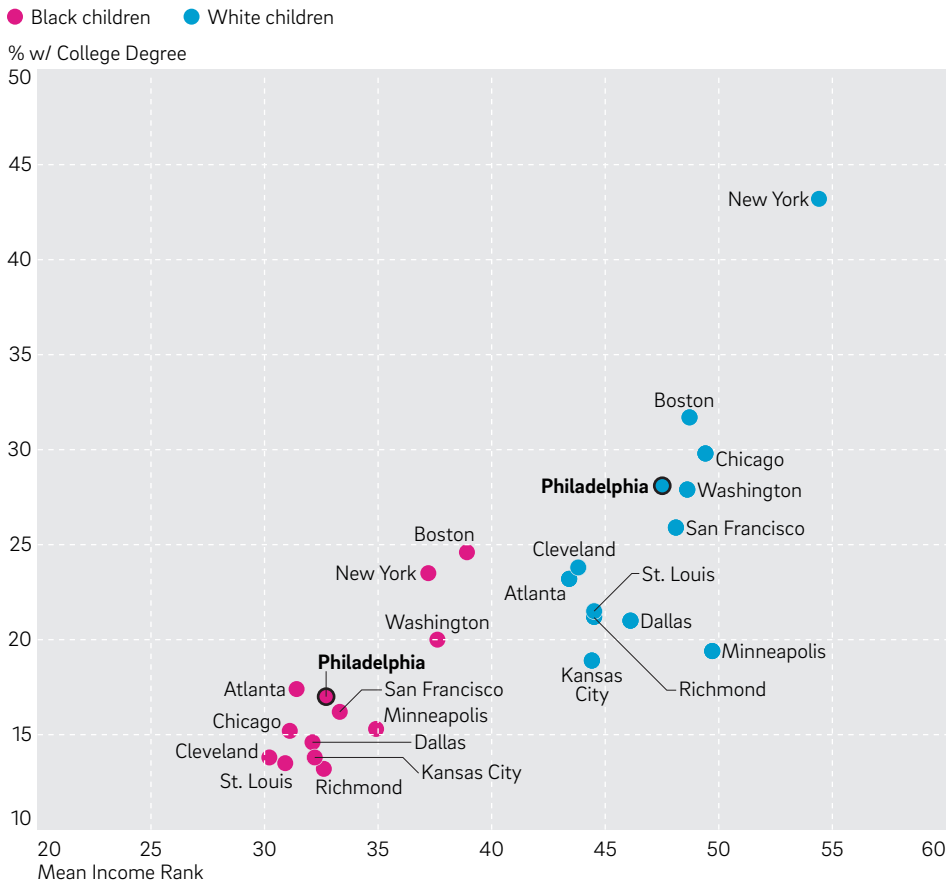
Data Source: Chetty, Friedman, Hendren, et al. (2020).

Note: Calculations based on inflation-adjusted, pretax household (including spouse's) income.

FIGURE 3

Economic Mobility Varies Across Areas

But White children experience more upward mobility and are more likely to get a degree. Mean income rank of children born to parents at the 25th percentile of the income distribution and the percentage of those children with a college degree, by commuting zone that hosts a Federal Reserve System bank or the Board of Governors



Source: Chetty, Friedman, Hendren, et al. (2020).

will rise to near the middle of the income distribution. This represents fairly rapid convergence in economic outcomes across two generations.

Third, patterns of economic mobility differ significantly by race and ethnicity (Figure 2).⁴ Among children born to parents with the same income rank, the income ranks of American Indian and Black children do not rise as much as the ranks of White and Asian children. The rate for Hispanic children is in the middle. This inequality in mobility by race and ethnicity is particularly striking because it compares children born in the same year to parents of the same income rank. These findings suggest that the lower income levels of American Indian and Black individuals will likely persist

for as long as these differing rates of economic mobility persist. One striking additional finding is that the Black-White gap in economic mobility is driven entirely by differences between men, as Black and White women have similar rates of economic mobility conditional on their parents' income rank.

Fourth, economic mobility varies considerably across local areas (Figure 3). For example, Black children born to parents in the 25th percentile of the nationwide income distribution rise on average to the 39th percentile if they spend their childhood in the Boston commuting zone, but only to the 30th percentile if they grow up in the Cleveland commuting zone. Because each percentile of the income distribution translates to around \$1,000 in

annual household income, this 9-percentile gap amounts to a difference of around \$9,000 in annual income. This difference in income mobility is closely related to the difference in educational mobility, which is calculated here as the share of children born to parents in the 25th percentile of the income distribution who get a college degree. There is also considerable variation in White children's economic mobility across areas.

These findings point to remarkable variation in economic mobility by time, space, and race. But why does economic mobility vary in these ways? I address this question in the remainder of the article, starting with a discussion of a conceptual framework that describes the determinants of long-run economic outcomes.

Determinants of Economic Mobility

Researchers have long identified human capital as a key determinant of an individual's economic success. Human capital comprises factors valued in the labor market, such as knowledge, skills, attitudes, and health. Usually, the more human capital you have, the higher your wages. Of course, an individual's income depends on many other economic and social forces, such as how many hours they work, the presence of labor market institutions (such as unions and a minimum wage), and the extent of the discrimination they face.

Human capital depends on inputs received throughout childhood.⁵ One set of inputs is environmental: the characteristics of a child's family, peers, and neighborhood. Another set of inputs comprises material and time investments from both private and public sources, such as parents and schools. Environmental factors are closely related to these investments, but investments are easier to adjust. For example, it is easier for a parent to change how much time they spend reading to their child than the neighborhood in which they reside.

However, some parents and children face constraints on their ability to finance these investments. These constraints arise because the return on investment—higher human capital—cannot be pledged as collateral to a potential lender. This differs from other situations where it is

neither illegal nor unethical to sign away one's rights to an asset (such as a house or car). Given these borrowing constraints, low-income parents might not be able to invest as much in their children as they would like. (Children, of course, face even greater constraints on their ability to borrow.) Higher-income parents are less likely to be constrained by their available income or assets, which means that lower-income parents may invest less in their children's human capital simply because they face constraints on their credit.

Importantly, the return on these investments depends on environmental factors. For example, all else being equal, children might benefit more from advanced math classes if they live in a safer neighborhood. If higher-income parents provide their children with an environment more conducive to human capital development, and if they respond to this better environment by investing more in their children, then they reinforce the positive relationship between their income and human capital investments.

These insights help us understand why some children have less economic mobility than other children. First, children of lower-income parents could receive a smaller investment in human capital (perhaps because of credit constraints). Second, exposure to worse environmental factors could undermine the human capital investments they do receive, which could explain why the economic outcomes of American Indian, Black, and Hispanic children are worse than for White children, even when their parents all earn the same income.⁶

To gather further insights into the determinants of economic mobility, I summarize some lessons gleaned from empirical papers about the consequences of specific factors and policies.

Evidence of the Determinants

During the last 10 years, researchers have made considerable progress in documenting how long-run economic outcomes depend on early-life conditions. A major catalyst of research in the U.S. has been the ability to link data on outcomes in adulthood with detailed geographic information on where children were born. I briefly summarize some of the key findings of the researchers who have used this data to study economic outcomes in the U.S.⁷

A large body of evidence indicates that negative environmental factors lead to long-run reductions in earnings, employment, and education. The specific environmental factors that are harmful for a child's economic outcomes include maternal malnutrition, stress, and disease while individuals are in utero; exposure to air pollution and lead; domestic violence in the families of elementary school classmates; and living in high-poverty neighborhoods.⁸ More generally, moving to counties or commuting zones where permanent residents have worse long-run outcomes leads to a decline in children's outcomes.⁹

In a recent Federal Reserve Bank of Philadelphia working paper, my coauthors and I focus on how metropolitan-area racial segregation affects economic mobility.¹⁰ Using variation in racial

segregation driven by the 19th century placement of railroads within cities, we find that segregation lowers the economic mobility of Black children from across the parental income distribution. We also find that segregation lowers the economic mobility of White children whose parents have a lower income. These negative impacts appear for income, incarceration, and teen births. Moreover, segregation lowers the test scores for grades 3 through 8 of both Black and White children, which suggests that decreases in human capital attainment during childhood contribute to the decline in long-run outcomes. Clearly, racial segregation is an environmental factor that is difficult for individual families to mitigate.

Evidence also indicates that investments during childhood can generate long-run increases in earnings, employment, and education. There is evidence of positive impacts from higher public-school spending via school finance reforms, Head Start preschool for disadvantaged children, Medicaid health insurance coverage during childhood, and food stamps.¹¹ One particularly intriguing finding is that publicly funded investments in the education and health of children from low-income families often pay for themselves in the form of higher tax revenue and lower government spending when those children become adults.¹² There is also research on policies and conditions that likely affect both environmental conditions and investments. For example, studies point to the positive impacts of the Earned Income Tax Credit, which increases the income of working parents, and stronger

Investments during childhood can generate long-run increases in earnings, employment, and education.

local labor market conditions, which can affect parents and communities.¹³ Beyond these large-scale policies, can anything else be done to improve children's outcomes? Yes: When both parents invest their time in their children, it has been shown, they increase their children's human capital attainment.¹⁴

Conclusion

Although children of higher-income parents have better economic outcomes on average in the U.S., there is substantial economic mobility. However, there is also inequality in economic mobility, with American Indian and Black children tending to obtain worse economic outcomes than children from other races who have parents at the same income level. Public investments in lower-income children have the potential to not only improve outcomes for those children but also benefit government budgets and the economy in general. Identifying how to effectively increase economic mobility will remain a key priority for researchers and policymakers for years, if not decades, to come. ■

Notes

- 1** For example, see Bernanke (2007), Yellen (2014), Harker (2017), and Powell (2019).
- 2** See Chetty, Grusky, Hell, et al. (2017). The authors' main results are for inflation-adjusted, pretax household income (which includes a spouse's income, if applicable) at age 30. Their conclusions are similar when examining individual income or adjusting for inflation in different ways.
- 3** See Chetty, Friedman, Hendren, et al. (2020).
- 4** See Chetty, Hendren, Jones, and Porter (2020).
- 5** See Becker and Tomes (1979, 1986), Cunha and Heckman (2007), and Mogstad and Torsvik (2022).
- 6** Of course, there are many other explanations, including racial and ethnic wealth gaps and discrimination at various stages of the lifecycle. Chetty, Hendren, Jones, and Porter (2020) discuss many of these issues in the context of the Black–White mobility gap.
- 7** Because these researchers have focused on the long-run consequences of events, by necessity they study events that happened long ago.
- 8** See Chetty, Hendren, and Katz (2016), Isen, Rossin-Slater, and Walker (2017), Almond, Currie, and Duque (2018), Billings and Schnepel (2018), and Carrell, Hoekstra, and Kuka (2018).
- 9** See Chetty and Hendren (2018).
- 10** See Chyn, Haggag, and Stuart (2023).
- 11** See Jackson, Johnson, and Persico (2016), Miller and Wherry (2019), Bailey et al. (2020), Bailey, Sun, and Timpe (2021), Goodman-Bacon (2021), and Biasi (2023).
- 12** See Hendren and Sprung-Keyser (2020).
- 13** See Bastian and Michelmores (2018) and Stuart (2022).
- 14** See Del Boca, Flinn, and Wiswall (2014).

References

- Almond, Douglas, Janet Currie, and Valentina Duque. "Childhood Circumstances and Adult Outcomes: Act II," *Journal of Economic Literature*, 56:4 (2018), pp. 1360–1446, <https://doi.org/10.1257/jel.20171164>.
- Bailey, Martha J., Hilary W. Hoynes, Maya Rossin-Slater, and Reed Walker. "Is the Social Safety Net a Long-Term Investment? Large-Scale Evidence from the Food Stamps Program," National Bureau of Economic Research Working Paper 26942 (2020), <https://doi.org/10.3386/w26942>.
- Bailey, Martha J., Shuqiao Sun, and Brenden Timpe. "Prep School for Poor Kids: The Long-Run Impacts of Head Start on Human Capital and Economic Self-Sufficiency," *American Economic Review*, 111:12 (2021), pp. 3963–4001, <https://doi.org/10.1257/aer.20181801>.
- Bastian, Jacob, and Katherine Michelmores. "The Long-Term Impact of the Earned Income Tax Credit on Children's Education and Employment Outcomes," *Journal of Labor Economics*, 36:4 (2018), pp. 1127–1163, <https://doi.org/10.1086/697477>.
- Becker, Gary S., and Nigel Tomes. "An Equilibrium Theory of the Distribution of Income and Intergenerational Mobility," *Journal of Political Economy*, 87:6 (1979), pp. 1153–1189, <https://doi.org/10.1086/260831>.
- Becker, Gary S., and Nigel Tomes. "Human Capital and the Rise and Fall of Families," *Journal of Labor Economics*, 4:3 (1986), pp. S1–S39, <https://doi.org/10.1086/298118>.
- Bernanke, Ben S. "The Level and Distribution of Economic Well-Being," speech before the Greater Omaha Chamber of Commerce, Omaha, NE, February 6, 2007, <https://www.federalreserve.gov/newsevents/speech/bernanke20070206a.htm>.
- Biasi, Barbara. "School Finance Equalization Increases Intergenerational Mobility," *Journal of Labor Economics*, 41:1 (2023), pp. 1–38, <https://doi.org/10.1086/718980>.
- Billings, Stephen B., and Kevin T. Schnepel. "Life After Lead: Effects of Early Interventions for Children Exposed to Lead," *American Economic Journal: Applied Economics*, 10:3 (2018), pp. 315–344, <https://doi.org/10.1257/app.20160056>.
- Carrell, Scott E., Mark Hoekstra, and Elira Kuka. "The Long-Run Effects of Disruptive Peers," *American Economic Review*, 108:11 (2018), pp. 3377–3415, <https://doi.org/10.1257/aer.20160763>.

- Chetty, Raj, John N. Friedman, Nathaniel Hendren, et al. "The Opportunity Atlas: Mapping the Childhood Roots of Social Mobility," Opportunity Insights working paper (2020).
- Chetty, Raj, David Grusky, Maximilian Hell, et al. "The Fading American Dream: Trends in Absolute Income Mobility Since 1940," *Science*, 356:6336 (2017), pp. 398–406, <https://doi.org/10.1126/science.aal4617>.
- Chetty, Raj, and Nathaniel Hendren. "The Impacts of Neighborhoods on Intergenerational Mobility I: Childhood Exposure Effects," *Quarterly Journal of Economics*, 133:3 (2018), pp. 1107–1162, <https://doi.org/10.1093/qje/qjy007>.
- Chetty, Raj, Nathaniel Hendren, Maggie R. Jones, and Sonya R. Porter. "Race and Economic Opportunity in the United States: An Intergenerational Perspective," *Quarterly Journal of Economics*, 135:2 (2020), pp. 711–783, <https://doi.org/10.1093/qje/qjz042>.
- Chetty, Raj, Nathaniel Hendren, and Lawrence F. Katz. "The Effects of Exposure to Better Neighborhoods on Children: New Evidence from the Moving to Opportunity Experiment," *American Economic Review*, 106:4 (2016), pp. 855–902, <https://doi.org/10.1257/aer.20150572>.
- Chyn, Eric, Kareem Haggag, and Bryan A. Stuart. "The Effects of Racial Segregation on Intergenerational Mobility: Evidence from Historical Railroad Placement," Federal Reserve Bank of Philadelphia Working Paper 23-18 (2023), <https://www.philadelphiafed.org/the-economy/regional-economics/effects-of-racial-segregation-on-intergenerational-mobility-evidence-historical-railroad-placement>.
- Cunha, Flavio, and James Heckman. "The Technology of Skill Formation," *American Economic Review*, 97:2 (2007), pp. 31–47. <https://doi.org/10.1257/aer.97.2.31>.
- Del Boca, Daniela, Christopher Flinn, and Matthew Wiswall. "Household Choices and Child Development," *Review of Economic Studies*, 81:1 (2014), pp. 137–185, <https://doi.org/10.1093/restud/rdt026>.
- Goodman-Bacon, Andrew. "The Long-Run Effects of Childhood Insurance Coverage: Medicaid Implementation, Adult Health, and Labor Market Outcomes," *American Economic Review*, 111:8 (2021), pp. 2550–2593, <https://doi.org/10.1257/aer.20171671>.
- Harker, Patrick T. "The Intrinsic Value of Inclusive Growth," speech given at the Pennsylvania Economic Association Annual Conference, Reading, PA, June 2, 2017, <https://www.philadelphiafed.org/the-economy/the-intrinsic-value-of-inclusive-growth>.
- Hendren, Nathaniel, and Ben Sprung-Keyser. "A Unified Welfare Analysis of Government Policies," *Quarterly Journal of Economics*, 135:3 (2020), pp. 1209–1318, <https://doi.org/10.1093/qje/qjaa006>.
- Ilsen, Adam, Maya Rossin-Slater, and W. Reed Walker. "Every Breath You Take—Every Dollar You'll Make: The Long-Term Consequences of the Clean Air Act of 1970," *Journal of Political Economy*, 125:3 (2017), pp. 848–902, <https://doi.org/10.1086/691465>.
- Jackson, C. Kirabo, Rucker C. Johnson, and Claudia Persico. "The Effects of School Spending on Educational and Economic Outcomes: Evidence from School Finance Reforms," *Quarterly Journal of Economics*, 131:1 (2016), pp. 157–218, <https://doi.org/10.1093/qje/qjv036>.
- Miller, Sarah, and Laura R. Wherry. "The Long-Term Effects of Early Life Medicaid Coverage," *Journal of Human Resources*, 54:3 (2019), pp. 785–824, <https://doi.org/10.3368/jhr.54.3.0816.8173R1>.
- Mogstad, Magne, and Gautes Torsvik. "Family Background, Neighborhoods and Intergenerational Mobility," National Bureau of Economic Research Working Paper 28874 (2022), <https://doi.org/10.3386/w28874>.
- Powell, Jerome H. "Welcoming Remarks," speech given at the 2019 Federal Reserve System Community Development Research Conference, "Renewing the Promise of the Middle Class," Washington, D.C., May 9, 2019, <https://www.federalreserve.gov/newsevents/speech/powell20190509a.htm>.
- Stuart, Bryan A. "The Long-Run Effects of Recessions on Education and Income," *American Economic Journal: Applied Economics*, 14:1 (2022), pp. 42–74, <https://doi.org/10.1257/app.20180055>.
- Yellen, Janet L. "Perspectives on Inequality and Opportunity from the Survey of Consumer Finances," speech given at the Conference on Economic Opportunity and Inequality, Federal Reserve Bank of Boston, October 17, 2014, <https://www.federalreserve.gov/newsevents/speech/files/yellen20141017a.pdf>.