



How Cultural Factors Shape Economic Outcomes

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The Future of Children

PRINCETON-BROOKINGS



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How Cultural Factors Shape Economic Outcomes: Introducing the Issue

Melissa S. Kearney and Ron Haskins

Children's economic and social outcomes, both during their childhood and in their adult years, largely depend on the circumstances into which they are born and raised. Such circumstances are the product of children's families, schools, and neighborhoods; the peers and adults with whom they spend time; the media images that shape their perceptions of themselves and their place in the world; and other factors—both internal and external to the individual child. Many would say that culture plays a large role in shaping a child's life experiences and outcomes. But culture is hard to define and quantify, and controversial to talk about, especially as an ill-defined concept. Furthermore, the question of what—if anything—policy makers and practitioners can do about culture is hard to grapple with, unlike more readily measured and studied concepts like income or educational attainment.

This issue of the *Future of Children* aims to identify and measure elements of culture that predict children's economic and social outcomes, and to present the best evidence to date about how these factors shape

children's economic outcomes. When we use the word *culture* here, we don't purport to work either within or outside a precise definition of culture that comes from any particular academic body of thought. Rather, we consider particular elements of the social institutions, customs, and attitudes in US society that a layperson might reasonably consider to be culture.

The eight articles we've assembled here were written by highly regarded economists and psychologists. Each article considers a specific societal factor that research has shown to be important to economic and social outcomes: religious institutions; parenting practices; family structure; role models, mentors and media influences; peer and family effects; social capital and networks; beliefs about opportunity and mobility; and discrimination. All the authors have written through the lens of objectivity, with a deep and expansive knowledge of the relevant research.

Most people would probably place some of the topics covered here at the top of their list of what they consider cultural elements—for example, the role of religion or family

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structure. But other topics may seem less obviously “cultural.” For instance, economists often talk about labor market networks without explicitly referring to networks as part of a society’s culture. Nor do most economic considerations of discrimination explicitly consider that practice as a cultural construct. As co-editors, we view each article in this issue as exploring a critical element of the US cultural context shaping children’s lives, though the individual authors don’t necessarily define or discuss the factors they’re writing about explicitly in terms of culture.

Cultural Factors and Social Mobility

Our nation is in the grip of widening inequality and social fragmentation. The past four decades have seen massive increases in income for those at the top of the income distribution but only small to modest increases for those near the bottom. People who lack high levels of skills and education have seen their wages stagnate or fall and their economic insecurity rise. It’s harder today for children to achieve higher levels of income than their parents had, which suggests that the fabled American Dream is under threat.¹ Many of us worry that the promise of opportunity and upward mobility is eroding. The issue of social mobility is front and center in academic research and domestic policy discussions.

Rates of social mobility vary widely from place to place, and many key correlates of upward mobility have to do with the elements of a place’s culture. Groundbreaking research from the Opportunity Insights project—a social science research lab at Harvard University, led by economists Raj Chetty, John Friedman, and Nathaniel Hendren,

which makes use of confidential access to millions of US tax records—has provided a rich description of social mobility across localities in the United States.² This data-driven work reveals vast differences across the country in rates of upward mobility for children from low-income homes. Strikingly, the research shows that many of the factors that predict upward mobility rates from place to place have more to do with cultural elements than with policy per se. Family structure, social capital, and religiosity, for example, are more highly correlated with social mobility than are such factors as college tuition and tax progressivity. Furthermore, the presence of black fathers in a neighborhood and a measure of racial animus are the two strongest predictors of mobility rates for black boys. This doesn’t discount the importance of policy but rather makes the point that cultural factors are also critically important.

Articles 1–3: Religious Institutions, Parenting, and Family Structure

In the first article in this issue, Daniel Hungerman, an economist at the University Notre Dame, reviews the roles that religious institutions play in people’s lives and considers how engagement with religious institutions shapes people’s economic wellbeing. Estimates suggest that the United States is home to over 380,000 religious congregations. Many of these provide help to people in their communities, not just to their own members, the most common types of social services being assistance with food, housing, and clothing. Religious congregations play a large role in education as well, and in community organizing.

Hungerman also discusses the consequences of religious participation, focusing on what

rigorous evidence suggests about the *causal* role that engagement with religion has on people's outcomes. For instance, a large number of studies report that religious people appear to be healthier, happier, and more civic-minded. But does that tell us something about the type of people who are likely to be religious, or about the effect of religion itself? Hungerman's review of the evidence leads him to conclude that religiosity has a positive causal effect on wellbeing. Religious participation discourages unhealthy behaviors, such as heavy drinking and gambling, and generally promotes educational attainment. He also concludes that religious participation can increase a person's tolerance of others and, in some contexts, advance the societal status of girls and women.

In the second article, Ariel Kalil of the University of Chicago and Rebecca Ryan of Georgetown University, both developmental psychologists, examine parenting practices and socioeconomic gaps in child outcomes. They document substantial differences between wealthier and poorer families, including growing gaps in parental engagement and time use. These gaps matter: the fact that children born to lower-income, less-educated parents are less likely to spend quality time with their parents compounds their relative economic disadvantage.

Evidence suggests that disadvantaged parents *want* to do many of the same things that higher-income parents do—such as reading to their children and engaging them in educational experiences like trips to parks and museums—but they're less likely to do them. The authors consider a number of explanations for this discrepancy. One important contributing factor appears to

be financial strain and family stress, both of which can impede parents' emotional and cognitive functioning in ways that make it harder for them to interact with young children in intellectually stimulating and emotionally nurturing ways. The authors conclude with a discussion of the types of policies and programs that evidence suggests would most effectively narrow income-based parenting gaps.

Next, Melanie Wasserman, an economist at the University of California, Los Angeles, writes about the role of family structure, reviewing the latest evidence on the causal link between family structure and children's economic and social outcomes. Wasserman moves beyond a consideration of *whether* family structure affects child outcomes—a topic that's already been covered at length, including in previous *Future of Children* volumes—to present evidence about *how* family structure differentially affects children. Several recent studies indicate that growing up outside a family with two biological, married parents yields especially negative consequences for boys as compared to girls, including worse educational outcomes and higher rates of criminal involvement.

Wasserman describes mechanisms that may link family structure to children's outcomes, in terms of both the main effect and gender differences. These include same-gender role models (in the household and in the neighborhood), parental resources (income and other), parenting quantity/quality (including parental time allocation by child gender), and the differential responsiveness of boys to parental inputs, among other hypotheses. In discussing lessons for policy, Wasserman encourages efforts to supplement the educational, parental, and emotional

resources available to those children who are most at risk of experiencing the negative effects of nontraditional family structures.

Articles 4 and 5: Social Influences on Behavior

Compared to the children of wealthier parents, children in low-income families are less likely to have economically successful role models and mentors, and are likely to spend more time with media. In our fourth article, economists Melissa Kearney of the University of Maryland and Phillip Levine of Wellesley College review the theoretical and empirical evidence about how and why role models, mentors, and media influences affect children's outcomes.

Kearney and Levine describe evidence showing that role models and media matter for children's outcomes. Many studies demonstrate positive same-gender and same-race role model effects in schools. Formal mentoring programs, such as Big Brothers Big Sisters, can also have positive impacts on participants, in the form of better school performance and lower rates of involvement with the criminal justice system. Media content also matters: encouragingly, media can be a force for good in advancing children's and teens' educational and social outcomes. The authors conclude that interventions designed to improve the social influences children face could help increase rates of upward mobility for children from low-income homes.

In article 5, Gordon Dahl, an economist at the University of California, San Diego, takes on the related topic of how peers and families shape social group norms. He describes how researchers have overcome the challenge of separating peer and family effects from shared peer and family

preferences, so that they can now generate credible estimates of how the behaviors of peers and family members affect a person's choices in work and program participation. The evidence suggests that when a policy changes a person's employment or program participation, it also has large spillover effects on that person's family members and peers. Dahl points out the policy relevance of large social multiplier effects. For instance, to the extent that increased take-up of a government assistance program implies greater participation among the children and relatives of current beneficiaries, we should expect higher program caseloads and costs in the long term.

Articles 6-8: Networks and Social Contexts

Scholars and policy makers alike are increasingly interested in understanding how social capital shapes people's economic lives. But the idea of social capital is an amorphous one. In article 6, economists Judy Hellerstein of the University of Maryland and David Neumark of the University of California, Irvine, define social capital as networks of relationships among people who are connected by where they live or work. The authors draw on survey evidence, case studies, and administrative data to document that such networks play an important role in improving wellbeing, especially in terms of better labor market outcomes. The evidence suggests that when it comes to getting a job, personal networks are especially important to immigrants. Hellerstein and Neumark also discuss some limited evidence on how neighborhood networks may shape children's health and educational outcomes.

Social context extends beyond personal networks and relationships to our beliefs

about the society we live in and the discrimination and biases we encounter as we move through life. In article 7, Mesmin Destin, a psychologist at Northwestern University, examines how beliefs about opportunity and economic mobility in society affect one's behaviors. He points out that several disciplinary perspectives have conceptualized and empirically documented important links between societal-level economic inequality, individual-level beliefs about the attainability of socioeconomic mobility, and behaviors related to socioeconomic success among youth and young adults from low-income backgrounds. The dominant framework Destin describes comes from robust research in social psychology that directly links people's expectations of future success to their level of motivation to persist on tasks and in areas of life that could contribute to success. For example, students who see a connection between academics and the kinds of jobs they hope to have are more motivated to work hard in school, and they ultimately have better academic outcomes than students who don't see these connections. Drawing on lessons from psychology, as well as cultural sociology, contemporary anthropology, and economics, Destin notes that the more information young people's contexts provide about the opportunities available to them, the more likely they are to pursue their aspirations.

The final article takes up the expansive issue of discrimination. Economists Kevin Lang of Boston University and Ariella Kahn-Lang Spitzer of Mathematica (a policy research firm) write about how discrimination and bias shape outcomes. Lang and Kahn-Lang Spitzer focus primarily on discrimination by race, while acknowledging that discrimination exists along many other

dimensions as well, including gender, sexual orientation, religion, and ethnicity. They describe evidence of substantial racial disparities in the labor market, education, criminal justice, health, and housing, and show that in each of these domains, those disparities at least partially reflect discrimination. The authors note that the disparities are both the cause and the result of discrimination, and reinforce each other. For instance, harsher treatment from the criminal justice system makes it more difficult for black people to get good jobs, which makes it more likely they'll live in poor neighborhoods and that their children will attend inferior schools. Lang and Kahn-Lang Spitzer argue that simply prohibiting discrimination is less effective at addressing disparities than policies that decrease residential and social distance between people of different races.

Moving Policy and Programs Forward

It wasn't our goal as editors of this issue to make pronouncements about what is or is not culture. Nor did we aim to explore the cultural determination of social institutions and norms. Rather, we invited a set of experts to objectively describe the evidence about how various aspects of social institutions, norms, and behaviors shape children's outcomes. The articles in this issue take a quantitative, empirically rigorous approach to defining and studying specific cultural constructs, and they advance the policy conversation about how culture shapes children's outcomes. We anticipate (and hope) that these articles, both individually and collectively, will be useful to policy makers, practitioners, and advocates for children.

Endnotes

1. Raj Chetty et al., “The Fading American Dream: Trends in Absolute Income Mobility since 1940,” *Science* 356 (2017): 398–406, <https://doi.org/10.1126/science.aal4617>.
2. See Raj Chetty et al., “Where Is the Land of Opportunity? The Geography of Intergenerational Mobility in the United States,” *Quarterly Journal of Economics* 129 (2014): 1553–1623, <https://doi.org/10.1093/qje/qju022>; and Raj Chetty et al., “Race and Economic Opportunity in the United States: An Intergenerational Perspective,” working paper, National Bureau of Economic Research, Cambridge, MA, 2019, <https://www.nber.org/papers/w24441>.

Religious Institutions and Economic Wellbeing

Daniel Hungerman

Summary

Religious institutions can provide spiritual guidance and hope, a sense of belonging, and material support during periods of hardship. Daniel Hungerman reviews the evidence on the roles that religious institutions play in individuals' lives and how engagement with those institutions shapes individuals' economic wellbeing.

First, he describes patterns and trends in religious social service provision, and in religiosity, across places and over time. The United States features prominently in this discussion, although he includes work in other countries as well. Next, he provides an overview of key aspects of the large interdisciplinary body of research that associates religious participation with other outcomes and channels by which religious groups affect outcomes, giving special attention to the empirical challenges facing work of this nature.

Overall, he writes, religious groups are an important and understudied source of social services and wellbeing. Despite the challenges of studying the effects of religion, many rigorous studies on the topic confirm that religion has important causal beneficial effects on wellbeing. Together, these results raise important policy questions concerning how to provide social services to the disadvantaged.

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Brad Wilcox of the University of Virginia reviewed and critiqued a draft of this article.

Religious groups, both in the United States and elsewhere, pose particular challenges for quantitative social scientists. Religion can be difficult to define, and I won't define it here—other studies have taken on that task.¹ Many aspects of religiosity may appear so abstract or intangible that they defy easy quantitative study. Furthermore, since religious activities are often voluntary in nature, they may not involve any formal records or oversight and thus may leave no lasting data for study. This problem is exacerbated in the United States, where religious groups don't participate in any official census and aren't usually required to provide the government any information at all.

Social scientists are often interested in separating correlation from causation, and here again the voluntary nature of religious groups poses certain challenges. For example, if some individuals who engage in a religious community have different outcomes than others, are these differences caused by engagement in the religious community, or by something else? It could be that those who choose to engage in religious activities are simply different from other people, and so they could have different outcomes even if religious participation has no causal effect.

Despite these challenges, this article provides evidence that religious groups play a major role in providing social services and other benefits to their own members and to the broader community as well. The United States features prominently in this discussion, but I also include some work in other countries. And I discuss how US religiosity, and religious groups' social service efforts, have changed in recent years. Religious groups are extremely important in the United

States, but we'll see that organized religion is in decline. I go on to show that throughout the world, religious participation is strongly associated with a range of beneficial outcomes, and I describe evidence that these relationships are causal in nature. Together, these results raise important policy questions concerning how to provide social services to the disadvantaged.

Patterns and Trends in US Religiosity

Religious participation is an important aspect of life for millions of Americans and billions of adherents around the world. The vast majority of people in sub-Saharan Africa, South Asia, and the Middle East consider themselves religious.² Most Americans identify with a religious tradition and believe in God, and a large portion frequently attend religious services. Religious giving makes up the largest source of all US charitable giving. It's no trivial task to count the number of US congregations, but scholars estimate that there are more than 380,000—an increase over 1998.³

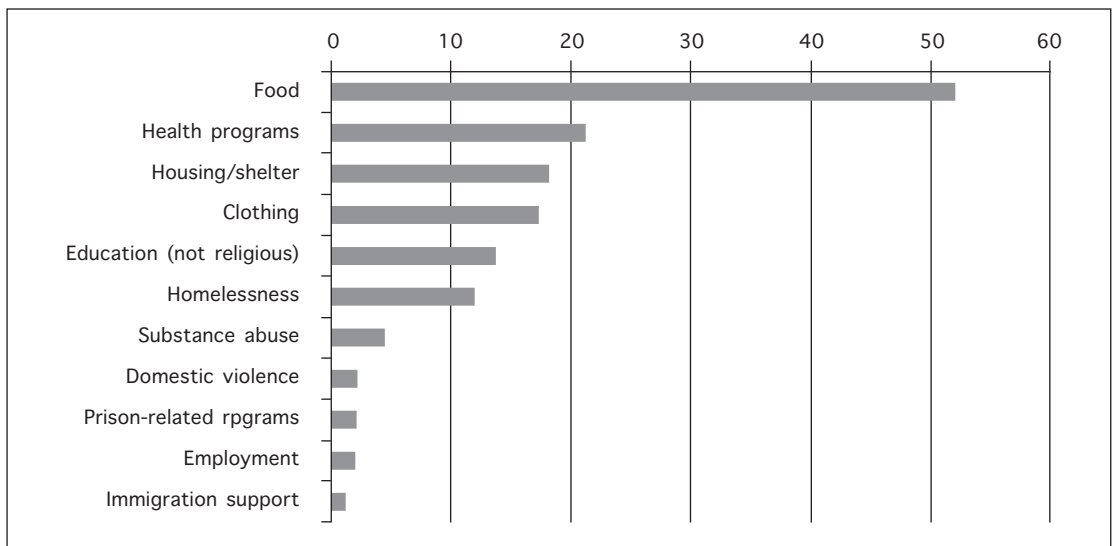
These congregations can affect community wellbeing in a variety of ways. First, congregations often provide social services to help people in their community, including both members and nonmembers. Table 1 shows congregational social service provision in the United States using the most recent wave (2012) of the National Congregations Study (NCS), a nationally representative survey. These results were reported in a study by the social scientists Mark Chaves and Alison Eagle.⁴ The first row shows that most congregations—more than 80 percent, or almost 320,000—report that they provide social services. These actions often involve considerable volunteer time and effort. But paid staff and direct monetary support are

Table 1. Number of Congregations Involved in Social Service Provision

	Responses of Congregations in NCS	Estimated Total for All Congregations in US
Participated in social service activities in past 12 months	83.1%	319,000
One or more paid staff member spent over 25% of time on social service projects	14%	54,000
Started a separate nonprofit organization for human services or projects or outreach in past two years	8.9%	34,000
Social service spending in past 12 months	\$27,000 (mean)	\$10,368,000,000

Notes: The first three rows of the lefthand column are taken from a study by the social scientists Mark Chaves and Alison Eagle (see text) and are based on the 2012 National Congregations Study. The lefthand column shows the fraction of respondents who answered yes to either of the following questions: (a) “Has your congregation participated in or supported social service, community development, or neighborhood organizing projects of any sort within the past 12 months? Please don’t include projects that use or rent space in your building but have no other connection to your congregation”; or (b) “Within the past 12 months, has your congregation engaged in any human service projects, outreach ministries, or other activities intended to help people who are not members of your congregation?” The righthand column adjusts the numbers in the first column by the estimated number of congregations in the United States (384,000). The last row is the author’s calculations from NCS 2012 data using answers to the question, “How much money, overall, did your congregation directly spend on all of these projects or programs within the past 12 months? Here, I’m asking about direct cash donations from your congregation, not counting staff time or volunteer time.”

Figure 1. Percent of Total Congregations Naming Social Services in Different Areas



Source: Chaves and Eagle (see endnote 4), from the NCS 2012 Survey.

also fairly common: row two shows that about one congregation in seven (or 54,000 total) reports having a paid staff member

devote a significant amount of time to social service projects, and that nearly one in 10 congregations has started a separate

nonprofit in recent years to provide social services.

The NCS also asked congregations how much money they directly contributed to social service provision. As the table shows, congregations appear to have spent more than \$10 billion on such support. But that number doesn't include in-kind donations; volunteer work; social-service support that congregations undertook indirectly (say, by giving money to a national religious organization that itself does social work); noncongregational religious organizations (such as schools, which I'll discuss); or social service activities undertaken by individuals as a result of their religiosity but not as part of formal congregational activities. All five of these excluded types of support are potentially quite large, so the \$10 billion figure is assuredly too low. A study by economist Jeff Biddle attempts to capture some of the support related to these other categories; he estimates total congregational philanthropic activity at about \$43 billion in 2018 dollars.⁵ That's quite a bit more than what is spent by several well-known government programs, such as Temporary Assistance for Needy Families.⁶

What types of services do congregations support? The 2012 NCS allowed congregations to name up to four types of supported services; figure 1 shows the fractions of all congregations in the NCS that report providing a particular type of service. The largest is clearly food-related activities, such as a food pantry, but a number of other types of activities are also provided.

Taking table 1 and figure 1 together, two observations are in order. First, faith-based work in US communities is understudied; the types of activities described in the table and figure receive little attention from scholars

interested in programs related to social service provision. In particular, this sort of religiously founded work is often ignored by my fellow economists. But table 1 and figure 1 show that religious groups are a widespread and important source of community social services. Second, US religious groups in general aren't subject to government regulation, whereas social service provision often is, so these activities can potentially be influenced by government policy.⁷ I discuss this further below.

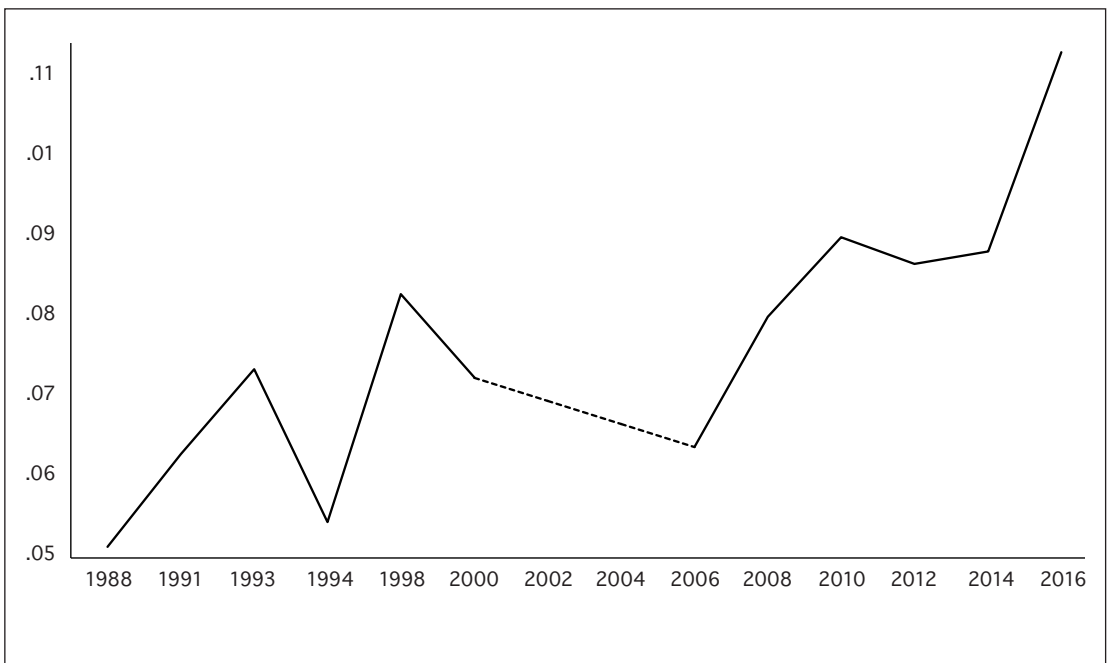
Beyond the formal congregational work described in table 1 and figure 1, religious groups are critical to their communities in at least two ways. First, congregations play a large role in education—an area of special consequence for children's development and wellbeing. The Private School Survey shows that Catholic schools are by far the most popular type of private school in the United States, as measured either by number of schools or by number of students. In 2015–16, almost two million students attended a Catholic school, nearly twice as many as attended all nonsectarian private schools combined. As Kevin Rinz, Jay Frymark, and I note, most Catholic schools are run by Catholic churches.⁸ But the many types of non-Catholic religious private schools are quite popular as well, with total attendance again nearly doubling nonsectarian attendance. A large body of research attests to the benefits of Catholic education.⁹ But recent work on the benefits of private education using vouchers has often found only modest academic benefits.¹⁰ I don't know whether these results can be reconciled; this question touches on the benefits of various religious activities and the challenges in measuring them, which I take up in the next section.

Figure 2. Fraction of GSS Respondents with No Religious Affiliation



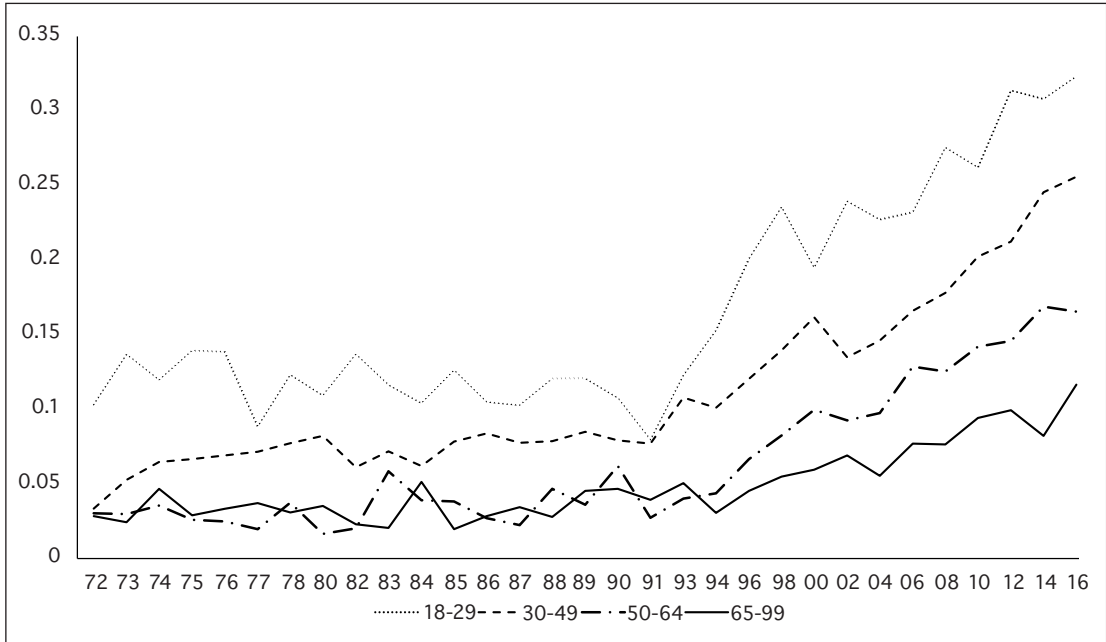
Note: The figure shows, for each year of the General Social Survey (GSS), the fraction of respondents who report no religious affiliation.

Figure 3. Fraction of GSS Respondents Who Don't Believe in God or a Way to Find Out about God



Note: The figure shows, for each year available year, the fraction of respondents whose belief in God is best expressed by "I don't believe in God" or "I don't know whether there is a God and I don't believe there is any way to find out." The question wasn't asked of respondents in 2002 and 2004.

Figure 4. Fraction Unaffiliated, by Age

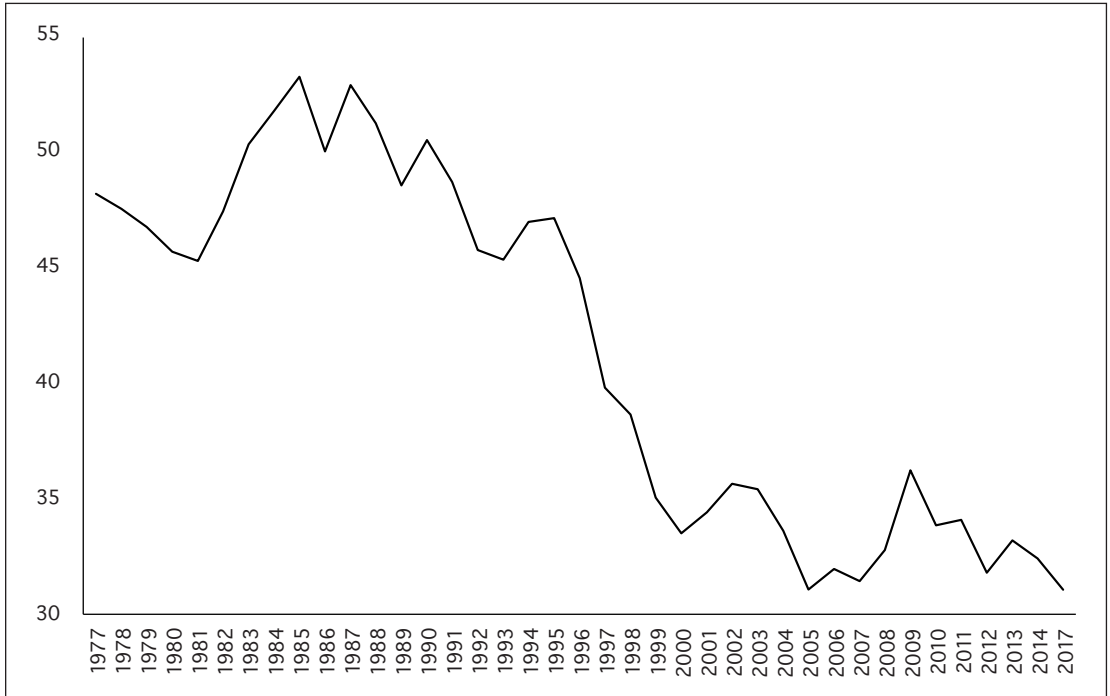


Note: The figure shows, for different age groups of respondents in the General Social Survey (GSS), the fraction of respondents in an age group who report no religious affiliation.

Religious organizations also provide important community services through community organizing, though these are harder to quantify. In an in-depth study from 2015, sociologists Richard Wood and Brad Fulton write that religious groups play a critical role in community organization, and that this work is often far more heterogeneous and complex than the standard depiction of (in their words) the “blanket religious conservatism” often portrayed in the media.¹¹ Wood and Fulton also note that this type of activity has changed in recent years, becoming more national in focus (although much of it is still local in character). They also note that mainstream Protestant traditions and urban, historically African-American churches have undergone hardship in recent years, such as declining membership and worsening finances, and that this has also affected the

overall landscape of religious community engagement.

In fact, the importance of religious decline extends beyond these two groups, though this isn’t fully recognized. In figure 2, I plot the fraction of respondents in the General Social Survey (GSS) who report that they have no religious affiliation at all. (A long-running, nationally representative survey, the GSS includes a variety of questions about faith and religious life.) Starting in the early 1990s, we see a sharp and large increase, with roughly a quarter of respondents in recent years stating that they have no affiliation. This “rise of the nones” (so called because it’s a rise in the fraction of individuals who, when asked about their religious affiliation, answer “none”) was first discussed in 2002 in an influential article by sociologists Michael Hout and Claude Fischer.¹²

Figure 5. Percent of Giving That Goes to Religion

Source: *Giving USA 2018*.

Note: The figure shows the fraction of total donations going to religious organizations each year.

As I noted above, religious practice can take different forms and be measured in different ways, and the rise of the nones has sometimes been described as reflecting a drop in stated affiliation by otherwise nonreligious individuals. Even if this were true, the phenomenon might still be socially important, as some scholars have argued that formal religious participation appears to matter more than personal faith in promoting certain types of voluntarism and social service provision.¹³

But in fact, the rise of the nones appears to reflect a broader change in religious faith and practice in recent years. Figure 3 depicts the fraction of GSS respondents who reported that they don't believe in God or don't believe in a way to find out about God. While this percentage is still

relatively small, it has also increased, more than doubling in the past 30 years. And these trends may grow even more in the coming years: figure 4 shows these results by age group, indicating that while all groups have become less religious, this is especially true for those in younger age groups, who are much less religious than in the past.

Figure 5 presents another example of this phenomenon using a nonstandard measure of religion: the fraction of donations given to religious causes over time, based on data taken from *Giving USA*, an annual report on philanthropy in the United States. Even as total giving has grown, the amount given to religious causes has grown relatively little, so that the fraction of donations going to religious causes has dropped considerably—from half to about a third of total giving—in

just a couple of decades. Thus the decline in religiosity is large, recent, and pertains to real religious activity.

What's causing this decline? Incomes often trend up over time, so one might wonder whether the decline in religiosity is driven by growing material wealth. There's not much evidence to support this idea. First, many studies have shown that income is a weak predictor of religious activity.¹⁴ Several recent studies have taken on this topic by using *natural experiments*; that is, by cleverly exploiting some feature of a public policy (or some other special circumstance) that creates, for a certain group of individuals, a variation in income that's close to random, facilitating a study akin to a randomized experiment. These studies have produced mixed results.¹⁵ Nor has this work fully explained the mystery that income at the individual level is weakly associated with religion, but in the aggregate (that is, looking at trends in national religiosity over time) religion often appears to be countercyclical: people become more religious during recessions, and less religious when the economy is doing well. This could be evidence for an *omitted variable*—something unobserved by researchers that affects both income and religiosity at the same time. Or it simply could be that people respond to a negative economic shock across their community differently than they do to an idiosyncratic shock to their own income. We need more evidence on how income affects religiosity.

The time period considered here includes several scandals involving religious authority, perhaps most notably the sex abuse scandal that first rocked the Catholic Church in the early 2000s.¹⁶ My own work has shown that in the short run, this scandal lowered Catholic

participation and may have caused modest substitution to other faiths, but that in the long run it likely lowered overall religiosity.¹⁷ Other work has found evidence of lower overall social service provision and social capital in communities with parishes affected by the scandal.¹⁸ But the declines in figures 2, 4, and 5 began before this scandal, and it appears unlikely that the magnitude of the decline can be explained by scandals.

Education levels have also increased in recent years. Could this explain the decline? Compared to work on religion and income, the recent evidence on religion and education is more uniform: several studies have exploited natural experiments to show that increases in education tend to lower religiosity, all else being equal.¹⁹ Again, it's doubtful that the magnitude of this relationship can explain most of the decline in religion, but it appears that gains in education do matter.

Much of the work on the rise of the nones has concluded that it's been driven in part by the US political landscape. Hout and Fisher discuss this argument in the seminal work mentioned earlier.²⁰ The argument is that the initial growth in nonaffiliation may be partly a response to the rise of the religious right. More recent noteworthy work in this area includes research by the political scientists David Campbell and Robert Putnam and by economists Daniel Chen and Jo Thori Lind, among others.²¹ This work has shown that religion is much more politically polarizing now than it was in the early 1990s, before this decline began. Some of the evidence here could fit with the work of Émile Durkheim, who contemplated how the communal aspects of worship represented an elemental connection between religion and other social events.²² I'm not aware of

much recent research that contemplates this potential connection. A recent study by me and three coauthors uses church bulletins to show that political campaign stops have a significant effect on congregational revenues; in that paper we discuss how our findings and other recent studies on religion and politics mesh with Durkheim's theories on the communal aspects of religion and other social behaviors.²³

A final possible explanation of the decline involves demographics. Recently, sociologists David Voas and Mark Chaves presented evidence that the decline in religiosity has grown successively larger for age cohorts in the United States in a way that resembles the decline seen in other countries.²⁴ (The authors take this argument to the larger discussion of *secularization*, the idea that modernization tends to undermine religious activity; readers interested in learning more about secularization could start by consulting Voas and Chaves's paper.) It's also likely true that immigration (and the potentially high levels of religiosity among certain immigrant groups) could influence national religious trends in the years to come.

Overall, then, while religion remains important to many people in the United States, it has undergone a period of change and, at the national level, a decline in a number of measures. The causes of this decline appear to include responses to politics, but changes in education and demography may also be important components of religious trends in the future. Beyond the causes, we might note that understanding the consequences of this decline could be especially important if the decline is observed in vulnerable communities where strong and socially beneficial institutions are needed, as some

observers have suggested.²⁵ This raises two questions: What are the consequences of religious activities? And how can changes in religious activity affect individual and community wellbeing?

Consequences of Religious Participation

The consequences of religious activity represent an enormous area of scholarship; hundreds or even thousands of papers across many disciplines have taken on this topic. I won't survey these studies, or even survey the surveys of these studies.²⁶ With such a large body of work, we can find a variety of results, including, of course, "surprising" results that run counter to the conclusions of most other studies. But in general, a large number of studies find that highly religious individuals report better outcomes among a wide range of observable factors. Religious individuals appear healthier along a large number of measures: they are happier, less likely to commit crimes, less likely to use drugs, more likely to vote, and more likely to give to charity—even to purely secular causes. Research has also found important benefits of religious practice at the community level. In one well-known study, the economists Raj Chetty, Nathaniel Hendren, Patrick Kline and Emmanuel Saez explored economic mobility across different communities in the United States.²⁷ They found that Salt Lake City, a city with high religious participation, had high levels of mobility—specifically, children of low-income parents had a relatively high chance of improving their economic standing as adults. Moreover, the researchers also found that community religiosity was a strong predictor of high mobility across communities. A key takeaway from many studies, or at least my reading of them, is that the beneficial effects of

religiosity can be extensive. Religiosity is often the most important predictor of outcomes related to social engagement, for example. These positive results aren't specific to any particular religious tradition.

A large number of studies find that highly religious individuals report better outcomes among a wide range of observable factors.

But are these results causal? That's the question that has kept a certain tribe of social scientists (including me) up at night. When we ask it, the amount of relevant research shrinks. As noted above, religiosity is voluntary, and those who choose to participate in it or be helped by it may differ from others. That makes it challenging to compare outcomes between the voluntary participants and nonparticipants.

Two early efforts to take this challenge seriously were conducted by economists: Rajeev Dehejia, Thomas DeLeire, and Erzo Luttmer in one case, and Jonathan Gruber in the other.²⁸ Dehejia, DeLeire, and Luttmer examine whether religious individuals' consumption and self-reported wellbeing appear to be relatively less sensitive to income shocks—that is, whether religion helps “insure” people against negative shocks. The authors have no silver-bullet natural experiment, and they discuss concerns such as measurement error and reverse causality (such as the idea that being well-insured against shocks might make it easier for you to go to church consistently, rather than the other way around). To allay these concerns,

the authors use a variety of methods, such as applying a procedure that matches each religious person in a sample to an observationally similar nonreligious person, so that the final data sample contains a similar distribution of observable characteristics across religious and nonreligious individuals. They find that religiosity does indeed insure against negative shocks. Other work since has built on the idea that religion is an important provider of social insurance and the ability to cope with negative shocks.²⁹

Gruber proposes a creative strategy: using variation in the ethnic composition of one's community to study the impact of religion. Put simply, an American of Italian ancestry may not make much of a distinction between living in a neighborhood full of Swedish individuals versus a neighborhood full of Polish individuals—except that the latter group, like Italians, are Catholic. If living side-by-side with ethnicities that share your religious tradition makes you more religious, but otherwise doesn't affect your wellbeing, than we can use ethnic composition to learn about the causal effects of religion. Gruber finds, again, that religiosity leads to better outcomes for a number of economic indicators.

Several more recent studies take up this topic using similar methodologies.³⁰ Especially noteworthy is a study by the economists Jane Fruehwirth, Sriya Iyer, and Anwen Zhang.³¹ In an approach similar to Gruber's, they exploit variation in the religiosity of peers across cohorts within a school to identify how religion influences mental health in a sample of US adolescents. They find that religion plays an important causal role in promoting mental health. Their results are significant in light of the extent to which religiosity is associated with mental health—

these authors find that the basic association between religion and mental health actually understates religion's true effect on wellbeing. A selection effect underlies that finding: depressed individuals turn to religion, which works against identifying any improvements generated from religiosity, so that a simple analysis of the data will understate the benefits of religion for promoting mental health.

Some recent studies have proposed alternative methods for exploring the effects of religion on wellbeing. First, some researchers have attempted to randomize religiosity in an experimental setting to study how a subtle priming of people's religious identity can affect their decisions. For example, people might be asked to play a word game in which several answers involve religiosity. After doing so, they're more likely to mention their religion when asked to describe themselves—but they generally remain unaware that they're participating in a study meant to explore religiosity. Researchers can then see if these individuals make different decisions after being primed. The economists Daniel Benjamin, James Choi, and Geoffrey Fisher conducted an influential study using this method.³² A number of other studies have also used behavior in games to learn about religion and decision-making.²³ Among the most ambitious work in this vein is a recent study by the economists Gharad Bryan, James Choi, and Dean Karlan, who randomized the use of an evangelical Protestant education program among the ultra-poor in the Philippines.³⁴ Their research is distinct in that the randomization was not a laboratory prime, but rather the randomized implementation of an evangelical social service program across communities.

This work represents an exciting advance in the study of religious groups and wellbeing. But as much as I admire these studies, I see two challenges related to this work. The first is that, in these studies, we might want to think carefully about what notion of religion is being randomized. Some questions about religion could likely be studied via a randomized lab or field experiment, but others (such as measuring the social value of religious institutions at a certain moment in history) wouldn't easily lend themselves to such randomized study. Of course, no methodology is perfect for all research projects, so this is meant as a mild critique. Second, the results produced by some studies of this kind are hard to interpret. For example, Bryan, Choi, and Karlan find that their Protestant-Christian-values-and-theology program raises income but has no significant effect on total labor supply, assets, consumption, or food security; this is for an extremely poor population where one might expect a change in income to coincide with a change in these variables. The results of the Benjamin, Choi, and Fisher study are also hard to summarize succinctly. But these studies reflecting an important style of research are significant nonetheless, though the final conclusions to be taken from such work assuredly lie ahead of us.

Other work has used natural experiments to rigorously investigate religion and wellbeing; there are several especially noteworthy examples. In one study, the economist Erik Meyersson examines the role of religious political leadership in affecting women's empowerment in Turkey.³⁵ Specifically, he focuses on candidates from the pro-Islamic Refah Party, which was quite popular in Turkey for a time but was later outlawed for violating the principle of secularism. Using a convincing methodology that compares

communities that just barely elect this type of Islamic mayor to communities that just barely elect another candidate, he finds that conservative Islamic leadership is associated with greater women's educational attainment.

While perhaps surprising, this result appears compatible with an excellent study by the economists David Clingingsmith, Asim Khwaja, and Michael Kremer.³⁶ They look at the effects of attending the Hajj—the pilgrimage to Mecca that Muslims are expected to make at least once during their lifetime. To study how attending the Hajj affects people's values, Clingingsmith, Khwaja, and Kremer use a Pakistani lottery that allocates Hajj visas; they find that participation in the Hajj leads to greater acceptance of female education and employment. More generally, Hajj lottery winners show both increased Islamic observance and greater belief in equality and harmony among all religions. A study by economists Felipe Campante and David Yanagizawa-Drott, which explores the observation of the Islamic holy month of Ramadan and subjective wellbeing, reaches similar conclusions.³⁷

These studies show the potential of exploiting circumstances or events particular to a certain faith in a certain setting for identification. Many of the most convincing studies share this feature. Another example, and one of the most celebrated papers on religion and economic wellbeing, is by economists Sascha Becker and Ludger Woessmann.³⁸ These authors take up a famous question in social sciences: whether Catholic societies have traditionally had worse economic outcomes than others. This is not simply an “Is religion good?” question, but rather one that evaluates

the economic benefits of different religious traditions and their institutions. Becker and Woessmann plot out a positive relationship across countries between historic levels of Protestant affiliation (measured by the fraction of a population that was Protestant in 1900) and per-capita GDP in 1900.

Is this relationship driven by the religious traditions themselves? The great social scientist Max Weber famously considered whether a *Protestant ethic* for work might drive the difference between economic wellbeing in Protestant and Catholic communities. Becker and Woessmann take up this association in several steps. First, they put it to a careful test in historic Prussia, exploiting the fact that Protestantism expanded from its birthplace in Wittenberg (a previously unimportant town) in a pattern akin to concentric circles. Moving away from Wittenberg, you encounter all sorts of terrain and all types of communities—but places farther from Wittenberg are less likely to be Protestant, all else equal. Becker and Woessmann then confirm that distance from Wittenberg appears unrelated to various controls (such as the presence of schools in the 1500s, before the reformation), but centuries later it does predict income and economic circumstance—being closer to Wittenberg (and therefore more Protestant) is better for economic wellbeing.

This suggests that the link between GDP and Protestant affiliation is more than a simple association. Does this mean Weber was right? Not quite. The final step of Becker and Woessmann's study shows that variation in *literacy* can largely explain the economic gains of Protestantism. It appears that the Protestant emphasis that everyone should be able to read the Bible (and thus be able to read), rather than a “noncognitive” work

ethic, can explain why Protestant societies had higher economic productivity. More recently, Felipe Caicedo examined Jesuit missionaries in South America and found another example of how religiosity and education can lead to long-term economic gains.³⁹

When [blue] laws are undone, religiosity declines, and risky behavior such as heavy drinking increases—but the increases are driven by those who report having been religious before the repeal occurred.

Becker and Woessmann's work and later studies thus provide compelling evidence that details of religious traditions can have large and enormously enduring effects on wellbeing, in this case by affecting cognitive development. But what about today? Looking at the United States, Jonathan Gruber and I investigated this by looking at the repeal of "blue laws" that restrict economic activity on a certain day of the week (often Sunday).⁴⁰ Most recent blue laws are narrow in focus—for example, alcohol can't be sold at grocery stores before noon on Sundays. But not that long ago, many states had strong blue laws that prohibited most Sunday economic activity. A Supreme Court ruling in 1961 provided a test by which these laws could be repealed, and many were consequently undone.

Gruber and I show that when such laws are undone, religiosity declines, and that risky

behavior such as heavy drinking increases—but the increases are driven by those who report having been religious before the repeal occurred. (We used the National Longitudinal Survey of Youth dataset, which follows individuals over time and asks about both religiosity and risky behavior.) Several later studies have also used the repeal of blue laws to study behavior.⁴¹

These studies are thus motivated by a change in government regulation. We might wonder whether and when it's possible to use regulation, or other changes in incentives for secular activities, to learn about religion. For example, let's suppose we were interested in studying whether religion mattered in some way for a person's drinking and drug use. Such a study could begin by finding random (or as good as random) variation in the incentive to be religious. But while several of the studies mentioned above have found variation in religious incentives, in many settings—particularly in the modern United States—such variation has yet to be identified. It's often easier to find variation in incentives to do things like drinking or using drugs (for instance, by looking at changes in laws related to drinking and drug use).

But it isn't clear that this latter variation, even if available, would be useful. Let's say I'm interested in whether eating French fries makes a person more likely to drink Coke. Here, "French fries" are like religion, and "Coke" is like drinking or using drugs. What we'd like to do is randomly vary people's incentives to eat fries (say, by reducing the price) and then see if those who are randomly induced to eat fries consequently drank less (or more) Coke. But what if we couldn't vary the price of fries? What if we varied the price

of Coke instead? It seems as if that wouldn't be useful—changing the price of Coke would tell us how people respond to changes in the price of Coke, of course, but this variation in incentives wouldn't typically tell us anything about what eating fries does.

In another study in this area, I argue that when it comes to religion, we actually can sometimes use “the price of Coke” to learn about “fries.”⁴² How is this possible? I begin by noting that religion is special in a few critical ways. First, religion is a communal activity. Second, this activity often explicitly prohibits or discourages certain behaviors. These features of religiosity feature prominently in models of religious behavior, perhaps most notably in a study by economist Laurence Iannaccone, which is arguably the greatest contribution by economists to the study of religion.⁴³ Building on Iannaccone's model, I propose a test for using variation in prohibited secular activities to learn about religion.

To understand this test, I ask two questions: Why do religious groups go out of their way to discourage things? And why do people put up with it? To answer the first question, note that there may be strong positive spillovers to religious participation: if you become a devout person, others in your community may benefit. Thus religious consumption will involve a so-called “free rider” problem: religious individuals may under-invest in their faith because they don't fully account for the external social benefits their faith creates for others. Religious groups could combat this problem by making rules and prohibitions that outlaw certain activities. If these rules and prohibitions lead people to become more religious, then people could be willing to put up with the rules because they solve the free-rider problem. That's the idea that drives Iannaccone's study.

This idea can be especially powerful when people view religious groups and the forbidden good as substitutes. By definition, when the price of a substitute goes up, individuals buy less of the newly expensive good and substitute some other good. If some people view religion and risky activities (like heavy drinking) as substitutes, then discouraging heavy drinking for these individuals will cause a big shift out of drinking and a big shift into religiosity. This is a story where religion makes a significant difference in risky behavior.

This suggests a test in which we use variation in the secular good to learn about the effects of the religious good. Find a type of consumption that's both discouraged by religious groups and consumed less by religious individuals. Then identify a change in the price of this forbidden consumption, and see whether initially religious people substitute into or out of religion as a result. If they do, it indicates that religious prohibitions matter. This has the great benefit that one needs broad variation in the secular good to conduct the test.

My study offers a rigorous presentation of this idea, and then empirically conducts this test using variation in incentives to drink (based on drinking-age laws) and gamble (using casino openings). I repeatedly find evidence of substitution. Religious rules appear to be effective in discouraging heavy drinking and gambling. The results often indicate that the *most religious* individuals are those who are likeliest to substitute: it's the most religious groups whose religious giving declines when casinos open or when commerce is allowed on Sundays, and it's the most religious individuals who are likely to start drinking heavily when the legal drinking age changes. Scholars interested in

studying the role of religious proscriptions and rules might consider whether this test could be useful in their setting.

Summary, Future Work, and Policy Implications

The results I've presented in this article suggest that religiosity matters for wellbeing. Religious groups discourage unhealthy behaviors and have played an important role in promoting educational attainment and economic wellbeing.

Religious participation can increase a person's tolerance of others, and in some circumstances can be particularly beneficial for human capital investments for women. Religion also appears to insure individuals against negative shocks.

What can we take away from these results? First, religiosity remains important. Second, recent rigorous research suggests that the beneficial effects of religion are often causal, and some work (such as Fruehwirth, Iyer, and Zhang's study of how religion affects adolescents' mental health, discussed earlier) finds that the large association between beneficial outcomes and religion observed in the data may understate religion's true effect.⁴⁴ Together, all of this suggests that religion is understudied by scholars (especially economists) interested in contemporary economic wellbeing.

Another implication concerns how to study these topics: there doesn't appear to be any magic-bullet methodology to use for "religion" in general. The closest thing could be the test I propose above.⁴⁵ But even this test is limited to activities that are subject to religious rules or prohibitions and to religious groups that take these sorts of rules seriously. The relevant notion of religion can vary in different settings, and

many of the best empirical studies have based their methodologies on the particular circumstances of a particular setting.

Certainly it's natural to look at the large body of research on religion and wellbeing and ask of it all, "Is this evidence of causality?" But convincing answers to that question probably must come piecemeal.

What are the largest questions facing scholars interested in religion and wellbeing? First, in recent years many economists have become especially concerned with economic mobility and inequality. Have religious groups influenced these trends, given their role in providing social services? Could they do so in the future? I know of no work that rigorously takes this up. Second, as new studies provide ever-stronger evidence of the association between religion and wellbeing, scholars could consider whether causal effects vary across measures of religiosity or across different groups of people (for example, men versus women). If possible, researchers should also discuss long-run effects. All these things could help steer future work on causality in studies of economics and religion. Next, and relatedly, though religion isn't going anywhere anytime soon in the United States, its recent decline is clear. What will be the consequences of this decline?

We also need more policy-focused work. Since religious groups are important providers of social services, government policies can interact with religious participation. On the one hand, government support of social service provision could in some cases crowd out religious activity (for example, the provision of food stamps could crowd out a soup kitchen). In other cases, government could subsidize religious activity (such as funding a religious school or training program through a voucher or block grant).

As my own work with Rinz and Frymark makes clear, these possibilities aren't mutually exclusive: we document a setting where a government subsidy (a voucher paid to private schools) helps keep churches open but nonetheless decreases purely religious activities.⁴⁶ These potentially complex church-state relationships may also interact with larger trends in religiosity. Declines in religious participation could cause religious social service activity to scale back, or cause religious groups to invest more in social services because doing so could generate revenue. Which of these stories will play out remains to be seen, although I think that a greater emphasis on social service provision is likely for some groups.

For example, Rinz, Frymark, and I show that in Milwaukee, Catholic churches that operate a school accepting vouchers now get more revenue on average from the vouchers—that is, from the government—than from any other source, including their own worshippers.⁴⁷ This would have been inconceivable even a few years ago. The particulars of how this type of relationship is allowed under the First Amendment

constitute a complex legal question. For example, who is allowed to cash a voucher check in Milwaukee—the family getting the voucher or the religious school providing the education—has changed over time.

Beyond parsing such details, we can also consider what the ideal relationship between the government and religious groups would look like, rather than just the permissible one. Of course, this question involves considering the wellbeing of those receiving services. That is, are religious groups better than other groups at providing social services? We need more work comparing the benefits (and costs) of religious versus nonreligious provision of education and other social services. But this conversation could also consider the wellbeing of those supplying the services: Is it better for a church to provide services independently, or to have its work remunerated by the government? On this issue, we have even less research to guide us. More research on these topics would help everyone—policy makers, religious leaders, and citizens—understand the consequences of religious activity and the religious provision of social services.

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Parenting Practices and Socioeconomic Gaps in Childhood Outcomes

Ariel Kalil and Rebecca Ryan

Summary

In this article, developmental psychologists Ariel Kalil and Rebecca Ryan examine the relation between parenting practices and socioeconomic gaps in child outcomes. They document substantial differences between richer and poorer families, including growing gaps in parental engagement and time use. These gaps matter: the fact that children born to lower-income, less-educated parents are less likely to spend quality time with their parents only compounds their relative economic disadvantage.

Evidence suggests that disadvantaged parents want to do many of the same things that higher-income parents do, such as reading to their children and engaging them in educational experiences like trips to parks and museums. But they're nonetheless less likely to do those things. The authors consider a number of explanations for this discrepancy. One important contributing factor, Kalil and Ryan write, appears to be financial strain and family stress, both of which can impede parents' emotional and cognitive functioning in ways that make it harder for them to interact with young children in intellectually stimulating and emotionally nurturing ways.

The authors conclude with a discussion of the types of policies and programs that might narrow income-based parenting gaps. They find encouraging evidence that relatively low-cost, light-touch behavioral interventions could help parents overcome the cognitive biases that may prevent them from using certain beneficial parenting practices.

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Socioeconomic status is correlated across generations. In the United States, 43 percent of adults who were raised in the poorest fifth of the income distribution now have incomes in the poorest fifth, and 70 percent have incomes in the poorest half. Likewise, among adults raised in the richest fifth of the income distribution, 40 percent have incomes in the richest fifth and 53 percent have incomes in the richest half.¹ Many factors influence this intergenerational correlation, but evidence suggests that parenting practices play a crucial role. These include doing enriching activities with children, getting involved in their schoolwork, providing educational materials, and exhibiting warmth and patience. Parental behavior interpreted in this way probably accounts for around half of the variance in adult economic outcomes, and therefore contributes significantly to a country's intergenerational mobility.²

Across disciplines, dozens of studies have found differences in these types of behaviors across rich and poor parents and demonstrated how these differences matter to children's success as adults. Among other things, richer parents—both mothers and fathers—spend more time in educational activities with their children, produce more cognitively stimulating home learning environments, and are more likely to read and do math-related activities with their children.³ Parents also differ by family background in their discipline strategies—those with lower incomes and less education are more likely to use harsh, physical discipline with children than their richer and more educated counterparts.⁴

In this article, we take as a given that the way parents behave with children influences the

way children develop. But we also recognize that the vast majority of empirical evidence supporting these theoretical mechanisms is correlational.⁵ This correlational research consistently finds that average differences in parenting behavior predict the cognitive, academic, and behavioral outcomes that presage adult success.⁶ Although it's not our purpose here to describe the plausibly causal links between parenting practices and child development outcomes, more recent studies relying on experimental and quasi-experimental methods do find evidence of such links. For example, recent research finds that the amount of time parents spend with their children has a direct and plausibly causal effect on the children's cognitive test scores.⁷

Here, we focus on specific parenting practices that have been linked empirically and theoretically to better child development, and we explore how those practices vary by socioeconomic status (SES). We review studies that characterize SES in terms of family income and also parental education. Specifically, we provide an overview of what scholars know about the differences in parenting behavior by SES that contribute to differences in children's outcomes by SES. We also examine the theoretical origins of these differences in parenting behavior. The origins are interrelated and wide-ranging: they include socioeconomic and demographic factors, such as financial constraints and parental work schedules; opportunities and constraints in the parents' environment, such as access to information and exposure to stress and violence; and "cultural" factors, such as norms, beliefs and expectations, habits, and values. We don't try to draw a bright line between so-called cultural factors and others; rather, we believe that many factors that are often thought of as

cultural are actually the result of other, more readily quantifiable contextual factors, such as stress, money, information, and parents' reactions to those things. This article reviews how contextual factors differ (or not) in meaningful ways between low- and high-SES parents, and whether and how those differences relate to parenting behavior.

Dozens of studies across disciplines have demonstrated that richer and poorer parents interact with their children in different ways, and that these differences influence children's development.

We conclude by discussing the efficacy of programs and policies designed to narrow SES-based differences in parenting behavior, and we suggest directions for promising policy and programmatic interventions based on this review. Although parental behavior matters far beyond the early childhood years, here we focus on early childhood, given the primacy of parental influence during this developmental stage and the speed of early childhood brain development, both of which provide the foundation for cognitive and emotional skills over the life course.⁸

Differences in Parenting Practices by Socioeconomic Status

Dozens of studies across disciplines have demonstrated that richer and poorer parents interact with their children in different ways, and that these differences influence

children's development. Developmental psychology distinguishes these parenting behaviors along two key dimensions: the level of cognitive stimulation and the quality of emotional support. Cognitive stimulation includes enriching behaviors like reading and other literacy activities, doing arts and crafts, and discussing math concepts. Positive socioemotional interactions involve parental warmth and consistency and the absence of harsh discipline or physical punishment. On average, research shows, parents with more education and income engage in more cognitive stimulation with their young children, interact with greater warmth and consistency, and use harsh discipline less often than do parents with less education and income.

Differences in Cognitive Stimulation

Among studies showing that higher-SES parents engage in more cognitively stimulating activities in terms of both quantity and quality than their lower-SES peers do, some of the strongest evidence comes from time diaries. The most replicated finding is that mothers and fathers with more education and income spend more time in educational activities with their children than do lower-SES parents.⁹ The authors of this article, Ariel Kalil and Rebecca Ryan, along with colleague Michael Corey, have also shown that highly educated mothers and fathers are more efficient in their parental time investments—they tailor their activities to children's developmental stages.¹⁰ With respect to total childcare time, the educational gradient is most apparent in households with the youngest children.¹¹ Together, these findings suggest that higher-SES parents aren't only investing more time in their children's development, but they may also have better assimilated the message

that parental investments in early childhood are key ingredients in children's long-run success.¹²

Studies that draw on stylized measures of the frequency with which parents engage in enriching activities tell a similar story. When asked how often per week or month they engage in reading, math, or other enriching activities at home, higher-SES parents are more likely to report reading to and doing math-related activities with their children; they're also more likely to provide the materials, such as books, puzzles, and games, with which to engage in those activities.¹³ Over the past 30 years, in fact, high-SES parents have consistently engaged in a wide range of enriching activities in and outside the home—such as reading to children and taking them to the library or a museum—far more often than their lower-SES counterparts.¹⁴

One of the best-known SES-based differences in cognitive stimulation comes from research on language stimulation of young children. Higher-SES parents use greater language stimulation when interacting with children than do their lower-SES counterparts.¹⁵ A famous example of this difference comes from a study by Betty Hart and Todd Risley, who intensively observed the language patterns of 42 families with young children.¹⁶ They found that in professional families, children heard an average of 2,153 words per hour; in working-class families, the number was 1,251 words per hour; and in welfare-recipient families, it was only 616 words per hour. By age four, a child in a welfare-recipient family could have heard 32 million fewer words than a classmate in a professional family. More recent studies have clarified that the bulk of the difference in the number of words

heard by children in higher- versus lower-SES families comes from words spoken directly to the children, not words said when children are present, and that the language used in higher-SES homes is more diverse and responsive to children's speech than that in lower-SES homes.¹⁷ This SES-based difference in linguistic environments could plausibly contribute to SES-based gaps in children's early language skills, especially given the robust evidence linking the quantity and quality of parents' speech to young children to children's early language development.¹⁸

Differences in Emotional Support

As we've said, parents differ by SES not only in the quality and quantity of cognitive stimulation they offer children, but also in the level of emotional support they provide. Parental sensitivity—defined as the ability to perceive children's signals, interpret these signals correctly, and respond promptly and appropriately—has been theoretically and empirically linked with children's emotional and behavioral outcomes, including self-regulation, social functioning, and early cognitive skills.¹⁹ Mothers living in poverty display less sensitivity during interactions with their babies than do their higher-SES counterparts, and in descriptive analyses these differences explain gaps in children's early language outcomes and behavior problems.²⁰

More broadly, better-off parents tend to display more of what's called an *authoritative* (versus *authoritarian*) parenting style than lower-SES parents do. Authoritative parenting describes a broad style of interacting in which parents place high demands on children but also use high levels of warmth and responsiveness.

Authoritarian parenting, by contrast, is characterized by strict limits on children and little warmth or dialogue, and punishment tends to be harsh.²¹ Studies have found that parents—both mothers and fathers—with more education are more likely to use an authoritative style than less-educated parents, who are likelier to use either an authoritarian style or a *permissive* style (characterized by “low demands coupled with high levels of warmth and responsiveness”), a pattern we see within racial and ethnic groups and in cross-country comparisons.²² Supporting these broad differences in style, studies have also shown that lower-income parents use more directives and prohibitions in speech with children than their middle-income counterparts do.²³ Finally, in a large national sample, researchers saw a significant negative correlation between punitive behavior (such as yelling and hitting) and income.²⁴

Given the well-documented links between ... parenting behaviors and children's skills, it's reasonable to hypothesize that SES-based differences in parenting behaviors contribute to the intergenerational transmission of economic status.

Discipline strategies are a central component of socioemotional interaction between parents and children and a key facet of the difference between authoritative and authoritarian parenting. Corporal

punishment, which includes spanking, hitting with objects, and other actions that intentionally cause physical pain, is associated with an authoritarian parenting style, whereas nonphysical discipline strategies such as time-outs and explanations for desirable behaviors are associated with an authoritative style.²⁵ Research shows that lower-SES parents spank and use other forms of physical discipline more often than higher-SES parents do, whereas higher-SES families are more likely to use discipline strategies that include reasoning and promote child autonomy.²⁶ Studies show links between corporal punishment, such as spanking, and a host of adverse cognitive and socioemotional child outcomes.²⁷ Perhaps it's not surprising, then, that in descriptive analyses these disciplinary differences explain a meaningful proportion of SES-based differences in children's outcomes, particularly socioemotional ones.²⁸

Summary

Decades of research have demonstrated that lower- and higher-SES parents differ not just in the ways they raise their children, but also in precisely the behaviors that predict children's cognitive and socioemotional skills. Given the well-documented links between these parenting behaviors and children's skills, it's reasonable to hypothesize that SES-based differences in parenting behaviors contribute to the intergenerational transmission of economic status. In the next section, we review research on some possible origins of these parenting differences, and assess the evidence in support of each mechanism. Understanding how these parenting gaps arise is essential to determining an effective policy and program response that could narrow them.

Mechanisms Underlying SES-Based Gaps in Parenting Practices

The wide-ranging scholarship on SES-based differences in parenting practices offers many potential origins for these differences. Different fields (such as economics, sociology, psychology, and neuroscience) stress different potential mechanisms. Below, we distinguish five of these mechanisms and present evidence that each one might plausibly help explain SES-based parenting gaps. In doing so, we aim to illuminate promising targets for policy and programmatic intervention to narrow SES-based gaps in parenting.

Financial Constraints

The most obvious reason higher-SES parents might use different parenting practices than their lower-SES counterparts is that they simply have more money to buy the materials and experiences that enhance child wellbeing. This mechanism may sound tautological—surely parents who have more money to spend on their children do so. Yet some parents may choose to spend discretionary income on their own leisure and consumption rather than on their children.²⁹ With respect to cognitive stimulation, child-related expenditures include materials to enhance time with children—such as books, toys, and games—as well as costly experiences such as dance, music, and sports lessons; tutoring; and museum visits and artistic performances. Differences in spending on these types of enrichment goods could directly affect children's development by enhancing the quantity and quality of their cognitive stimulation, but could also affect parents' ability to invest time in enhancing their children's development.

The best evidence on differences in money spent on children across the socioeconomic distribution comes from two studies by Emory University sociologist Sabino Kornrich, using data from the Consumer Expenditure Survey. (This survey, conducted by the Bureau of Labor Statistics, provides data on the expenditures, income, and demographic characteristics of US consumers.) Kornrich and his colleague Frank Furstenberg found not only that parents at the top of the income distribution spend more on children's enrichment than lower-income parents do, but also that the difference in real dollars has increased substantially since the 1970s.³⁰ This spending gap has grown despite the fact that parents at all income levels are devoting an increasing share of their income to children, and that the lowest-income parents spend the largest share. Kornrich extended the analysis by examining income-based inequality in parental spending on young children specifically over the period from 1972 to 2010.³¹ He found increased spending among parents at the top of the income distribution but little change among those at the bottom. Much of the increase derived from additional spending on childcare. But spending on enrichment goods (such as books, toys, games, and fees for activities) also grew substantially among higher-income families during this time, and grew not at all among lower-income families.

These studies, combined with other research that finds differences in the presence of books, toys, and games in lower- and higher-income families' homes, suggest that unequal spending on children undoubtedly explains some of the SES-based differences in parenting practices.³² Still, in a recent study of parent-child reading time in low-income Chicago families, almost no parents

reported that they failed to read to their children because they lacked the appropriate books.³³ Parents can also do many activities with children that are enriching but not necessarily costly—such as talking to them, telling stories, and playing games. Thus, although differences in children’s experiences by SES surely arise in part from differences in parents’ ability to pay for enrichment, financial constraints don’t entirely explain the gap.

Time Constraints

Another possible reason that lower-SES parents engage in fewer cognitively stimulating activities with children, and spend less time with them in general, is that these parents simply have less time to spare. Research on work hours and schedules shows that lower-SES parents are likelier than higher-SES parents to work unpredictable and nonstandard hours.³⁴ All else being equal, it’s hard for parents to engage in developmentally stimulating activities with children when they’re working during prime “investment” time (that is, weekends and evenings). Several quantitative studies show that the SES-based gaps in time investment remain large even when accounting for other family differences, such as employment hours, but few researchers have explored how the timing or regularity of work hours might explain SES-based differences in parents’ time investment.³⁵ That said, high-SES parents (especially mothers) tend to work *more* hours than lower-SES parents and have less discretionary time—but still spend more time with their children.³⁶ This stems from fact that higher-SES parents (especially mothers) spend more of their childcare time primarily engaged in activities, while lower-SES mothers tend to spend childcare time

being accessible to their children but largely engaged in housework or leisure activities.³⁷ Of course, it’s challenging to separate time availability from family structure: low-income parents are far likelier to be single parents, with less economic and social support to lighten the competing demands of household tasks than married mothers. (For more about single parents and other aspects of family structure, see Melanie Wasserman’s article in this issue.³⁸) Nonetheless, in a cross-national comparison study, highly educated mothers in many developed countries spent more time than less-educated mothers in primary child investment activities—even in Norway, where universal family policies are designed to equalize resources across parents.³⁹ The authors interpreted their findings as suggesting that the differences between more- and less-educated mothers in time spent with children more likely reflect different beliefs about parenting rather than time constraints.

In sum, it isn’t clear how much of the SES-based difference in time investment in children stems from differences in time available versus parents’ decisions to allocate available time to their children. These decisions may be shaped by information, values, and preferences—topics we turn to next.

Information, Values, and Preferences about Parenting and Child Development

Given that lower-SES parents may invest less time in children not just because they have less time to spend but rather because they spend the time they have differently, it’s reasonable to hypothesize that SES-based differences in this area stem in part from differences in information on, values about, or preferences for spending time doing

enriching activities with children. We could extend this hypothesis to cover emotionally supportive behaviors as well: perhaps lower-SES parents have less information about how warm, sensitive parent-child interactions can benefit children's socioemotional development—or perhaps they have weaker preferences for such interactions. To be sure, information, values, and preferences are different concepts: information *generally* refers to parents' knowledge of child development and the activities that promote it; *values* reflect parents' goals for their children and their ideal traits; and *preferences* refer to taste factors that may influence parental behavior, such as level of happiness, degree of satisfaction, or utility.⁴⁰

To understand how these factors drive SES-based differences in parental behavior, we need strong evidence that information, values, and preferences differ by SES. But most recent evidence suggests that US parents at all income levels believe it's important for children to develop skills that will prepare them for success in school and life; they also share similar ideas about the values they wish to instill in their children. For example, one group of researchers examined data from the 1998 and 2010 Early Childhood Longitudinal Study (ECLS—a national study by the National Center for Education Statistics that examines child development, school readiness, and early school experiences). Their goal was to estimate the share of parents who rated various early childhood kindergarten readiness skills—such as counting to 20, knowing the letters of the alphabet, and sitting still—as “very important” or “essential.” The researchers found an increase between 1998 and 2010 in the proportion of parents in the lowest fifth of the SES distribution who rated these skills as

important.⁴¹ Moreover, for each of the skills, the proportion of parents who said the skill was important was greater in the lowest fifth of SES than in the highest fifth. It's unlikely, then, that the large differences by SES in the actual skills of children entering kindergarten arise because disadvantaged parents lack information about the importance of those skills.

US parents at all income levels believe it's important for children to develop skills that will prepare them for success in school and life; they also share similar ideas about the values they wish to instill in their children.

Another key aspect of the parental belief system is *terminal values* for children—the characteristics parents believe they must instill in children to prepare them for life.⁴² The concept of values is often invoked in discussions of “cultural beliefs” as they relate to parenting: researchers have posited for decades that the difference in terminal values among parents at different points in the income or education distribution is one source of the intergenerational persistence of social class.⁴³ Historically, high-SES parents have valued “independent thinking” and “self-direction” more than low-SES parents do, whereas low-SES parents have put more value on “obedience” and “conformity.” Theoretically, differences in parental values help account for the reproduction of social class partly because of the myriad ways these differences influence how parents

prepare their children for their academic and professional futures. But our recent research with our colleagues Caitlin Hines and Kathleen Ziol-Guest shows that rich and poor parents' ideas about the characteristics needed for children to succeed in life (such as working hard, being helpful, and thinking for oneself) have converged substantially in the past three decades. In fact, in 2016 we found no significant differences in parents' espoused values by education or income.⁴⁴ Using a nationally representative survey, another study similarly found no differences by parental education in contemporary parenting standards: parents of all social backgrounds strongly endorsed time-intensive, child-centered parenting as the optimal parenting style (what sociologist Annette Lareau labeled "concerted cultivation"), whereas parents of all social backgrounds showed little support for a less intensive, adult-centered parenting style (which Lareau labeled "natural growth").⁴⁵

Even though all parents have similar aspirations for their children's development and readiness for school, lower-SES parents might expect a lower return from their investments in their children. But researchers have shown that low-income parents do expect a positive return from the time they spend in educational activities with their children; in one study done in Colombia, among very low-income households, parents' beliefs predicted investment in young children.⁴⁶ Furthermore, a survey of parents of school-aged children in England found no SES-based difference in expected returns to time or money invested in children. But some research suggests that although all parents expect high returns on their investment in child development, lower-SES parents expect relatively lower returns than their higher-SES peers do.⁴⁷

Income may also shape the extent to which parents view the time they allocate to their children as direct utility versus investment utility. Economists have long thought that highly educated parents, more so than less-educated parents, view time with children as an "investment behavior," a means to increase children's future human capital.⁴⁸ This framework may help explain why highly educated parents spend more time in childcare than less-educated parents who work the same hours and have as many children. But the same theories suggest that highly educated parents might spend relatively more time with their children because they derive more enjoyment from the activity. Using data from the 2010–13 American Time Use Survey Well-Being Module (a national study conducted by the Bureau of Labor Statistics that links self-reported wellbeing information to individuals' activities and time-use patterns), Kalil and colleagues examined mothers' reports of how they feel during childcare and in other activities, seeking empirical evidence pertaining to economic theories of time allocation.⁴⁹ For all mothers, spending time in childcare was associated with higher positive feelings than was spending time in other activities. This finding offers no support for the hypothesis that highly educated mothers enjoy childcare more than their less-educated counterparts do.

In sum, research provides only mixed evidence that information, values, or preferences drive differences in parenting behavior across the socioeconomic distribution. Compared to higher-SES parents, lower-SES parents may have less nuanced ideas about how to promote child development and may underestimate the benefits of time spent promoting child development. But high- and low-SES parents

alike understand the importance and value of enriching behavior with children, such as reading, and they appear to enjoy this time in equal measure.

Family and Environmental Stress

Sociologist Glen Elder developed the family stress model to explain how economic loss influenced parent and child wellbeing during the Great Depression.⁵⁰ According to this perspective, low-income families face significant economic pressure as they struggle to pay bills and purchase important goods and services, and this economic pressure, coupled with other stressful events more prevalent in the lives of low-income families, causes poor parents to suffer psychological distress that can disrupt parent-child interactions.⁵¹ Although the model was developed to explain the impact of economic loss on family wellbeing, it has since been applied to the way chronic economic strain, and poverty in particular, can undermine parenting quality.⁵²

Research has substantiated many of the hypothetical links in the family stress model—at least in observational studies. In low-income families, parents and children alike experience more daily stress than their higher-income peers do, and low-income parents report higher levels of parenting stress and depression.⁵³ Specifically, poor mothers of infants are two and a half times more likely to report being depressed than nonpoor mothers. These studies only establish correlations among poverty, stress, and parents' wellbeing. But more causal evidence comes from one study's finding that decreases in income among parents, particularly those who are already at low income levels, predicted increases in mothers' depressive symptoms and their

probability of being diagnosed with clinical depression.⁵⁴

According to the family stress model, this psychological distress spills over into all family relationships. As couples struggle to make ends meet, and as their depression, anxiety, and parenting stress increase, their interactions with each other and with their children become more hostile and conflicted.⁵⁵ Evidence of these associations includes a study using data from the Panel Study of Income Dynamics (a household survey of family income, employment, health, and wellbeing that follows its subjects over time). Kalil and her colleague Patrick Wightman found that parental job loss, particularly that of the father, was associated with increases in marital conflict and interpersonal violence; this finding is replicated in other studies.⁵⁶ In turn, parents' psychological distress and conflict with one another are linked with parenting practices that are on average more punitive, harsh, inconsistent, and detached, as well as less nurturing, stimulating, and responsive to children's needs.⁵⁷ Associations that link economic strain to psychological stress to disrupted parenting have been documented consistently in studies of early child development.⁵⁸

In recent years, the family stress model's focus on environmental conditions and parents' mental health has broadened to include our understanding of how stress affects neurobiological and cognitive functioning. Specifically, studies show that in the context of scarcity, including a lack of money, parents are more likely to make decisions that emphasize short-term rather than long-term gains.⁵⁹ This greatly diminishes the possibilities for purposeful, goal-directed parenting. Taken together with

the scholarship on the family stress model, these growing areas of research suggest that financial strain can alter parents' emotional and cognitive functioning in ways that undermine their ability to be cognitively stimulating and emotionally sensitive with young children.

Cognitive Biases and Decision-Making

It seems that disadvantaged parents want to do many of the same things that better-off parents do, especially activities associated with more positive child outcomes like reading aloud and going on educational outings. However, they're less likely to actually do those things. That is, we see a wider gap in disadvantaged families between what parents aspire to do and what they do in practice. Researchers in behavioral science and behavioral economics have described a set of cognitive biases that may give rise to this gap between knowing and doing.

People systematically put too much weight on present outcomes as opposed to future outcomes, which often leads to suboptimal choices.

Like many other decisions, parenting decisions are complex. This fact constrains parents' capacity to make optimal decisions, simply because human judgment can't readily master the complexity of parenting. Thus parents are prone to relying on heuristics (cognitive shortcuts) to simplify their decisions and make them "computationally cheap."⁶⁰ Lower- and higher-SES parents may use different heuristics in making

decisions, for a variety of reasons—such as differences in stress, in the composition of their social networks, or in parents' own upbringing or experiences. Or they may experience the same heuristic differently, which might also result in different patterns of decision-making. Here we describe two potentially important characteristics that make parenting especially susceptible to cognitive biases and to differential adaptations to biases by parental SES.

Present bias. For many parenting decisions, the payoff doesn't materialize until years into the future. Deciding to spend money and time on schooling, extracurricular activities, health-promoting behaviors, and other activities meant to improve child outcomes is much like making financial investments with uncertain returns. Research suggests that people systematically put too much weight on present outcomes as opposed to future outcomes, which often leads to suboptimal choices.⁶¹ Present bias can mean that parents prioritize spending their time on activities that provide immediate gratification rather than investing that time in their children. For example, even if parents believe in the value of reading, have books at home, and understand the connection between parents' reading aloud and children's skill development, they may be less likely to read to their children routinely because the temptation to do something else in the moment overcomes the commitment to invest time in an activity whose payoff lies in a distant and uncertain future. Scholars have reached no consensus on what causes differences in time preference. Many early sociology studies provide observational evidence that time preference is culturally acquired.⁶² Economists Gary Becker and Casey Mulligan proposed in 1997 that the more financial resources people have to

imagine the future, the less future value they're willing to give up for present value (that is, they are more patient, or future-focused). Empirical evidence supports this hypothesis.⁶³ More recently, Priyanka Joshi and Nathanael Fast claimed that power makes people feel more connected to their futures, which in turn results in less present bias (that is, more patience). To the extent that income can be perceived as power, this could help explain why low-income individuals experience present bias.⁶⁴

Automaticity bias. Parenting often requires quick, on-the-spot decisions. When a child runs toward a busy street, a parent must react, not contemplate. When a child screams in the checkout lane because a parent has turned down a request for candy, the parent seldom has time to reflect on what to do. The need to act quickly results in *automaticity*, meaning a response with minimal cognitive processing. Automaticity is a useful heuristic that reduces cognitive load. An automatic response can be beneficial if it's efficacious, but costly when it's not. Because automatic responses can be likened to habits, and habits are hard to break, ineffective automatic responses can lead to ineffective parenting.

Automaticity comes from learning, repetition, and practice. The automatic behaviors parents adopt are likely to depend on their own experiences. Behaviors repeatedly observed or experienced as a child can easily become default behaviors in adulthood. An adult whose parents always spanked him when he misbehaved as a child is more likely to “automatically” spank his own children in response to bad behavior, giving little thought to alternative kinds of discipline. We don't have a lot of evidence about how people learn to be parents, but what we do have (usually from small surveys) suggests that parenting

behaviors are primarily learned from one's own parents, relatives, and friends.⁶⁵

Automaticity reduces cognitive demands, leads to rapid responses, and is useful for many parenting situations. But it can also create barriers to eliminating adverse parent behaviors (such as yelling at or hitting a child, or forgoing toothbrushing). Higher- and lower-SES parents may have the same goals for their children; they may even have the same information about how to achieve those goals. But parenting behaviors are correlated across generations. Thus, higher- and lower-SES parents may have different parenting habits because of the differences in their own upbringings in different socioeconomic circumstances.⁶⁶ In this way, automaticity bias can help reinforce SES-based differences in the cognitive stimulation and emotional support provided by parents.

Summary

The evidence reviewed above suggests that neither time constraints nor differences in parental preferences or beliefs likely explain much of the variation in parenting behavior by SES. Differences in how much money is available to high- and low-SES parents undoubtedly affect differences in parents' material investments in their children, but money isn't likely to explain the differences in how parents spend time with children. We do see consistent evidence that lower- and higher-SES parents interact with and invest in children differently because low-SES parents undergo more daily and often “toxic” stress than higher-income parents do. That type of stress increases parents' depression and anxiety and can undermine their cognitive ability to focus on long-term goals rather than short-term ones. Recent research has also found that the economic context

of parenting itself, whatever its impact on mental health, is associated with cognitive biases in parents that may encourage them to focus on present versus future gains and to rely on habits rather than conscious problem-solving when making parenting decisions.

Policies and Programs to Narrow the Gap

What types of policies and programs would most effectively narrow SES-based parenting gaps? Below, we review research about programs that aim to improve parenting behavior by targeting precisely the mechanisms discussed above. Wherever possible, we review evidence from randomized controlled trials or from *quasi-experimental* studies (which compare treatment groups and control groups formed by means other than random assignment, such as a policy change). Otherwise, we review the correlational evidence about the differences in the mechanism by SES or the correlational links between each mechanism and parenting behavior.

Money to Spend on Children

If a main reason that low- and high-SES parents raise children differently is that low-SES parents have less money, the policy solution would be to provide conditional or unconditional cash transfers to low-income parents. It's difficult to estimate the causal effect of this on parenting behavior because income increases are seldom random. But research on how low-income parents spend their Earned Income Tax Credit (EITC) refunds offers some insight into behavior changes caused by giving parents money. The EITC is a tax credit that serves to offset payroll taxes and supplement the wages of low-income workers. Studies that compare spending patterns across the year for EITC

recipients compared to nonrecipients find that EITC recipients are likely spend their check on durable goods like cars or home appliances, or to pay off debts, and not on child-related expenditures per se.⁶⁷ However, a recent study found that receiving the EITC during the spring of a child's senior year in high school boosted the likelihood that low-income students would enroll in college, suggesting that the additional money may sometimes go to education.⁶⁸ Taken together, this research suggests that providing more money isn't likely to alter the time or money spent by parents on daily child enrichment activities, but it might increase parental investment in larger expenditures like college enrollment.

Another source of information on how a sudden change in income might affect families comes from a study on the effect of a windfall from casino earnings on members of an American Indian tribe.⁶⁹ For children who'd never been poor, an increase in parental income had no effect on high school graduation or educational attainment. But for children in poor families, the additional parental income increased schooling by nearly one year and increased the chance of graduating from high school by 30 percent. More importantly, the windfall was associated with a 5 percent increase in mothers' and fathers' supervision of children and a 4 percent increase in positive mother-child interactions, according to children. These findings indicate that income itself can enhance parenting behavior and, as a result, child outcomes. But note that the income increase in the study was significant—as much as 100 percent for poor families, far more than that likely to be implemented by US public policies. So it's unclear whether lessons from the study could guide real-world applications.

A new intervention might clarify the potential impact on parenting behavior of smaller but still meaningful income increases. A group of prominent researchers recently launched *Baby's First Years*, an experimental program that randomly assigns either an unconditional cash transfer of \$4,000 per year or a nominal \$20 per month to low-income families. Over the next few years, the study will explore the effects of these income boosts not only on infant development but also on parents' mental health, parenting stress, and parenting practices. *Baby's First Years* seeks to answer two questions: Can extra money alone enhance parenting practices? And if so, does it do so by improving parents' mental health and reducing parenting stress?⁷⁰

Time to Spend with Children

Another policy approach that might alter parents' behavior would be to increase the amount or nature of the time available to low-income parents to spend with their children. But education-based differences in parental time investments persist even when policies provide generous family supports in attempts to equalize opportunity for child development.⁷¹ Still, given that stress disrupts parents' mental health, focus, and attention, policies that improve the stability and predictability of low-income parents' work schedules could make a meaningful difference in parenting behavior and children's development. Studies to assess the impact of such approaches are still in their infancy, but one multicomponent investigation—the Shift Project, conducted jointly at the University of California, Berkeley, and the University of California, San Francisco—holds promise. The project is using an innovative method of data collection to survey thousands of retail

workers at large firms about scheduling practices and wellbeing, and thus providing much new evidence.⁷²

Information, Values, and Preferences

Another possible strategy involves designing interventions to affect parents' information about, values around, or preferences for investments in children. Impacting these mechanisms is one of the goals of home visiting programs, which are by far the most common policy approach to narrowing parenting gaps between higher- and lower-SES parents. These programs typically target the mother-infant relationship, aiming to enhance child development by modeling or directly instructing parents about caring for infants, toddlers, and preschool-aged children. This approach assumes that parents who know the importance of certain parenting behaviors, and learn how to engage in them, will do so more often. The number of families served by home visiting programs proliferated with the passage of the Maternal, Infant, and Early Childhood Home Visiting Program (MIECHV), part of the Affordable Care Act in 2010; MIECHV has been authorized through fiscal year 2022.⁷³

Three of the most commonly adopted (and rigorously evaluated) home visiting models are the Nurse-Family Partnership, the Early Head Start home visiting program, and Healthy Families America.⁷⁴ Although each of these programs has demonstrated positive effects on some parenting outcomes, the effects vary across sites, even within the programs. For example, multiple evaluations of Healthy Families America have demonstrated modest effects on mothers' ability to interact in sensitive or stimulating ways with children, but only at some sites.⁷⁵ Another home visiting program, the

Home Instruction Program for Preschool Youngsters (HIPPY), which specifically targeted parents' reading and educational activities with preschool-aged children, showed robust effects on children's school performance in the first cohort, but not in later ones.⁷⁶ Even when programs (or sites of programs) were found to enhance parenting practices, the effects were relatively modest and often faded over time.⁷⁷

The most recent evidence on home visiting comes from a national evaluation of the four most commonly used MIECHV-funded programs: the three described above, and the Parents as Teachers program. Like the evaluations of individual programs before it, the Mother and Infant Home Visiting Program Evaluation, or MIHOPE, found that home visiting programs can increase the quality of cognitive stimulation in the home and reduce the frequency with which parents use harsh or aggressive disciplinary approaches. But as in the previous studies, these effects were modest in size.⁷⁸ In fact, only about one-third of the parenting outcomes that MIHOPE examined showed effects that were statistically significant.

Why does home visiting tend to yield only modest benefits? One reason may be that such programs typically have trouble recruiting and retaining families.⁷⁹ Programs often recruit fewer than their target number of families and then provide far fewer home visits than they expect to. On average, families in MIHOPE participated for only eight months, even though some programs were designed to last years, and 17 percent of program mothers didn't receive a single home visit. Perhaps because of the hectic schedules and nonstandard hours faced by many low-income families, and because the cognitive biases described above may make

parents less likely to participate in home visiting, it's just too difficult to deliver the programs as intended.⁸⁰

The second reason for home visiting's modest benefits may be that the chief mechanism these programs use to enhance parenting practices—providing information and instruction—isn't the mechanism that differentiates the behavior of lower- and higher-income parents. Above, we reviewed research that suggests low- and high-income parents largely share the same parenting goals and values, and agree that it's important to conduct enriching activities with their children. The best evidence indicates that low- and high-income parents differ primarily in the level of stress each must negotiate while parenting, and in the impact of certain cognitive biases on parenting decisions.

Next we discuss two less time-consuming approaches to parenting programs, sometimes called *light touch* interventions. For this reason, they may hold particular promise.

Family and Environmental Stress

The home visiting programs we've described so far all aim to alleviate parental stress and improve parental mental health, among other goals. Yet only Healthy Families America has demonstrated impacts on mothers' mental health, and only at some sites.⁸¹ MIHOPE did find that home visiting, when averaged across model programs, was associated with statistically significant reductions in mothers' depressive symptoms, but the effects were small.⁸² These small and inconsistent findings likely stem from the broad focus of these programs—they don't exclusively target mothers' mental health or stress reduction—and their difficulty in recruiting and retaining families.

Programs that focus on improving parents' mental health using clear clinical approaches hold the most promise for enhancing parenting behavior.

But a number of smaller, more targeted programs have found that improving parents' mental health or reducing stress results in improved parenting behavior. Mothers and Babies is one example. This six-week cognitive-behavioral intervention has been shown to reduce depressive symptoms and prevent depressive episodes among women before and after giving birth; as a result, it increases the mothers' sensitivity with their infants.⁸³ The program has been successfully embedded in traditional home visiting programs, offering a way to enhance home visiting's effects on parenting behavior. Family Foundations is another well-developed and rigorously evaluated intervention to improve parents' mental health. This program aims to minimize the strains of the transition to parenthood, and to help parents support and not undermine each other. At six months and one year after a child's birth, mothers and fathers in Family Foundations reported significantly fewer depressive symptoms compared to a control group. Mothers also reported less anxiety, and both mothers and fathers reported more support from each other. In interactions with their children, parents showed more sensitivity and more support for child exploration, and had a more positive affect; intervention fathers showed less negativity. Unlike those of most other programs, these effects were

largely sustained at three and six years after the program ended.⁸⁴

The results from these programs suggest that some interventions can improve the quality of parenting in low-SES families by reducing parents' emotional and interpersonal stress and improving their mental health. But long-term home visiting programs with diffuse goals aren't likely to produce those effects consistently or at practically significant levels. Rather, programs that focus on improving parents' mental health using clear clinical approaches hold the most promise for enhancing parenting behavior.

Cognitive Biases and Decision-Making

In the past few years, a new approach to supporting parents has emerged that avoids the difficulties of recruitment and retention in home visiting programs. These light-touch, behavioral interventions, usually designed with scale-up in mind, typically target specific, discrete parenting behaviors to get at the cognitive biases that may prevent mothers and fathers from using certain parenting practices. One example is the Parents and Children Together (PACT) Study, a field experiment conducted at the Behavioral Insights and Parenting Lab at the University of Chicago, which tested a behavioral intervention to increase parent-child reading time among low-income families.⁸⁵

The PACT study hypothesized that present bias might be the key to understanding why low-SES parents read aloud to their children less often than higher-SES parents do. The intervention aimed to overcome this bias with a set of behavioral tools (goal-setting, feedback, timely reminders, and social rewards) designed to "bring the future

to the present” and help parents form the habit of regular reading. These tools were all deployed using text messages, rather than in-person staff visits, which made the program relatively easy for low-income parents with hectic, unpredictable schedules and high levels of daily stress.

On average, PACT more than doubled the amount of time parents spent reading to their children (the study measured time use objectively, using digital tools). But even more important was the finding that the intervention was substantially more effective for parents who were more present biased.⁸⁶ In short, parents who suffered from present bias were the very ones who benefited from an intervention designed to overcome it.

The PACT study doesn’t just suggest that difficulty making temporal tradeoffs is partly responsible for parents’ failure to read to their children. It also offers a blueprint for managing this cognitive bias. Using a set of known behavioral tools, parents are able to increase desired behaviors and improve their decision-making. Moreover, PACT’s cost per family was relatively low—a fraction of the per capita costs of current policy interventions designed to improve preschool children’s educational outcomes. This suggests that behaviorally based interventions can feasibly be adapted for policy purposes.

In another example of this new approach, Kalil and colleagues designed a behavioral field experiment, Show Up to Grow Up, to increase attendance and diminish chronic absences at subsidized preschool programs in Chicago.⁸⁷ The program sent parents personalized text messages targeting behavioral bottlenecks that were driving

children’s preschool absences. Based on outcome data from the preschools’ administrative records, the intervention decreased chronic absenteeism by 20 percent over 18 weeks. The study’s survey data showed that the parents who benefited most were those who, at the start of the program, had reported lower preferences for attendance. In short, parents with weaker beliefs about the usefulness of preschool benefited the most from messages and reminders that emphasized its importance.

Finally, to address challenges arising from cognitive scarcity, some promising new approaches focus on parents’ *executive function* skills, key components of which include impulse control, working memory, and mental flexibility. These interventions seek to relieve the effects of chronic toxic stress that can compromise decision-making among low-income parents. Although experimental evidence is currently lacking, some programs for low-income parents are using coaching, multimedia, and specially designed computer games to help adults improve memory, focus and attention, impulse control, organization, problem-solving, and multitasking.⁸⁸ Mindfulness meditation training, mind-body exercises (such as relaxation breathing), and “brain games” are other tools that may increase the quality of parent-child interaction by improving parents’ executive function skills—and likely improve mental health and health outcomes as well.⁸⁹ Like the other behavioral interventions described above, these programs could be deployed through technology in a way that could make home visits or meetings at children’s preschools unnecessary.

Conclusions and Policy Implications

Many theories aim to explain why better-off parents are more engaged with their children than are disadvantaged parents, especially with regard to educational activities. These explanations include differences in the amount of time and resources available to parents, differences in expected returns for time spent with children, and differences in information or beliefs about the importance of educational activities or how to engage in them. We don't have enough empirical evidence to show that these mechanisms specifically explain much of the difference in parenting behaviors by SES. Yet most parenting intervention models, particularly home visiting and outreach to parents via early childhood education programs, are nonetheless guided by the assumption that information and knowledge will alter parenting behavior.

The research reviewed in this article suggests that programs can narrow parenting gaps between higher- and lower-SES families by addressing parents' emotional stress and their cognitive biases. To be sure, parenting programs, and many home visiting programs in particular, aim to reduce parents' stress and improve mental health. But because these time-intensive programs have trouble recruiting and retaining parents, perhaps in part precisely *because of* the parents' cognitive biases, it's hard for them to achieve significant effects on parenting outcomes. By contrast, many of the ideas in what we might call the "behavioral economics tool kit" are inexpensive, have a light touch, and are highly scalable. If heeded, these insights could greatly improve the effectiveness of existing parenting interventions and guide the design of promising new ones.

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The Disparate Effects of Family Structure

Melanie Wasserman

Summary

In this article, Melanie Wasserman reviews the latest evidence about the causal link between family structure and children's economic and social outcomes. Going beyond the question of whether family structure affects child outcomes—a topic that's already been covered at length, including in previous *Future of Children* volumes—she examines how family structure differentially affects children. One important finding from recent studies is that growing up outside a family with two biological, married parents yields especially negative consequences for boys as compared to girls, including poorer educational outcomes and higher rates of criminal involvement.

Wasserman describes mechanisms that may link family structure to children's outcomes, in terms of both the main effect and the differences between effects on boys and on girls. These include same-gender role models in the household and in the neighborhood, parental resources (including money, time, and more), parenting quantity and quality (with attention to how parents allocate their time to children of different genders), and the differences in how boys and girls respond to parental inputs, among other hypotheses.

What can be done to ameliorate the effects of family structure on children's outcomes? Wasserman encourages policy makers to supplement the educational, parental, and emotional resources available to those children who are most at risk of experiencing the negative effects of nontraditional family structures.

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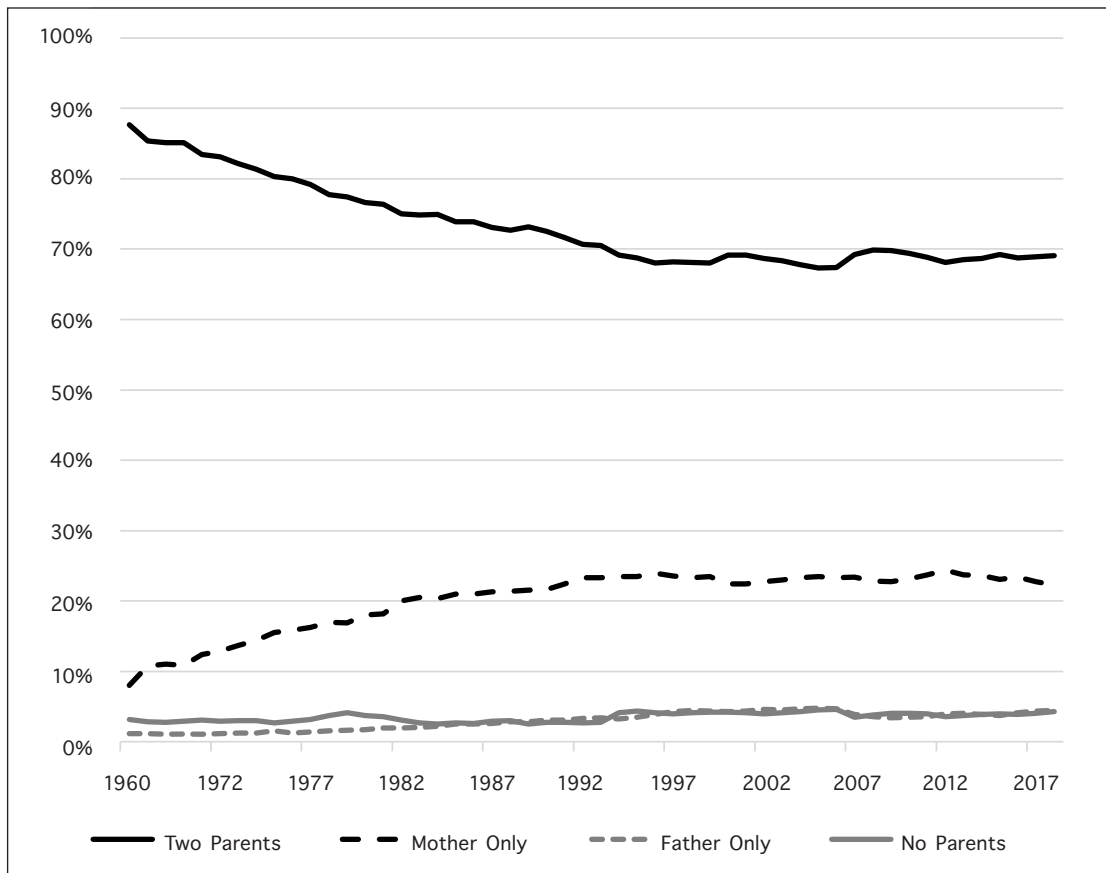
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Less than half the children in the United States today will grow up in a household with continuously married parents. This fact reflects the considerable changes the American family has undergone over the last several decades. Divorce, nonmarital childbearing, and nonmarital cohabitation have all been on the rise. In 2017, for example, 40 percent of births were to unmarried mothers, more than double the percentage in 1980.¹ New family structures have emerged, including unmarried cohabiting parents; blended families that may encompass step-parents, step-siblings, and half-siblings; and families

that experience frequent transitions and instability. As figure 1 shows, this vast transformation has led to a steep increase in the fraction of children who are raised in a household with only one parent, and a commensurate decrease in the fraction who live with two parents (whether biological, step-, or adoptive parents). The declining share of children raised in continuously married two-parent families has attracted a great deal of attention in academic and public policy circles, and in the popular media. This interest is substantiated by evidence that children who grow up in households without two biological married parents experience more behavioral issues,

Figure 1. Living Arrangements of Children, 1960-2018



Sources: US Census Bureau, Decennial Census, 1960; and Current Population Survey, Annual Social and Economic Supplements, 1968-2018.

attain less education, and have lower incomes in adulthood.²

Yet the changes in family circumstances haven't been uniform across demographic groups. The composition of minority and white children's families show profound differences. As figure 2 illustrates, white children are almost twice as likely as black children to grow up in a two-parent family. In 2017, almost 60 percent of black children were living in a household without two parents, and an even higher fraction lived without two biological parents. In contrast, only 25 percent of white children and 33 percent of Hispanic children were living in households without two parents. Family patterns also differ substantially based on parents' educational attainment. Among children of highly educated mothers, the married, two-biological-parent household remains the most common family structure and indeed comprises the vast majority of such households. In contrast, in 2014, almost half the children of mothers with less than a high school degree were being raised in a single-parent household.³ This deficit of parental resources represents another dimension of inequality for minority children and children of less-educated parents.

Alongside the different patterns of family structure across race and educational categories, recent research shows that certain groups of children experience particularly adverse outcomes in response to growing up outside a stable, two-parent married family. Why might the effects of family structure differ systematically across children? This article provides an overview of the theory and evidence of how family structure shapes children's outcomes, focusing on the *disparate* effects—how the effects of family structure may depend on children's

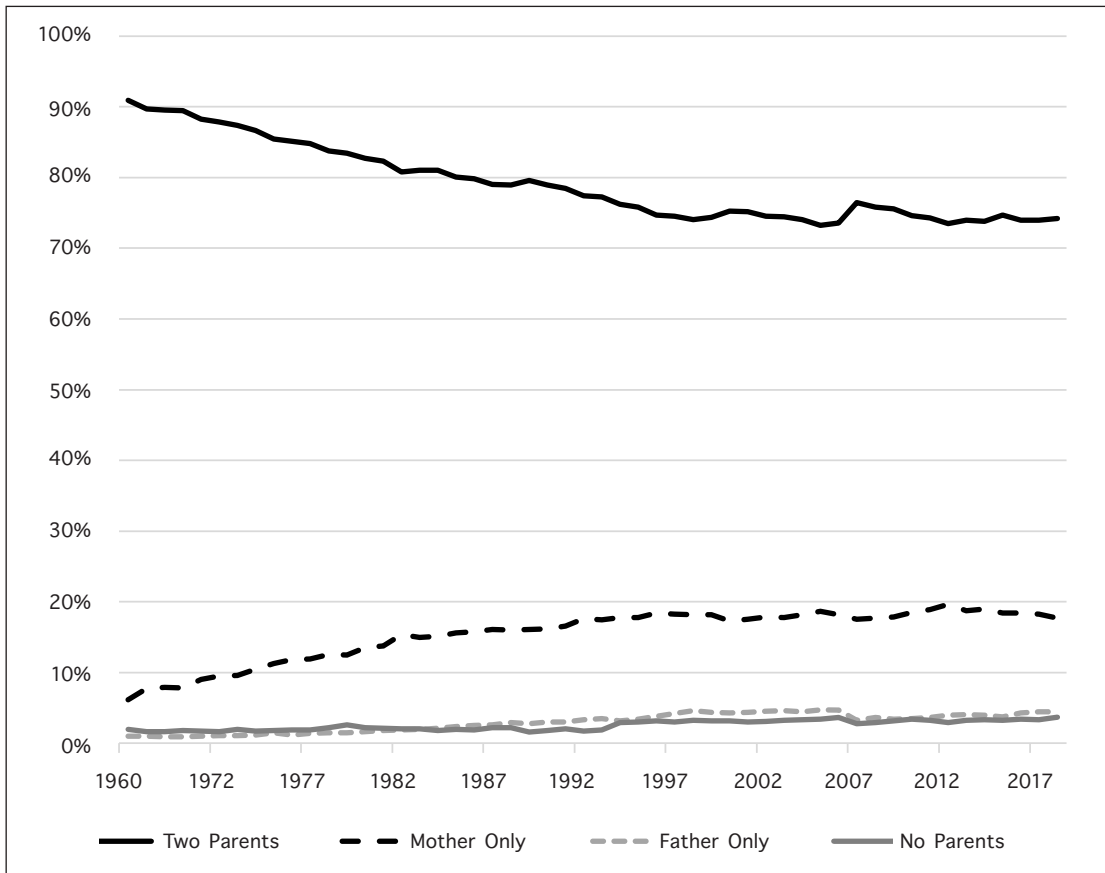
characteristics, such as gender, and on parents' characteristics, such as education level or race/ethnicity. To understand the diverse effects of family structure on boys and girls, we'll peer into the family's inner workings—how parents allocate financial, time, and emotional resources among their children—and examine the implications for child development, educational attainment, engagement in risky behaviors, and transitions to the labor market. We'll also step outside the family to study how family structure determines where children live and go to school, and the consequences for children's outcomes.

A detailed look at three recent studies contextualized by broader evidence reveals the emerging consensus that the absence of a biological father in the home yields especially negative consequences for boys. These consequences are seen in disruptive and delinquent behavior, and they persist into adult educational attainment and employment. In contrast, the evidence is less conclusive when it comes to how the effects of family structure vary with other attributes. For example, white and minority youth respond similarly to growing up in two-parent versus single-parent families, with some exceptions pertaining to the criminal behavior of African American boys.

Researchers have only recently begun to study the mechanisms that lie behind boys' and girls' differential responses to family structure. The evidence so far indicates that gender gaps in resources within the family—such as parents' time—don't vary meaningfully across family structures. And to the extent that boys and girls are allocated different resources in the family, these differences don't appear to account for boys' particularly negative response to growing

Figure 2. Living Arrangements of Children, 1960-2018, by Race of Child

A. White Children



up outside a two-parent home. Recent scholarship has also examined the diverse experiences of boys and girls who grow up in the same neighborhoods and attend the same schools. The evidence shows that these factors external to the family exert their own effects on boys and girls, and also mediate the gender difference in the effects of family structure on children’s behavioral, educational, and labor market outcomes. But even after accounting for the role of schools and neighborhoods, the differential effects of family structure on boys remain.

A principal challenge for researchers, then, is to understand the divergent educational,

behavioral, and labor market outcomes for male and female children growing up in seemingly similar family environments. The answers can help guide the way policy makers spend their efforts and resources. I conclude the article with examples of policies that have been effective in addressing the resource gap that differentially disadvantages boys.

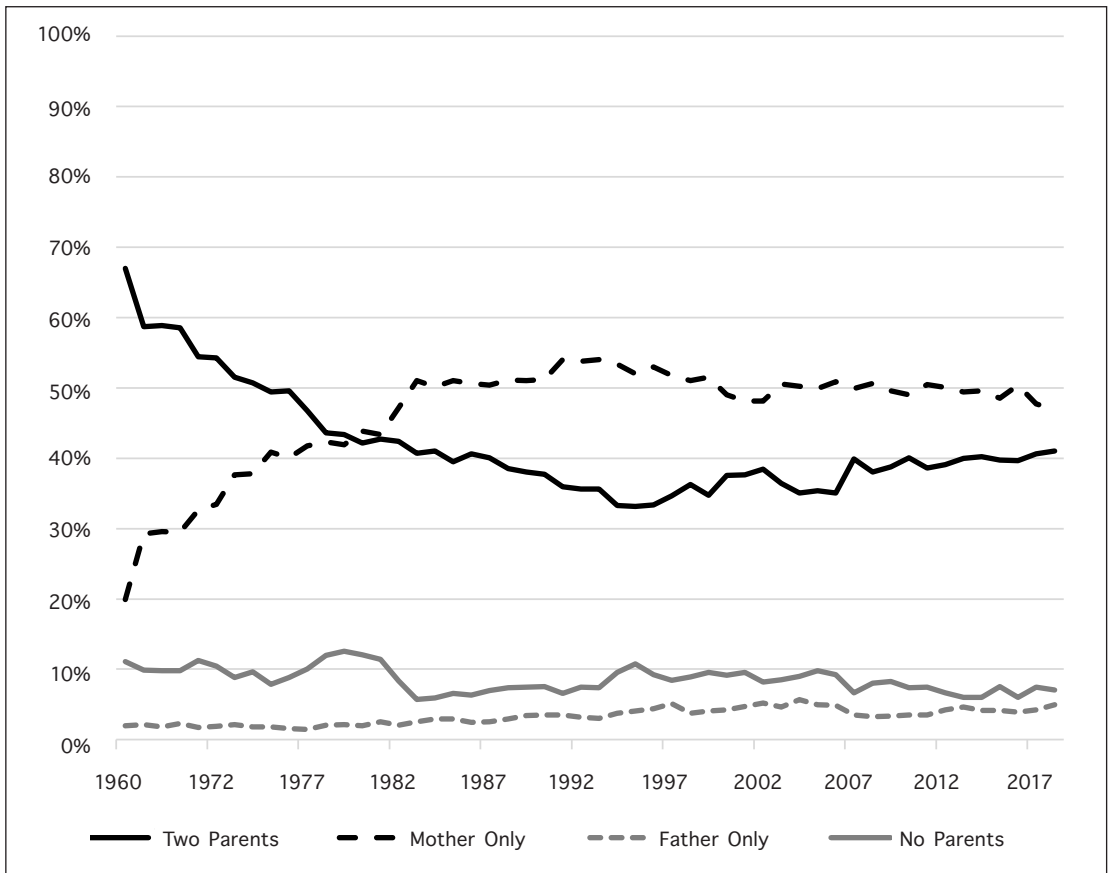
Theory of Disparate Effects

How Family Structure Affects Children’s Outcomes

Basic conceptual framework: I start with a basic framework for the mechanisms by

Figure 2. (continued)

B. Black Children



Sources: US Census Bureau, Decennial Census, 1960; and Current Population Survey, Annual Social and Economic Supplements, 1968-2018.

which family structure affects children’s outcomes. In a previous issue of the *Future of Children*, University of Melbourne economist David Ribar discusses these mechanisms in detail.⁴ I’ll briefly summarize them here before turning my attention to theories of disparate effects.

To simplify the discussion, I focus on two family types: two-biological-parent, heterosexual, married families; and single-parent families. A single-parent family may encompass varying levels of involvement by the nonresident parent, which I discuss below. Of course, there are other family structures

that can have different ramifications for children relative to a two-parent home. Along the same lines, a two-parent married family isn’t the only kind of stable, long-term partnership. But empirical evidence about other family types, including unmarried cohabiting couples, shows that the attributes and stability of such relationships more closely resemble those of single-parent families than of two-parent married families.⁵ The timing and duration of family structure experiences may also affect children’s outcomes. While the theoretical discussion focuses on just two family types, I include other family

types when I discuss the empirical evidence on the effects and disparate effects of family structure.

Compared to other family types, two-parent families have more economic and parental resources on average.

Let's consider a "production function" for child wellbeing, where *child wellbeing* takes on an expansive definition that includes children's academic, educational, behavioral, emotional, and psychological health outcomes, as well as their adult labor market outcomes. Through the production function, child wellbeing depends on various inputs, including the resources of the parents (whether or not they live with their children), schools, neighborhoods, extended family networks, and peers. Resources include goods and services that can be purchased, such as food, housing, clothing, schooling, and health care. But resources also comprise the quantity and quality of parents' nonmonetary investments, including their skills and time, as well as psychological inputs such as the incidence of stress or conflict. It's useful to divide inputs into those *within* the family and those *external* to the family, a distinction I'll expand on when I discuss the theoretical and empirical ramifications of family structure for children's wellbeing. Inputs external to the family encompass neighborhoods and schools, including the quality of teachers and peers, plus access to social and professional networks, community safety, and local job opportunities.

Effects of family structure, through mechanisms in the family: When considering how family structure affects children's outcomes, a natural starting point is how resources are provided and allocated in the family. Compared to other family types, two-parent families have more economic resources on average, including higher family income, greater wealth, and less exposure to financial volatility. Two-parent families also have access to more parental resources, including the quantity and quality of parents' time. (Elsewhere in this issue, Ariel Kalil and Rebecca Ryan examine in detail how parenting practices vary with family socioeconomic status, and consider how these differences contribute to childhood development.) In single-parent households, the nonresident parents, most of them fathers, tend to spend less time with their children and devote fewer material resources to them.⁶ A two-parent family also means more adult role models. In addition, two-parent families are, on average, more highly educated, which may have implications for the quality of parental inputs. Two-parent continuously married households exhibit more stability and less conflict and stress stemming from precarious relationships, the dissolution of relationships, and transitions to other types of family structures. These features of two-parent families relative to other family structures imply that children in these families receive more of the various financial, parental, and psychological inputs that enhance child wellbeing.

Effects of family structure, through mechanisms external to the family: Resources external to the family include neighborhood attributes, such as criminal and job opportunities; social and professional networks; and the availability of role models. (See Melissa Kearney and Phillip Levine's

in-depth look at role models and mentors in this issue.) These resources also extend to school quality, including teachers, peers, and school disciplinary practices. The greater economic resources of two-parent families help determine where families live, the stability of their residential choices, and the neighborhood social and professional networks available to them. In addition, because of the neighborhoods they live in or the parents' capacity to navigate school choices, the children of two-parent families are more likely to attend high-quality schools and to preserve the continuity of schools throughout childhood. A single-parent family is less likely to be able to access and depend on the nonresident father's extended family and social ties to provide informal childcare and financial support. Overall, these factors external to the family could determine the peers with whom children interact, the quality and quantity of educational resources, the harshness of school disciplinary practices, social and professional networks, and real and perceived labor market and criminal opportunities.

How Family Structure Effects Depend on Child Attributes

Thinking back to the production function, child wellbeing can also depend directly on children's attributes, such as gender, in that certain endowed traits may predispose children to higher or lower wellbeing, or may lead them to derive greater or fewer benefits from inputs. For example, boys may benefit more than girls from time spent reading and doing verbal activities. Children's attributes can also affect wellbeing indirectly. This indirect channel occurs through the decisions made by parents, teachers, or other adults about

allocating resources—decisions that may take into consideration a child's characteristics, predisposition for wellbeing, and the potential benefits from investments.

In assessing how family structure could affect boys' and girls' outcomes differently, we look within family environments, seeking differences by child gender in the provision or allocation of inputs. Do boys and girls have different *experiences*, even in the same family structure category? Alternatively, are there gender differences in the benefits derived from inputs? That is, do boys and girls have different *responses* to similar family environments? I'll also discuss how mechanisms external to the family can cause family structure to have different ramifications for boys and girls.

Differential sensitivity of boys and girls: To help illustrate family dynamics, let's focus on families with a son and a daughter. Parents decide how to allocate their financial, time, and emotional resources among their children. Consider a scenario in which the allocation of inputs within a given family type is equal among boys and girls. Thus, if the family structure changes from two parents to one, the resources available to the children decline, but not differentially by the children's gender. Even in this stylized scenario, we can explore why boys and girls respond differently to the same quantity and quality of inputs in their family environment. We'll call this phenomenon *differential sensitivity* based on children's attributes.

On average, compared to two-parent households, single-parent households have fewer resources, including market goods and services as well as parental time and supervision. Boys' differential sensitivity to family inputs may arise from the fact

that most single-parent households don't include the child's biological father. As I've mentioned, nonresident fathers are less involved in their children's lives than are resident fathers. While both boys and girls may be affected by the deficit of parental resources (time, emotional support, supervision) and economic resources (income earned) from having only one parent in the household, boys may be particularly affected if there are additional benefits to interacting with a same-gender parent or having access to a same-gender role model.

Another possibility is that boys are differentially vulnerable to resource-poor environments. This would imply that, although the deficit of parental resources in a single-parent family is detrimental to the development of all the family's children, it may particularly affect boys. In addition, boys are at greater risk of behavioral issues, potentially stemming from a lack of social and emotional skills, motivation, and self-discipline.⁷ Boys' different needs could position them to respond more strongly than girls to the same level of parental resources.

Differential sensitivity could also operate through mechanisms external to the family, if there are gender differences in the benefits derived from the same neighborhood, school, or peer inputs. Compared to two-parent families, single-parent families tend to reside in neighborhoods with a higher fraction of single-parent households, disproportionately headed by women.⁸ Again, male role models may be lacking. Although both male and female children of single-parent families lack male role models in the community, their absence could have worse consequences for boys, who might derive benefits from interacting, observing,

and learning from adults of the same gender.

Differential treatment of boys and girls: Now let's relax the assumption that the allocation of inputs among boys and girls is equal in a given family type. How might the treatment of boys and girls differ in a family? Parents could allocate inputs differentially to sons and daughters for various reasons. We should also draw a distinction between public and private inputs in the family. Public inputs are those from which all children benefit, such as nutritious meals, living in a safe neighborhood, and attending high-quality schools. Private inputs, on the other hand, are tailored to a particular child, such as one-on-one parental time, extracurricular activities such as sports and tutoring, and supervision. Private inputs can exacerbate or attenuate natural differences between children. Public and private inputs can both vary with family structure, but it's more likely that private inputs vary differentially across boys and girls. It's important to note that inequality in child inputs doesn't necessarily lead to inequality in child wellbeing, if children have different needs or derive different benefits from inputs. But such inequality is potentially a mechanism to generate differential responses to family structure among boys and girls.

Suppose parents prefer spending time with children of their own gender. In a two-parent household, as long as mothers and fathers devote the same amount of time to their children, this would result in an equitable allocation of parental time with children. Mothers would spend more time with daughters and fathers more time with sons, but both daughters and sons would receive the same amount of parental time. But in a single-parent household, this same-gender preference could mean that daughters and

sons don't get the same amount of parenting time. The vast majority of single-parent families are headed by mothers, implying that sons receive less parental time than their sisters do.

Even if parents don't prefer to spend time with children of their own gender, parents may allocate time and resources unevenly based on their children's and their own strengths and weaknesses.¹⁰ If some of the returns to parental investments depend on parents' gender and children's gender, then the allocation of resources across boys and girls may hinge on the presence of a particular parent. For example, fathers may have a comparative advantage in teaching their sons, while mothers may be better at instructing daughters. Two-parent families can exploit this comparative advantage: fathers specialize in teaching sons, mothers in teaching daughters. But in a single-parent family, the sole parent must provide all inputs, creating a deficit of parental time. In addition, the absence of a male parent could disproportionately affect sons' wellbeing. Not only are parental resources lower on average in single-parent families relative to two-parent families, but the quality of resources may be lower for male children.

Because of their higher risk of behavioral problems, boys may need additional inputs to produce the same outcome.

Finally, we could see gender differences in the costs or difficulty of childrearing.¹¹ Because of their higher risk of behavioral problems, boys may need additional inputs to produce the same outcome. If parents

allocate resources based on children's needs, then boys could receive more parental or financial inputs than girls do. If mothers and fathers allocate these compensatory inputs differently, the absence of one parent could mean either more or less equitable allocation of resources to sons and daughters.

Now let's consider how the treatment of boys and girls could vary with family structure through inputs external to the family. Family structure could differentially affect boys and girls if the neighborhood and school environments associated with family types vary systematically by child gender. For instance, shifting from a high-quality school with less-punitive disciplinary practices to a low-quality school with harsher punishment could disproportionately affect suspensions and expulsions among boys, who are more likely to engage in risky and disruptive behaviors. In a similar vein, criminal and job opportunities in a neighborhood are likely to be gender-specific. Moving from a neighborhood with a low crime rate to one with a high degree of criminal activity could differentially transform the risk of criminal activity among boys.

The fact that single-parent families tend to live in neighborhoods with other single-parent families suggests a lack of parental resources in the community.¹² And since most single-parent households are headed by mothers, the dearth of parental resources means a lack of male role models. Similar to the discussion of the within-family mechanisms that could generate differential treatment of boys and girls across family types, if there's a preference for spending time with children of one's own gender or a greater allocation of adult time based on

gender-specific returns, the lack of adult males in the community could result in fewer or lower-quality resources devoted to male children.

Effects of Family Structure and Parental Attributes

How might the consequences of family structure depend on such characteristics as parents' education or race/ethnicity? Below I look at why the effects of family structure might differ based on parents' attributes, focusing on the differential treatment of children and mechanisms within the family and external to it. Here, the notion of differential sensitivity is poorly defined, since parents with different attributes often have different levels of resources. For this reason, I focus on the differential treatment of children across these varying parent types as the primary mechanism for generating differences in the effects of family structure.

Differential treatment, by parental attributes:

Economists Melissa Kearney and Phillip Levine recently theorized how the effects of marriage could vary with a mother's resources—specifically, her educational background and age—and the resources the mother's partner brings to the family.¹³ Marriages tend to join people with similar educational and socioeconomic backgrounds: women with relatively few economic and educational resources tend to partner with people with similar resources, and so on. Therefore, the additional inputs a partner brings to a family depend on the mother's characteristics. Specifically, children whose mothers have a high school degree or less are likely to gain fewer resources from a two-parent family, relative to a single-parent family, than do children whose mothers have a college education.

Now consider how the effects of growing up in a two-parent family could differ based on the mother's education. For children whose mothers have a high school degree or less, the additional resources a partner brings to the family may be enough to improve basic educational outcomes, such as completing high school. But the extra resources may not suffice to induce the children to attend or complete college. That's because even with two parents, family resources may not be great enough to alter children's propensity to attend college. Among children of mothers with a college degree, high school graduation rates are likely similar whether they're raised in a two-parent or single-parent family; the mother's resources alone are enough to support her children in attaining a high school education. On the other hand, for mothers with a college degree, the additional resources a second parent brings to the family may improve advanced outcomes such as attending or completing college.

Next we consider how the effects of family structure could differ based on parents' race or ethnicity. One possible mechanism pertains to parental resource disparities between white and minority families, as described above. Even within a family structure category, large differences remain in the educational and financial resources of black families and white families. Take as an example a 2009 study using data from the National Longitudinal Survey of Youth 1997—a nationally representative survey that in 1997 began following men and women who were born between 1980 and 1984. The researchers found that the average income of black single-parent families with a never-married mother was \$15,000 per year, but for otherwise similar white families the average income was

\$29,000. The financial gain experienced by a biological two-parent black family was \$35,000; for two-parent white families, it was \$50,000 (all figures in 2005 dollars). Given that single-parent families have fewer resources, and that black families gain fewer resources by adding an adult partner, the effects of growing up in a two-parent family may be smaller for black children than for white children.¹⁴

Family structure could also affect white and minority children differently through mechanisms external to the family. Even within a family type, black and Hispanic children live in poorer neighborhoods with more criminal activity, on average, than white children do.¹⁵ Furthermore, considerable evidence shows that neighborhoods are segregated by race and ethnicity.¹⁶ Given the average differences in family structure composition among white and minority families, neighborhood segregation could lead to differential access to community resources such as social and professional networks, adult supervision, and male role models. Black and Hispanic children also attend lower-quality schools, on average, than white children do.¹⁸ These disparities mean that minority children may experience fewer changes in neighborhood attributes or school quality when they live in a single-parent family versus a two-parent household. This would counterintuitively imply that family structure differences or transitions are less detrimental for minority children than for white children. Along the same lines, sociologists have emphasized that kinship networks—extended family and close friends—can provide financial, emotional, and practical support for single-parent families, as well as during family disruptions. If these networks are stronger for black and Hispanic single-parent families, family

structure could be less consequential for minority youth's outcomes than it is for white children's.¹⁹

Evidence of Disparate Effects

The Challenge of Isolating Family Structure's Effects

Several issues arise when we try to empirically isolate family structure's role in children's economic, educational, and behavioral outcomes. Imagine an experiment in which the control group consists of two-parent married families and the treatment group of single-parent families. If children were randomly assigned a family type, we would expect the family types to be independent of all other parent- and child-specific characteristics that might affect child wellbeing. The simple comparison of children's outcomes across family types would yield the causal effect of family structure. But even in this unrealistic (and ethically questionable) experiment, family structure remains a multifaceted treatment. As the composition of a family and household changes, the provision of economic and parental resources also changes. When assessing the effects of family structure on children's outcomes, as long as resource differences are *caused by* family structure, I consider these resource disparities as paths that mediate the effects of family structure.

In reality, a simple comparison of children living in differing family structures will encompass the causal effect of family structure as well as the effects of many other correlated factors that don't result directly from family type. In fact, these correlates could be causing both family structure and children's outcomes. For example, a household's financial volatility could lead to relationship stress that ends in divorce.

The same financial volatility could lead to adverse educational outcomes for children. It would be misleading to attribute the children's lower educational attainment to family structure when the underlying cause is financial. This concern also extends to the characteristics of parents across various family structures. Parents with certain characteristics, such as psychological or emotional health problems, could be predisposed to relationship instability. These characteristics, instead of family structure per se, could influence children's outcomes. In considering the empirical evidence, then, I'll pay close attention to whether family structure or another correlated factor is driving the association with children's outcomes.

A third challenge concerns the direction of the causal relationship. Children with more behavioral issues could cause additional stress and conflict between parents, resulting in divorce. In this scenario, children's behavioral issues are a cause rather than a consequence of family structure. This issue extends to the investigation of how subgroups, such as boys and girls, respond differently to family types. For example, children's gender can partially determine family structure. Marriages are less likely to end in divorce if the parents' firstborn is a boy. And when unmarried women give birth, they're more likely to get married, primarily to the child's biological father, if their firstborn is a boy. These patterns have implications for children's living arrangements: girls are less likely to be living in a household with either their biological father or any father figure.²⁰ It's important to acknowledge, though, that researchers consider that the role of children's gender in shaping family structure is small, and declining over time.²¹

A final consideration is how to measure family structure, including the timing and specificity. Not only are there many complex types of family structures, but the timing and duration of children's exposure to different family types tends to vary, and that may determine the extent of family stability and disruption. Few studies define family structures in precisely the same way. Furthermore, most studies employ a measurement that's limited to a single childhood observation, which fails to capture the many transitions a child may experience.²² The evidence shows that two-biological-parent married families are substantially less likely than other family types to experience transitions.²³ That said, when examining the evidence that contrasts the outcomes of children in two-parent versus single-parent families, we should acknowledge that only a small fraction of children live continuously in a single-parent family.²⁴

The evidence supports an emerging consensus that growing up in a family without biological married parents produces more adverse consequences for boys than for girls.

In the discussion below of empirical evidence, I highlight research that successfully addresses some of these challenges. Certain concerns, such as the direction of the causal relationship, can be partially circumvented through the timing of the measurement of family structure. Other concerns, such as the parental and

environmental correlates of family structure, remain difficult to resolve.

Evidence that Family Structure Affects Boys and Girls Differently

Three recent studies provide evidence that family structure has different effects on boys and girls. The studies span the first 30 years of life: early childhood, school-age academic and behavioral outcomes, adult employment, and intergenerational mobility based on earnings at age 30. Together, these studies support an emerging consensus that growing up in a family without biological married parents produces more adverse consequences for boys than for girls.

In the two studies that analyze children's outcomes during elementary and middle school, behavioral outcomes—such as disruptive behavior in school and suspensions from school—yield the most striking contrasts in boys' and girls' responses to growing up in single-parent families. University of Chicago economist Marianne Bertrand and National University of Singapore economist Jessica Pan use the Early Childhood Longitudinal Study (ECLS)—a nationally representative survey of children entering kindergarten in the United States in 1998—to assess the implications of single parenthood for boys' and girls' educational and behavioral outcomes from kindergarten through eighth grade.²⁵ Bertrand and Pan measure a child's family structure based on the family members with whom the child lives during kindergarten, divided into three categories: single mother, both biological parents, and other family structures. The authors consider two main behavioral outcomes: teachers' observations of *externalizing*—that is, disruptive or delinquent—behavior in fifth

grade, and school-recorded suspensions in eighth grade. For both of these outcomes, a well-documented gender gap favors girls: boys are more likely than girls to engage in externalizing behavior and to be suspended from school. Bertrand and Pan find that this gap is substantially larger among children who grow up with a single mother. Among the children in the ECLS sample raised in homes with two biological parents, 6 percent of girls are suspended during eighth grade, while the rate among boys is 16 percent. Among children with a single mother, the gender gap in suspensions more than doubles: 15 percent of girls and 41 percent of boys are suspended during eighth grade.

Bertrand and Pan's findings are echoed by an analysis of administrative data from Florida.²⁶ These data link birth certificates for children born from 1992 to 2002 to their public schooling records, providing a detailed longitudinal account from birth through high school. In this study, a child's family structure is defined based on the marital status of the mother as recorded on the birth certificate, and divided into two categories: married and not married. The authors examine child behavioral outcomes encompassing kindergarten readiness, school attendance, and school-recorded suspensions during third through eighth grades, as well as juvenile crimes. The study also comprehensively analyzes whether family disadvantage more generally—including absence of a father, lower maternal education, and receiving Medicaid—differentially affects boys' outcomes.

All these behavioral outcomes exhibit a gender gap favoring girls, who are 7 percent more likely than boys to be assessed as ready for kindergarten and 52 percent less likely to be suspended from school during

third through eighth grades. Moreover, each of these gaps is amplified by being born to an unmarried mother. For example, the gender gap in suspensions grows by 20 percent when the children's mothers are unmarried. The greater negative effects for boys of growing up outside a two-parent married household continue to hold when the analysis statistically accounts for other characteristics—such as maternal education, maternal age, and Medicaid receipt—that might differ between family types. It's important to note that children born to unmarried mothers exhibit more behavioral issues than children born to married mothers; they are 43 percent more likely to be suspended from school. The innovation in these studies pertains to the documentation of the differential consequences of family structure for boys' behavioral outcomes.

In contrast to behavioral outcomes, family structure shows only small differential effects on boys versus girls when it comes to academic outcomes. Girls typically score higher than boys on standardized tests in reading, while boys maintain a small advantage in mathematics. The ECLS and Florida studies both find evidence of these aggregate patterns; in the Florida data, for example, girls outscore boys on standardized reading tests by 0.15 standard deviations (equivalent to being at the 56th percentile instead of the 50th), on average, while boys barely outscore girls on math assessments. But these gender gaps are far less malleable to family structure or to family resources more generally.

These two studies are part of a broader body of evidence documenting that growing up outside a two-parent, continuously married family has particularly adverse consequences for boys' childhood behavioral

and noncognitive outcomes. The effects aren't confined to school behaviors; boys raised in a single-parent household with no father present have substantially higher rates of criminal behavior as teenagers and young adults.²⁷ Boys in single-parent and blended families have also been found to have higher rates of attention deficit disorder diagnoses and treatment compared to boys in two-biological-parent families.²⁸

Do the differential effects of family structure on boys' childhood outcomes translate into a longer-term divergence in boys' and girls' educational and labor market experiences? Recent research emphasizing the role that noncognitive skills play in educational attainment has identified girls' and women's advantage in these skills as a potential explanation for their higher rates of high school and college completion.²⁹ Moreover, middle school suspensions, which boys experience much more often than girls, strongly predict lower rates of high school and college completion.³⁰ These associations suggest that childhood gender gaps in the effects of family structure can lead to gender gaps in educational attainment.

Some research, using recent innovations in access to administrative data, directly examines the long-term impacts of childhood family structure. In the Florida study, for example, the eldest cohorts of children (born in 1992 and 1993) could be followed through high school graduation. A third study uses tax returns for all individuals in the United States born from 1980 to 1982—approximately 10 million people. In that study, a child's family structure was defined based on the marital status of the parent who first claims the child as a dependent on a tax return; families classified as "single parent" were disproportionately headed by women. With

such detailed data, the researchers could observe a person's family structure and family income during childhood and also see whether that person was employed at age 30. Late-adolescent and adult outcomes revealed a gender gap in on-time high school completion that favors women: boys were 10 percent less likely to graduate on time. In contrast, a gender gap in employment favored men.

In both the Florida study and the tax return study, having married parents provided differential benefits for boys. Being born to a married mother or growing up in a household with two biological parents increased boys' propensity to graduate from high school on time and to be employed at age 30. Women's employment at age 30, on the other hand, generally didn't vary by their parents' marital status; this held true across all parental income groups. But men had substantially lower employment rates if they grew up in a single-parent family, at every parental income level—even the very highest. Perhaps the most surprising finding was that among children who grew up with single parents whose income was below the 40th percentile, the employment gender gap was reversed: women were more likely than men to be employed at age 30.³¹

The long-term differential effects of family structure on boys' educational attainment have been documented by several other scholars. Their studies investigated the gap in high school and college completion favoring girls and women, which emerged in the United States starting in the 1980s. For example, researchers found that growing up in a single-parent household has a larger effect on boys' educational attainment than on girls', particularly if the children lived in a single-parent family during the preschool

years.³² Similarly, a study of stepfamilies found that growing up without a biological father reduced the college entrance rates of boys more than that of girls.³³ Moreover, women's advantage in college completion is largest among families with no father present.³⁴

A notable exception pertains to mental health and health behaviors: researchers have found that adolescent girls' rates of smoking and self-reported mental health are more responsive to family structure than are those of boys. Teenage girls, on average, report higher rates of depression than do teenage boys, and this gap widens for teenagers in single-parent and blended families, compared to those in two-parent families. But other studies looking at a range of risky behaviors—such as smoking, substance abuse, and criminal activity—have found no gender differences in response to time spent living with a child's biological father.³⁵ Childhood mental health and the propensity to engage in risky behaviors are relatively understudied outcomes in the research on the differential effects of family structure on boys and girls, and they warrant additional attention.

It's worth noting the different definitions of family structure used in these studies. Administrative data, such as those from the state of Florida and the federal government, tend to measure family structure at or near birth, while survey measures such as ECLS capture it later on in childhood by observing who resides in the household. Each of these is a point-in-time, static measure of family structure. An advantage of measuring family structure at or near birth is that it circumvents concern about reverse causation: it's unlikely that a newborn child's behavior will determine family structure.

Yet none of these static measures of family structure can fully capture the dynamic processes underlying more complex family environments, which may entail transitions, disruptions, and changing household composition. Despite differences in the measurement of family structure, and in the outcomes and cohorts analyzed, the evidence demonstrates that growing up in a family environment without biological married parents has a larger adverse impact on boys, particularly their childhood behavioral outcomes and their adult labor market and educational outcomes.

We should also address the notion that children's gender can affect family structure, which would imply that boys and girls grow up, on average, in different types of families. As we saw above, the evidence on the effect of child gender on family structure appears to favor boys: that is, a marriage is less likely to end in divorce if the couple's firstborn is a boy. Furthermore, families in which boys are raised are more likely to be smaller, to have a father living in the household, and to have larger father investments. Nonresident fathers are more likely to be involved in their children's lives if there is any male child in the family.³⁶ These differences in paternal involvement on the basis of child gender are usually small, but they suggest that, on average, boys grow up with more father involvement than do girls.

The fact that family structure is partly determined by children's gender composition complicates the comparison of boys' and girls' outcomes across different family types. A marriage that stays intact with a firstborn girl may vary in many unobservable ways from an intact marriage with a firstborn boy. One benefit of using administrative birth records in the Florida

study is that they give an opportunity to observe the birth order and gender composition of children born to the same mother. Specifically, the study's authors limit their analysis to families with at least two children, and contrast the outcomes of mixed-sex siblings within the same family. This strategy removes the influence of unobservable family characteristics that don't change over time, implying that we no longer have to grapple with the fact that within a given family structure category, families of boys and girls may differ in unobservable ways, perhaps due to the children's gender composition. Compellingly, the Florida study found that even among children born to the same mother, the behavioral outcomes of sons still differentially benefited from being born to a married mother.³⁷

In summary, recent evidence consistently shows that two-parent married families confer differential benefits for the behavioral, educational, and labor market outcomes of boys relative to girls. The disproportionate effects of family structure appear as early as age five, when children are assessed for kindergarten readiness. Though the effects are primarily concentrated among behavioral outcomes, including school suspensions and delinquency, we also have evidence that such effects persist into adulthood, as measured by high school completion and employment at age 30.

What Accounts for the Disparate Effects?

As discussed in the conceptual framework, there are two broad categories of mechanisms: differential treatment of boys and girls across family structures, and differential sensitivity of boys and girls to a given family environment. So which of the hypothesized mechanisms generates

the disparate effects of family structure on boys' and girls' behavioral, educational, and job outcomes? Although research on these mechanisms is still preliminary, the existing evidence points to factors external to the family, as well as the differential responsiveness of boys and girls to inputs, as being the key forces driving the disparate effects of family structure on boys and girls.

Treatment of boys and girls, within the family: Do boys and girls receive inputs in ways that differ systematically by family type? A key input is parental time allocation, which has been studied extensively with the aid of retrospective time diaries such as those in the US Census Bureau's American Time Use Survey (ATUS), conducted since 2003 to provide nationally representative estimates of how US households spend their time. Among two-parent married families, fathers spend less time, on average, with their daughters than with their sons. In addition, fathers spend more total time with children if a family has at least one son rather than all daughters. Mothers similarly spend more time with their daughters than with their sons, but their total time investment doesn't vary with their children's gender composition.³⁸

The ECLS study documents the differential treatment of boys in single-parent female-headed families, focusing on the resident parent.³⁹ For one thing, single mothers reported feeling less warmth toward their sons than toward their daughters. The authors of the ATUS study also found that single mothers spend about an hour less per week with their young boys than with their young girls. One problem with investigating parental time inputs in single-parent families using ECLS and ATUS is that researchers can't observe the time allocation of the

nonresident parents. The research with data on nonresident parental time inputs finds slightly more involvement of nonresident fathers in their sons' and daughters' lives.⁴⁰ If boys' deficit of mother time in single-parent families isn't offset by other resources—including nonresident fathers' time—then parental time is one possible mechanism through which boys' outcomes are disproportionately affected by family structure.

A few studies explicitly try to control for disparities in the provision of parental inputs across family types. For example, after also accounting for parents' emotional support, time spent reading with children, and disciplinary practices, the ECLS study concludes that differing parental inputs explain only a small share of the larger gender gap in externalizing behavior and suspensions observed among single-parent female-headed families. In the end, then, the current evidence suggests that gender differences in parenting inputs across family types are unlikely to be a key explanation for gender differences in the effects of family structure. But given the sparse research on the issue, this conclusion remains tentative.⁴¹

Treatment of boys and girls, external to the family: Strong correlations exist between family structure and the characteristics of neighborhoods and schools. Compared to two-parent families, other family types tend to live in neighborhoods where people are poorer, crime is more common, and more households are headed by single parents. Children growing up in single-parent families are more likely to report feeling less safe, and they attend lower-quality schools. These associations could be due to the fact that families without two continuously married parents have less money for

housing, on average, or due to segregation on the basis of poverty or race.⁴²

Do boys' and girls' experiences in their communities and schools differ? In a qualitative study entailing extensive in-person observations of children growing up in 12 households of varying socioeconomic levels, University of Pennsylvania sociologist Annette Lareau found that the extent of children's exposure to neighborhood risks and peer groups is contingent on both the family's financial resources and the child's gender.⁴³ Specifically, children raised in families with fewer resources tend to have more unsupervised time to play with neighborhood peers. And boys are given more latitude to explore the neighborhood, in terms of both distance from the home and the extent of parental supervision. Boys raised in single-parent families may have more exposure than girls do to neighborhood risks and criminal opportunities. These qualitative observations are backed up by quantitative studies of parenting practices showing that boys spend more time unsupervised in their neighborhoods and are monitored less intensively by parents.⁴⁴

It's possible, then, that the same neighborhoods affect boys and girls differently. A recent series of influential studies by Harvard economists Raj Chetty and Nathaniel Hendren uses information from tax return filings on the entire US population born between 1980 and 1991 to estimate how childhood residential location affects the extent of intergenerational mobility, as measured by the correlation in the income ranks of parents and children. Overall, location has a similar influence on the upward mobility of both boys and girls: places that offer more mobility for girls tend to do the same for boys. Yet the effects

of residential location are larger for boys than they are for girls, and this is primarily driven by areas that yield particularly adverse outcomes for boys in low-income families.⁴⁵ Chetty and Hendren, along with a team of other researchers, extended this analysis by examining the employment of individuals born from 1980 to 1982; they found that among people who grew up in low-income families, men's employment rates varied more than women's did with the neighborhood of their upbringing.⁴⁶ Neighborhoods where men had particularly low employment rates relative to women were those that had more racial and income segregation, as well as a higher fraction of families with single mothers.

Are the effects of family structure on boys and girls explained by factors external to the family? The ECLS study finds no evidence that school environments differentially affect boys and girls, and therefore concludes that schools can't explain the disproportionately negative effects of single-parenthood on boys' externalizing behavior and suspensions. The Florida study, on the other hand, finds that boys particularly benefit from attending better schools.⁴⁷

The same researchers directly tested whether other environmental correlates—such as neighborhood attributes and school quality—might explain the differential effects of family disadvantage on boys' and girls' behavioral and educational outcomes. They found that gender differences in response to these other environmental attributes can explain at most 24 percent of the gender gap in the effect of family disadvantage on children's outcomes.⁴⁸ Overall, research indicates that factors external to the family that are correlated with family structure can only partially explain the differential effects of family structure on boys.

Sensitivity to resources, within the family and external to it: Pinpointing differences in boys' and girls' sensitivity to the same circumstances is a difficult empirical task. It requires adequately measuring children's experiences of various environmental influences and then gauging whether the children react differently to these inputs. Even comparing mixed-sex siblings in the same family doesn't completely resolve the concern that boys and girls may have different experiences within the same family structure, because the family may treat boys and girls differently.

To see whether boys and girls are differentially sensitive to parental inputs, researchers generally correlate the degree of parental involvement with children's outcomes, calculating separately for boys and girls. Of course, it's a major concern that researchers can't observe children's needs and the potential returns from parental inputs. For example, if parents increase their level of involvement based on boys' deficiencies, we might expect to see no relationship—or even a negative relationship—between parental time and boys' outcomes. Alternatively, if parents invest more in girls because of higher expected benefits, we would expect a positive relationship. It would be a mistake to characterize these positive and negative correlations as evidence of gender differences in sensitivity, since the relationships arise from parental strategies for allocating resources.

We also need to be certain that boys aren't predisposed to greater difficulties from birth because of a dearth of resources. As a test, the authors of the Florida study show that boys' differential response to family environments is a post-birth phenomenon; the gender gap in health measurements taken at birth

is stable among families of different types. The first observation of children's outcome post-birth, however, reveals that the gender gap in kindergarten readiness (measured at age 5) is substantially larger among children born to an unmarried mother. This supports the notion that the post-birth environment is differentially shaping boys' and girls' outcomes.

The differential effects of family structure on boys persist after accounting for the diverging experiences of boys and girls outside the family.

With these caveats in mind, let's proceed to the research on gender differences in responses to parent inputs. Looking at nonresident fathers' involvement with their children, a *meta-analysis*—a statistical procedure that combines data from a number of studies (63 in this case) and re-analyzes them—found no evidence that boys and girls respond differentially to fathers' investments.⁴⁹ Mothers' involvement tells a different story, however. Evidence from the ECLS study shows that boys' externalizing behaviors and eighth grade suspensions are more responsive to maternal warmth and disciplinary acts such as spanking. Thus, the lower degree of parental warmth and higher incidence of spanking in single-parent families, though experienced by both boys and girls, could result in disparate effects for boys.⁵⁰

While numerous studies have documented that growing up outside a two-parent, continuously married family has differential

effects for boys and girls, the research is far more limited on the mechanisms that generate these gender differences. The evidence so far suggests that in single-parent families there may be a gender gap in resident parent inputs that favors girls, but such a gap is not present in two-parent families. This gap in maternal inputs alone could produce the differential adverse effects of single-mother families for boys. Yet the picture is complicated by the fact that paternal involvement appears to favor boys in both single- and two-parent environments, so that fathers' resources may offset the deficit of maternal resources for boys in single-mother families.

Outside the family, the evidence shows that boys and girls have very different experiences depending on their neighborhoods and school quality. Local criminal opportunities and police and school disciplinary practices particularly disadvantage boys growing up in poor neighborhoods. Indeed, research demonstrates that boys are more affected by these factors external to the family, with the most prominent effects being in their behavioral, educational, and employment outcomes. But the differential effect of family structure on boys persists after taking these factors into account.

Disparate Effects of Family Structure by Parental Attributes

In this section, I discuss research on the heterogeneous effects of family structure based on parents' demographic characteristics, including their education and their race or ethnicity.

Are There Disparate Effects?

First I'll consider evidence for the conjecture that the gains to marriage may depend on a mother's initial resources. To assess this

hypothesis, researchers used data from the Panel Study of Income Dynamics, a survey that follows children born in the 1960s through the 1980s, and measures family structure using a mother's marital status when a child is born.⁵¹ They captured maternal resources using the mothers' educational attainment and age at the time of birth, with the assumption that more-educated and older mothers possess greater resources, on average, than their less-educated and younger counterparts. The child outcomes they analyzed are high school graduation, poverty status at age 25, college completion, and having a high income, defined as 400 percent of the federal poverty threshold or more.

Consistent with the theory, discussed above, that the benefits of marriage are contingent on maternal characteristics, the study found that the effects of family structure depended on both the level of maternal resources and the child outcome analyzed. Children of younger and less-educated mothers reaped few returns from marriage, independent of the outcome analyzed. The low initial level of maternal resources, paired with the minimal resource gain from marriage, wasn't enough to alter children's trajectories. On the other hand, children of mothers in the middle of the age and education distributions benefited greatly from marriage, being more likely to graduate from high school and less likely to be poor. Family structure had little effect on high school graduation rates among children whose mothers had a college degree or more—their mothers generally had enough resources to support them in attaining this objective. But these children benefited most from marriage in their rates of college completion, an outcome for which the large resource gain from marriage is pivotal.

Does family structure have different effects across racial and ethnic groups? The research is far from conclusive. Using the National Longitudinal Study of Youth 1997, a group of researchers analyzed the ramifications of family structure and its disparate effects for black children.⁵² The authors found that growing up without a father present in the household had about the same effect on black children's high school dropout rates, cognitive test scores, and propensity to become unmarried parents themselves as it did on all children. Another study examined the educational attainment of 20,000 children born between 1976 and 1984, using data from the National Longitudinal Study of Adolescent to Adult Health. It found that white children's college graduation rates dropped more than black children's if they grew up without their biological father present, but the opposite was true for high school graduation.⁵³ One exception to this pattern is for black men: the National Longitudinal Study of Youth 1997 study found that for incarceration and employment, the effects of growing up without a father figure were substantially larger for black men than for any other subgroup.⁵⁴

Research on family instability has produced equally ambiguous results. Two researchers used data from the Fragile Families and Child Wellbeing Study, a survey of 5,000 children born between 1998 and 2000 in medium to large cities, and found that experiencing a larger number of family structure transitions increased aggressive and anxious/depressive behavior among three-year-olds. But they found little evidence that the effects differed for black and white children.⁵⁵ Two other studies, using the National Longitudinal Study of Youth's 1979 and 1997 surveys, found that

white children's behavioral outcomes were harmed more by family structure transitions than black children's were. These three studies find conflicting evidence about whether boys or girls are more disadvantaged in their cognitive outcomes by family instability.⁵⁶

In summary, the evidence for disparate effects on the basis of parental attributes is less conclusive than the evidence for effects based on children's gender. For certain parental characteristics, such as education and age, research finds that children benefit more from a two-parent family—especially when it comes to advanced outcomes like college attendance—when their mothers start out with plentiful resources, and when the resource gains from marriage are also substantial. For other parental characteristics, such as race and ethnicity, the findings regarding disparate effects of family structure are mixed.

What Accounts for the Disparate Effects?

The evidence for differential effects of family structure on the criminal and labor market behavior of minority boys suggests that the channels by which family structure disproportionately affects racial minorities may be external to the family, rather than involving parental or financial resources. Along these lines, recent research using US Census data linked to tax records documents the role of neighborhoods in explaining gaps in the incomes, education, and incarceration of black and white boys, conditional on their parents' income. A high rate of black father presence in a locality strongly predicts positive outcomes for black boys, particularly in low-poverty neighborhoods. Notably, these neighborhood characteristics were predictive even after controlling for a child's own

family structure.⁵⁷ This study indicates that family structure may have spillover effects through neighborhood, peer, and school environments: the prevalence of single-parent families in the community where a child lives influences the wellbeing of children—particularly that of boys.

Conclusions

Researchers have long been attuned to how family environments shape children's wellbeing. In this article, my goal was to draw closer attention to the conditions under which children may experience differential benefits—or harm—from growing up in a particular family structure. I focused on how the effects of family structure vary with child and parent characteristics. Research indicates that growing up outside a family with two biological, married parents yields especially negative consequences for boys, with effects evident in educational, behavioral, and employment outcomes. On the other hand, the effects of family structure don't vary systematically for white and minority youth—with the exception of black boys, who appear to fare especially poorly in families and low-income neighborhoods without fathers present. Research also indicates that the benefits of marriage are greater when mothers have more resources to begin with, and that the largest gains from growing up in two-parent families occur in advanced outcomes such as college graduation.

The evidence on the disparate effects of family structure for certain groups of children may help explain certain aggregate US trends. For instance, although boys and girls are raised in similar family environments, attend similar schools,

and live in similar neighborhoods, boys are falling behind in key measures of educational attainment, including high school and college completion. The fact that boys' outcomes are particularly malleable to the family in which they're raised provides an explanation for this disparity.⁵⁸ For researchers, the next step is to understand the mechanisms through which family structure yields differential impacts. Factors external to the family may mediate the differential effects of family structure, but we need more evidence to guide policy.

And when we're considering policy, it's important to emphasize that the benefits of being raised by continuously married parents don't stem from marital status alone. Instead, parents' characteristics, their resources, and children's characteristics all work together. In particular, when their biological fathers have limited financial, emotional, and educational resources, children's cognitive and behavioral outcomes are no better when they're raised by married parents than when they're raised by non-married parents.⁵⁹ Perhaps for this reason, policies intended to encourage marriage or marriage stability among fathers with limited resources are unlikely to generate lasting benefits for children. Rigorous evaluations of federally sponsored policies designed to promote marriage among low-income families have found that these programs produced little improvement either in couples' relationship stability or in children's outcomes.⁶⁰

More encouraging are the efforts to supplement the educational, parental, and emotional resources available to children, particularly those who are most

likely to experience negative effects from nontraditional family structures. One example is the school-based program *Becoming a Man*, designed for at-risk boys in urban high schools. It follows a curriculum to develop socioemotional and relationship skills using cognitive-behavioral therapy techniques, and also incorporates mentorship. The program yielded substantial declines in juvenile arrests and smaller but still significant increases in high school graduation rates.⁶¹ Another example, Career Academies, creates small learning communities in low-income high schools.

This program has produced sustained positive effects on high school graduation, employment, and earnings, particularly for men.⁶²

Intriguingly, Career Academies has had a positive effect on the marital stability of male participants, and also led them to father fewer children outside of marriage. By focusing on children who experience the worst effects of the resource gap induced by nontraditional family structures, such programs may go on to promote child wellbeing in the next generation.

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Role Models, Mentors, and Media Influences

Melissa S. Kearney and Phillip B. Levine

Summary

Children from low-income backgrounds are less likely to have economically successful role models and mentors in their own families and neighborhoods, and are more likely to spend time with media. In this article, Melissa Kearney and Phillip Levine review the theoretical and empirical evidence on how these external forces can influence children's development. The authors also document income-based differences in exposure to social influences. They show that well-designed programs involving role models, mentors, and the media can be deployed deliberately, effectively, and often inexpensively to improve children's social and economic outcomes.

After highlighting the theoretical reasons why role models, mentors, and the media could alter a child's life trajectory, the authors report a descriptive analysis showing differences over time and across income class in exposure to these influences. They show that compared to children four decades ago, today's children spend much more time in school and with media, and less time with parents, peers, and other adults. They also show that young children with low socioeconomic status (SES) spend considerably more time exposed to media and considerably less time in school, as compared to higher-SES children, and encounter very different role models in their neighborhoods.

Kearney and Levine focus on large-scale analyses that credibly claim that a specific intervention had a causal impact on children's outcomes. The beneficial impact of role models is evident in teachers' ability to positively influence the educational performance and career decisions of students who share the teacher's gender or race. Children who participate in formal mentoring programs see improvements in their school performance and are more likely to avoid the criminal justice system. Exposure to specific media content with positive messaging can lead to improved social outcomes. The authors conclude that interventions designed to improve the social influences encountered by children can make an important contribution toward the goal of increasing rates of upward mobility for children in low-income homes in the United States.

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Children and young adults spend a great deal of time away from their parents and family members. During that time, they're engaging with others, including potential role models and mentors. They also spend a great deal of time being exposed to media influences. These external factors can shape their attitudes and behaviors in profound and lasting ways. Furthermore, data indicate that children from low-income backgrounds are less likely to have economically successful role models and mentors in their own families and neighborhoods, and are more likely to spend time with media. For all these reasons, the social learning that occurs through role models, mentors, and media may contribute to the widely diverging outcomes of children from low and high socioeconomic backgrounds. But these same social forces can be deliberately, effectively, and often inexpensively deployed to improve children's social and economic outcomes and to foster upward mobility for children from economically disadvantaged backgrounds.

This article is both a call to action and a call for optimism. If role model, mentor, and media influences are left unchecked, they can exacerbate the differences that stem from socioeconomic status (SES). But well-designed programs can enhance children's social and economic outcomes at a relatively low cost. Here we review evidence that role models, mentors, and media (mainly television) can be forces for good to help advance outcomes for children. Recent evidence, mainly from scalable interventions in the United States, shows how these factors contribute to young people's economic and social outcomes. We highlight some ways these factors could be used to improve outcomes for children from low-SES backgrounds.¹

Theoretical Foundation

Today's focus on monitoring children's activities and determining what types of people, activities, and experiences they're exposed to reflects a perspective on child development that emerged only in the past half century. Before the 1960s, psychologists and child experts commonly believed that children's innate characteristics determined their life outcomes—in other words, internal forces were the primary determinants of success. But in the 1960s, child experts and psychologists began to emphasize the role played by other people and environmental stimuli in shaping children, observing that children's behavior depends on their surroundings, not just their innate needs, drives, and impulses. That change in perspective led to the development of early childhood interventions, including the introduction of Head Start in 1965 and the children's educational television program *Sesame Street* in 1969.

In his seminal 1961 work *Intelligence and Experience*, the educational psychologist Joseph McVicker Hunt wrote that children's environments may help determine their intellectual development, especially during their early years. He lamented and contradicted the “counsel from experts on child-rearing during the third and much of the fourth decades of the twentieth century to let children be while they grow and to avoid excessive stimulation.”² Around the same time, psychologist Albert Bandura rejected the view held by some theorists that the major determinants of human behavior are internal needs, drives, and impulses. He advanced a social learning theory that explains human behavior in terms of continuous reciprocal interaction between cognitive, behavioral, and environmental

influences. Bandura provided empirical support for the social learning framework through small-scale experiments in which researchers monitored individuals' reactions to a specific stimuli or experience. In his "Bobo the Clown" experiments, for instance, Bandura observed that the way children interacted with a clown doll depended on the examples they'd been shown of such interactions.³

This general social learning framework lies behind our focus on the impact of role models, mentors, and the media. Below, we consider the theoretical foundations for each of these influences separately.

Role Model and Mentor Effects

We loosely define a *role model* as a person who sets an example for another individual to imitate. Role models can be important people in someone's life or peripheral ones, and can include parents, relatives, non-related adults, and peers. The role model can also be someone the individual doesn't know personally but has encountered through the media or in some other way.

We loosely define a *mentor* as a person who acts as an adviser, a trusted counselor, or a guide of some sort, potentially but not necessarily in an explicit or official capacity. A role model could also be a person's mentor, and vice versa. But we make a distinction between the two that's useful for characterizing the relevant theoretical and empirical evidence, as well as for drawing lessons for program design.

In this article we focus on nonparental role models and mentors. Of course, parents play an important role in shaping their children's lives, but that isn't our focus here. Other authors in this issue directly consider the

role of parents: Ariel Kalil and Rebecca Ryan write about parenting practices, and Melanie Wasserman examines family structure.

Role models can be a powerful force for social learning. They can affect the way people view themselves and the world around them, and ultimately affect their decisions about how to conduct their lives. Role models influence the attitudes and behaviors of both children and adults in a variety of ways. The legal scholar Anita L. Allen distinguishes three potential attributes of a role model: "(1) an *ethical template* for the exercise of adult responsibilities; (2) a *symbol* of special achievement; and (3) a *nurturer* providing special educational services"⁴ Allen was focusing on a role model justification for affirmative action in the hiring of law school professors, but her thoughtful delineation of the general effects of role models extends beyond that context. As an ethical template, a role model demonstrates to others how they're supposed to conduct themselves in a particular role. For example, to exemplify appropriate professional conduct to her students, a teacher should show up for work on time, dress appropriately, treat others with respect, and the like. As a symbol of special achievement, a role model shows younger people that they can accomplish their own goals. In this instance, having a teacher who's of the same race and/or gender as the student helps make that connection stronger. A nurturer has an even closer connection to the student, perhaps becoming more like a mentor.

The economist Kim-Sau Chung makes an economics case for affirmative action, which, like Allen's, is based on role model

effects. He relabels Allen's categories into language more familiar to economists, and explicitly cites "mentoring" as an important function. In Chung's terminology, ethical templates become *moral role models* "who affect other people's preferences, perhaps through conformity effects."⁵ Symbols of special achievement become *informational role models* "who provide information about the present value of current decisions."⁶ Nurturers become *mentors*, "who represent resources through which human capital can be augmented."⁷ Chung emphasizes informational role models in his work, extending the ideas of economist Charles Manski, who put forward a model of younger people learning from older ones based on the presumption that their elders had made optimal choices.⁸

Recent empirical evidence, which we describe below, shows that educational and professional role model effects appear to be especially strong when role models are of the same gender or race as the person being influenced. An important question for future research involves uncovering why some types of programs—whether they're based on role model, mentor, or media influences—work well in general or are more effective for some groups than others.

Media Influences

We can readily extend or adapt our consideration of the potential effects of role models to media influences. Borrowing economist Eliana La Ferrara's categorization, we see three channels through which the media can affect social and economic behaviors: (1) the provision of information; (2) role modeling and preference change; and (3) time use.⁹ La Ferrara speculates that information provision via media exposure might

be especially important in developing countries, where information is diffuse or otherwise scarce.¹⁰ But it's easy to see how the provision of directed information could also benefit children and young adults in the United States, perhaps especially those with less advantaged backgrounds or without the benefit of well-informed parents or other adult relatives. In fact, many entertainment programs have been created precisely with the goal of education.

Educational and professional role model effects appear to be especially strong when role models are of the same gender or race as the person being influenced.

One obvious way that entertainment media are used for educational purposes comes in the form of educational children's programming—now ubiquitously available on television and distributed through DVDs, online content, and mobile device apps. Another example comes in the form of educational or pro-social messaging embedded in an entertainment narrative. For example, when Rachel and Ross's unplanned pregnancy was revealed in a 2001 episode of the NBC sitcom *Friends*, the efficacy of condoms was discussed.¹¹ In a similar vein, the National Campaign to Prevent Teen and Unintended Pregnancy (since renamed and repositioned as Power to Decide) consulted with the WB network to include messaging on its show *7th Heaven* to help teens make thoughtful decisions about sex.¹²

Media exposure doesn't just impart information to viewers—it can also change individual attitudes and preferences. It can do so by either glamorizing or, alternatively, vilifying or mocking an activity; or by associating an activity with an admired or maligned media character. For instance, viewers might know that smoking is bad for their health, but seeing a popular TV character quit smoking might make quitting more desirable. Seeing “cool” characters work hard in school might make being a serious student more acceptable to young viewers. Of course, negative messaging can also come through media exposure. If a popular TV character is seen doing something generally considered antisocial or something frowned upon—like abusing narcotics—that too can sway viewers to endorse or adopt the observed behavior. The economists Stefano DellaVigna and Matthew Gentzkow refer to both the information provision and the preference channel of media as part of a broad category of “persuasion effects.”¹³

A distinct effect stems from the time absorbed by media and, specifically, the activities crowded out by media time. For instance, a teenager's choosing to watch television instead of playing outdoors or studying for school creates a time substitution effect. The effect on young boys of the wildly popular video game *Fortnite* depends partly on what the boys would otherwise be doing with their time. Would they be watching violent movies or roaming the mall with friends and getting into trouble? Or would they be doing chores, or studying?

These external influences affect children's development through channels that are all closely related. But outlining the separate

channels promotes clarity when it comes to thinking about the most effective design of any particular intervention program. For example, in the case of *entertainment education*—where prosocial messages are embedded into popular media content—effects might be coming through the information channel, a role model effect, or some sort of preference change. Scholars in the field of communication have speculated that entertainment education might offer a more effective way to influence attitudes and behavior than traditional persuasive messages, because it may elicit less resistance to the persuasive messages contained in a narrative.¹⁴

Documenting Children's Exposure to Various Influences

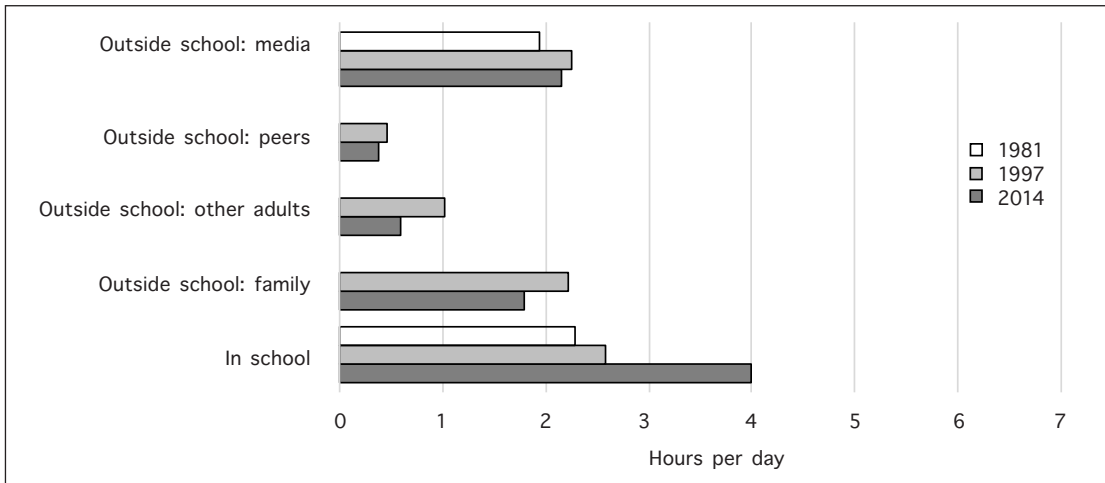
Data on Time Use

Most children spend a great deal of time in the presence of adults other than their parents who might serve as role models. They also spend a sizable amount of time viewing media content, especially on weekends. Overall, time use data reveal that compared to children four decades ago, today's children spend much more time in school and with media, and less time with parents, peers, and other adults. There are also important differences in time use across children from more or less economically disadvantaged families.

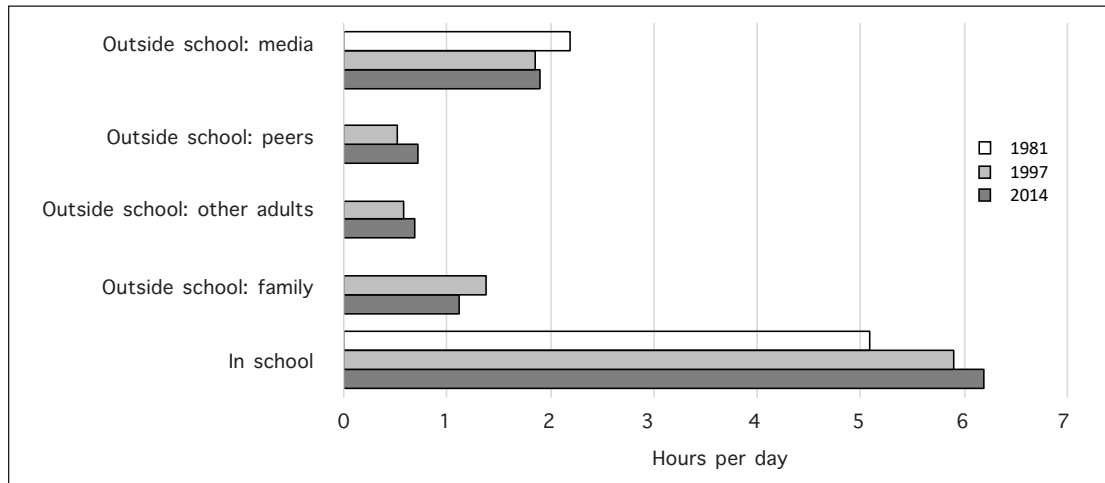
We use data from the Child Development Supplement to the Panel Study of Income Dynamics (PSID-CDS) to tabulate the amount of time that children are potentially exposed to various influences. We categorize reported time spent in various activities according to the external influences to which the children are likely exposed during those activities, designating school and family time

Figure 1. Weekday Time Use, by Age over Time

A. Ages 2–5



B. Ages 6–11



C. Ages 12–17

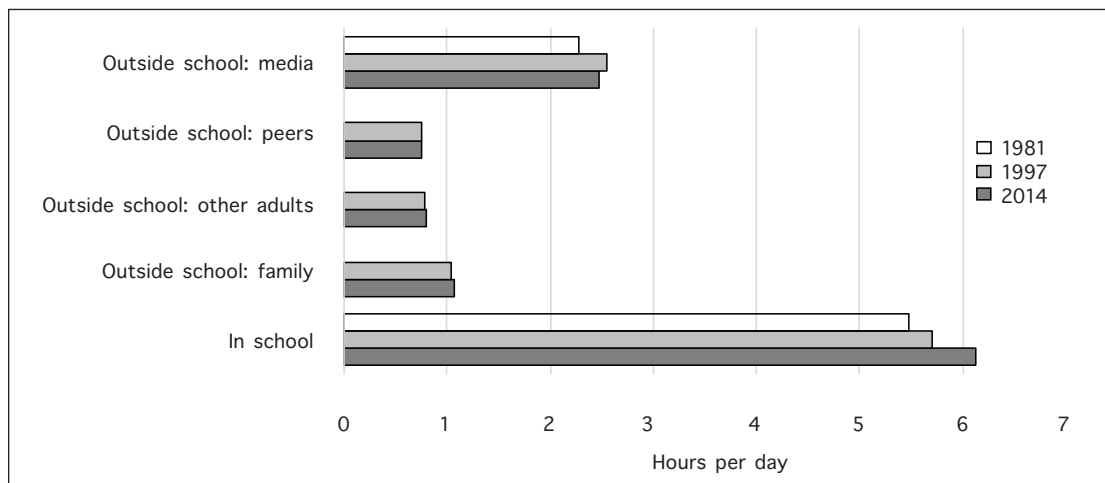
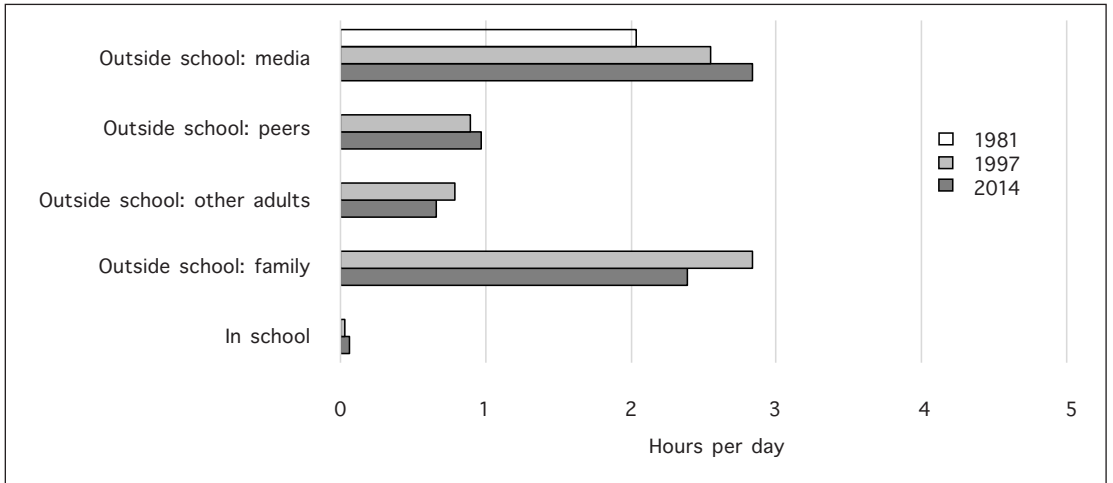
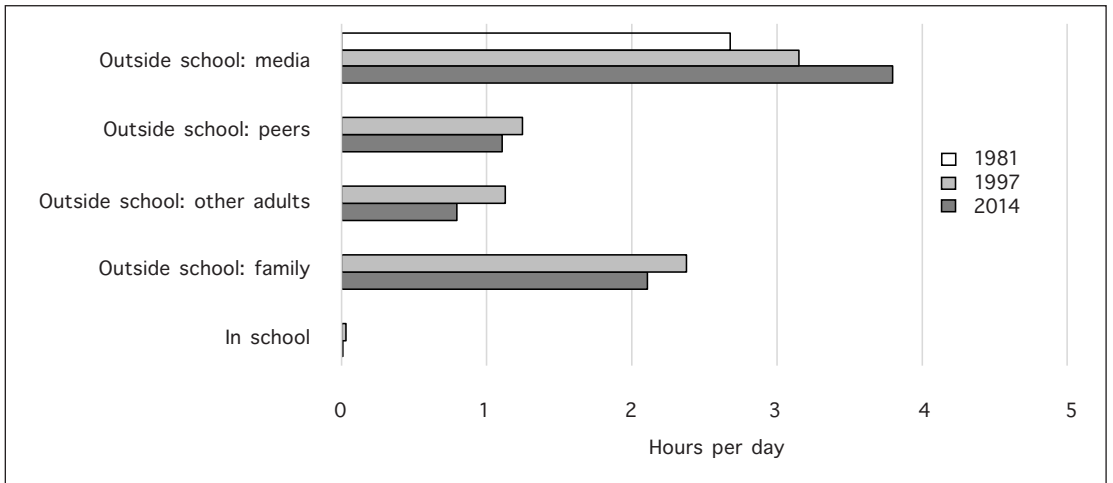


Figure 2. Weekend Time Use, by Age

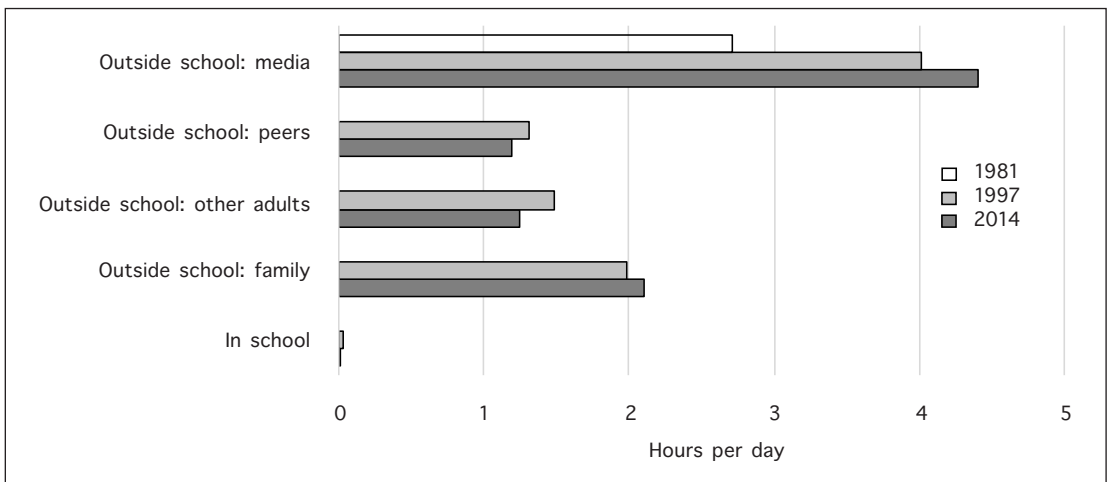
A. Ages 2–5



B. Ages 6–11



C. Ages 12-17



as separate categories. Our categories include time spent:

1. in school,
2. with family,
3. with other adults,
4. with peers, and
5. with media.¹⁵

Overlap can exist among categories, and double-counting is allowed—for example, sports are counted as time spent with other adults and with peers.¹⁶

The PSID-CDS was first implemented in 1997, when time use diaries were collected for children between birth and age 12. Those children were followed and re-interviewed in 2002–03, and again in 2007–08. For data on children between the ages of 13 and 17, we rely on the 2002–03 wave, although we refer to these data as coming from the 1997 PSID-CDS for expositional expediency. We compare patterns in these data to new PSID-CDS time use data collected in 2014 for a different sample of children under age 18. We distinguish time use for children ages two to five (preschool age), six to 11 (elementary school age), and 12 to 17 (middle and high school age). We also compare patterns in these two datasets to earlier data on children's time use in 1981–82, obtained from an independent survey of almost 1,000 children. These data contain relevant information on time spent in school and exposed to media, which we can compare to the more recent PSID-CDS data.¹⁷

Figures 1 and 2 depict children's time spent in different exposure categories in 1981–82 (for the relevant categories), 1997, and 2014. Figure 1 reports data from weekdays,

figure 2 from weekends. The amount of time children spend in school has risen over the years, particularly among preschool children. Between 1981–82 and 2014, the length of time spent in preschool has almost doubled, jumping from a little over two hours per weekday to four hours. This is consistent with the rise of full-day preschool programs during this period.¹⁸ As a result, young children now spend less time with parents or other adults besides teachers. Thus the potential influence of preschool teachers as models and mentors has been increasing.

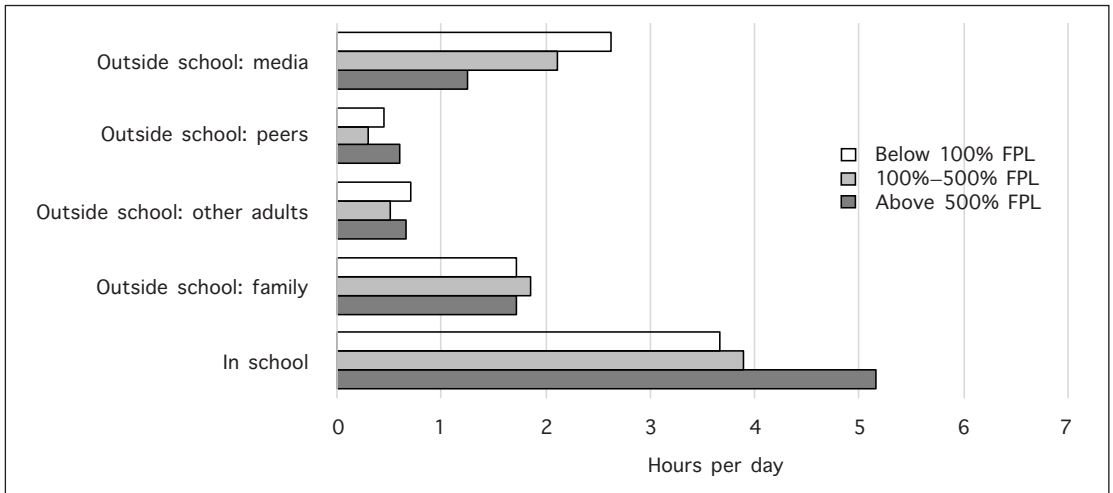
We also see a large shift toward children spending much more weekend time with media, though weekday media exposure hasn't changed much. Weekend media exposure has jumped by 62 percent among children ages 12 to 17, and by roughly 40 percent among younger children. The data show a corresponding drop in time spent with family, other adults, and peers.

Important differences in children's time use are apparent across SES groups. Figure 3 reports weekday time use by socioeconomic status using the 2014 PSID data. We define three SES groups: low-SES, with a family income below the official 2014 poverty line for a family of three; mid-SES, with a family income between the poverty line and five times higher; and high-SES, with a family income more than five times the poverty line. Differences in time use are fairly modest among older children on both weekdays and weekends, but dramatic SES differences appear among younger children.

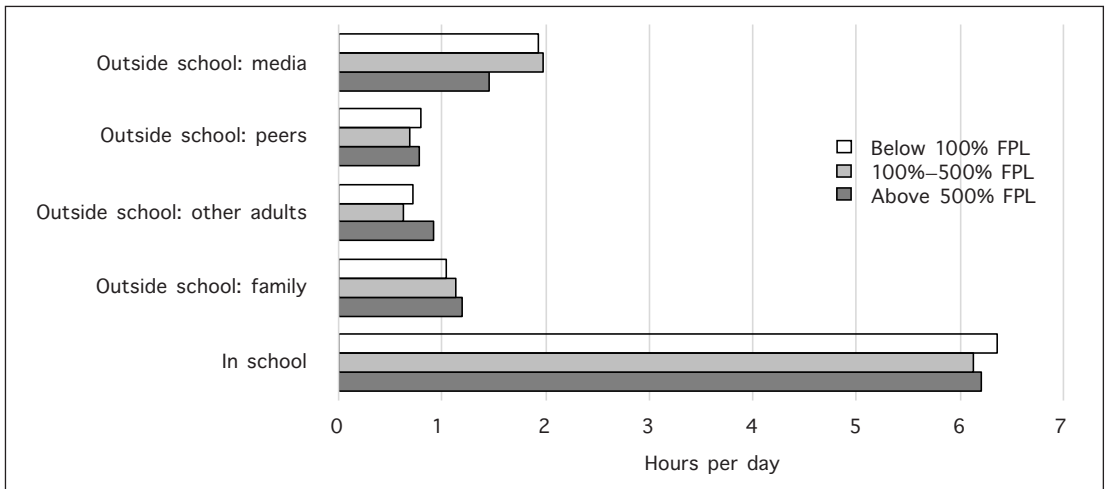
Young low-SES children spent considerably more time exposed to media and considerably less time in school, as compared to higher-SES children. In fact, low-SES children between the ages of two and five spend more

Figure 3. Weekday Time Use in 2014, by Age and Family Income

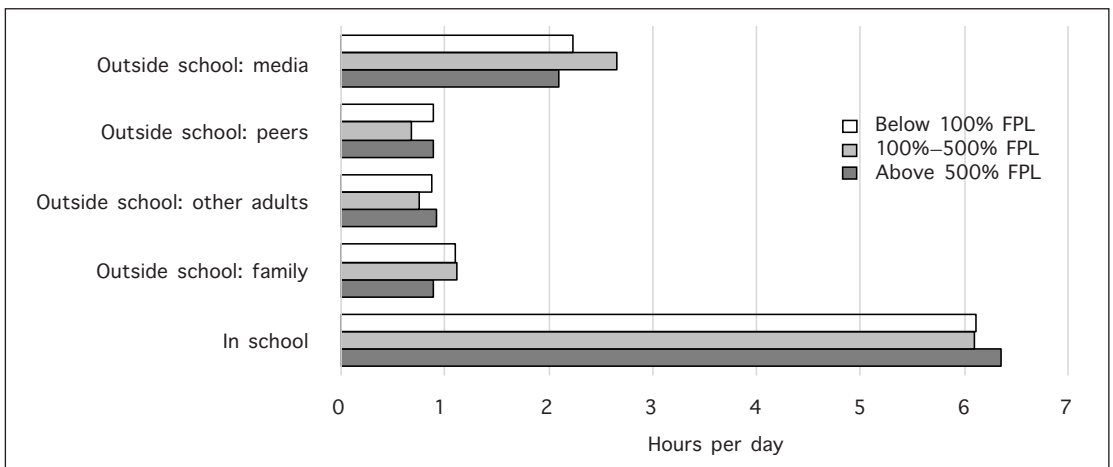
A. Ages 2–5



B. Ages 6–11



C. Ages 12–17



than twice as much time exposed to media as do high-SES children: 2.6 hours per day versus 1.2 hours per day. They also spend much less time in school: 3.7 hours per day versus 5.2 hours. The differences are smaller in weekend time use (not shown in the figure, due to space constraints). Other researchers have found especially large summer time-use gaps across SES groups, most notably in children's television viewing.¹⁹

Data on Neighborhood Characteristics

The people children encounter in their daily existence are potential role models and mentors. As we noted above, parents and other relatives are children's primary influences, and other articles in this issue discuss how family structure and parenting shape children's outcomes. We consider instead the types of people who live around children, with an emphasis on SES differences in exposure to different types of adults.

For this exercise, we approximate neighborhoods using publicly available data at the census tract level from the 2011–15 American Community Survey (ACS), accessed through the IPUMS National Historical Geographic Information System (NHGIS).²⁰ In 2010 there were 73,000 census tracts, representing an average of around 4,200 people per tract. We construct measures of the local environment faced by the “typical” child in an income class by taking the population-weighted average of different census tract characteristics across the country within each income category. We define low-income children as those whose family income is below the federal poverty line, and high-income children as those whose family incomes are at least five times the federal poverty line.

In table 1 we see notable differences in potential neighborhood role models for children of different SES backgrounds. A typical low-income child lives in a neighborhood where 18.5 percent of adults dropped out of high school—far exceeding the national average of 11.7 percent and more than three times the 5.6 percent in high-income neighborhoods. Almost twice as many adult males are out of the labor force in the census tracts where low-income children live, compared to high-income children's neighborhoods (15.5 versus 8.1 percent). We see similar patterns in family formation and welfare. The rate of exposure to households headed by unmarried parents is twice as great among low-income children as among high-income children. Receiving SNAP benefits (the Supplemental Nutrition Assistance Program, formerly known as food stamps) is three times more common in the neighborhoods where low-income children live. If children are drawing lessons from the adults around them about how they might reasonably expect to live their lives, these differences between children in low- and high-income families might perpetuate income and class gaps and impede social mobility.

Economist Raj Chetty and colleagues, exploring data from the Equality of Opportunity project, have found striking empirical correlations that make it clear that neighborhoods matter for children's outcomes. In fact, one of their analyses shows that the “cultural” features of a place—such as the share of households headed by one parent, the divorce rate, the crime rate, and so on—are highly negatively correlated with rates of upward mobility.²¹

A recent study from the same data lab at Harvard University documents wide

Table 1. Local Environmental Conditions for Rich and Poor Children Compared to the National Average

Measure of Socioeconomic Environment	Low-Income Children	National Average	High-Income Children
Educational Attainment			
% high school dropout	18.5	11.7	5.6
% non-college grad	79.4	66.9	49.8
Employment and Income			
% of households < \$25,000	32.4	22.9	13.7
% non-employed (male)	23.6	19.1	12.7
% out of labor force (male)	15.5	12.9	8.1
Marriage and Fertility			
% of births to unmarried mothers	41.9	35.6	18.2
% of births to teen mothers	6.2	4.9	2.2
% of households headed by unmarried parents	38.2	26.9	19.2
Welfare Receipt			
% receiving SNAP	23.5	13.7	7.0
% receiving public assistance	4.5	2.7	1.7

Source: American Community Survey Five-Year Sample (2011-2015), as obtained from the NHGIS. Low-income children are defined as those living in families below 100 percent of the federal poverty line (FPL); high-income children are those in families above 500 percent of the FPL.

disparities between white and black boys in rates of upward mobility.²² Its analyses further show that the neighborhood characteristics associated with better outcomes for black boys are also associated with larger intergenerational gaps relative to whites. For example, the share of college graduates in a neighborhood is a positive predictor of upward mobility rates for blacks, but it's also a positive predictor of black-white gaps—so while the share of college graduates in a neighborhood is good for black boys' upward trajectory, it's even better for white boys' upward trajectory.

There are a few exceptions to this pattern, most notably the role played by the presence of fathers in a neighborhood. The fraction of low-income fathers (not just men, but fathers specifically) present in a neighborhood is associated with both higher levels of adult income for black boys and smaller black-

white gaps. The study confirms that the presence of black fathers, not just black men overall, is especially conducive to successful outcomes for black boys, both in an absolute sense and relative to their white peers. The authors observe that the few areas in which black-white gaps in mobility are relatively small tend to be low-poverty neighborhoods with low levels of racial bias and high rates of black father presence. As the authors note, black males who move to such neighborhoods earlier in childhood earn more as adults and are less likely to be incarcerated, but fewer than 5 percent of black children grow up in such environments. This finding is consistent with the view that having black fathers around—not just one's own father, but other fathers in the neighborhood—exerts a powerful, positive role model and mentoring influence on black boys.

Empirical Evidence on Role Model Effects for Youth

Research shows that role models with whom youth identify—often adults of the same gender or race—can have an important positive influence on children’s lives. Scholars have extensively researched the impact of role models on youth, particularly the effect of having a classroom teacher of the same gender or race. One problem for this research is that students often aren’t randomly assigned to classes. Researchers need a way to isolate the causal effect of a teacher of the same gender—a presumed role model effect—from the impact coming from the fact that students, parents, or educators might selectively match with teachers. For instance, better students may be assigned to better teachers. One research method takes advantage of the fact that the faculty teaching a particular course can vary from year to year depending on the vagaries of sabbaticals, parental leaves, and so on, in ways that are unrelated to student choices. Economists have used the composition of the faculty teaching a particular class in a particular semester to predict the likelihood that a student is exposed to a teacher of the same gender or race. These researchers then observe whether students’ educational outcomes change as a result of this essentially randomly determined exposure to a teacher of the same race or same gender.

Female college students are more likely to pursue a STEM major if they have a female teacher in a STEM class.

Another empirical approach that economists use to study the impact of teacher role models is the implementation of a randomized

controlled trial (RCT) field experiment that randomly assigns a set of students to a same-gender or same-race teacher. If these students perform better in some dimension than control-group students who weren’t randomly assigned in this way, then the differences can be interpreted as having been caused by the gender or race match. All the research we review here uses one of these two approaches.

A number of studies find that female college students are more likely to pursue a major in science, technology, engineering, or math (STEM) if they have a female teacher in a STEM class, an association that’s interpreted as a positive role model effect. One study, using the faculty composition strategy described above, finds that across many STEM fields, women are likely to take more courses in those subjects if they’re assigned to a female professor.²³ Another study draws on the random assignment of students to courses at the US Air Force Academy and finds that female cadets perform better in science and math classes when they have a female professor.²⁴

Two related studies examine the impact that being assigned a female role model/mentor has on women’s choice of STEM majors. In one, social psychologists Tara C. Dennehy and Nilanjana Dasgupta assess the impact of assigning a peer mentor to women enrolling at a large public university and planning to major in engineering.²⁵ They find that students assigned a female mentor were more likely to persist in the major than those assigned a male mentor, and more likely to continue to aspire to a post-college career in engineering. In the other study, economist Thomas Breda and coauthors report the results of an RCT involving 12th-grade girls enrolled in French high schools. In the

randomly assigned treatment group, a female scientist came to the classroom and gave a one-hour presentation on science-related careers and the underrepresentation of women in those careers; girls in the control group didn't receive this presentation.²⁶ That small intervention led to a 20 percent increase in the probability that a female student would enroll in a male-dominated STEM track in college.

A number of studies have shown that same-race teachers have a positive effect. One such study, by a team of academic economists, examines dropout rates and grade performance among students enrolled at a community college.²⁷ The study relies on the fact that some students have a low priority in the registration process and may not be able to choose which section of a course to enroll in. This process generates quasi-random variation in the race of the professor an individual student happens to get; it simply depends on which section is available. The researchers find that when underrepresented minority students end up in classes with underrepresented minority faculty, their performance relative to white students improves.

In two other studies, education economists used data from the 1980s Student Teacher Achievement Ratio (STAR) experiment in Tennessee to study the effects of having a teacher of the same or a different race.²⁸ The STAR experiment was designed to randomly assign students to classes of different sizes, but it also randomly assigned students to white or minority teachers—a fact that these studies capitalize on. One of the studies finds that both white and black students performed better on tests when their teachers were the same race as themselves. The second study uses the same approach but looks at longer-

term outcomes. It finds that black students assigned to a black teacher in elementary school were more likely to graduate from high school and enroll in college than were those assigned to a white teacher.

Role model effects from teachers to students are just one channel by which black teachers might benefit black students. Some evidence from elementary schools suggests that black teachers have higher expectations for black students than do white teachers.²⁹

Studies have also documented the effects of same-gender and same-race role models in the workplace. For example, two economists in the US military evaluated the impact of same-gender or same-race role models on occupational choice by taking advantage of the random assignment of US military officers to serve as role models to cadets.³⁰ They found that female and racial-minority cadets who were assigned a female or racial-minority role model, respectively, were more likely to choose the role model's area of specialization.

Researchers have also examined whether seeing women in positions of leadership has an aspirational effect for girls. For example, economist Lori Beaman and coauthors made use of 1993 legal changes in India that required randomly selected villages to reserve a number of leadership positions for women.³¹ About 15 years later, the researchers surveyed thousands of adolescent children and their parents; some of the children had grown up in the selected villages and some had not. They found that girls' aspirations and educational attainment increased in the villages that had more female leadership.

The evidence we've reviewed comes from a variety of settings and from different periods

in children's lives, and it considers a range of outcomes. Yet it all points to the conclusion that positive role models have a meaningful, beneficial impact on a child's life trajectory.

Empirical Evidence on Mentoring Programs for Youth

Statistics show that many children don't have a supportive relationship with any adult beyond their parents. According to data reported by Mary Bruce and John Bridgeland, nine million at-risk youth have never had an adult mentor of any kind in their lives.³²

As mentoring services have developed over time, several large-scale evaluations have assessed how to alter the life trajectories of children from lower-SES backgrounds. To keep this overview manageable, we focus here on evidence from the United States, though there are many examples of role model studies elsewhere. One of us (Levine) reviewed research from the US context through 2013 in a report for the Brookings Institution's Hamilton Project.³³ Here we highlight some of that earlier evidence and augment it with a few important and more recent evaluations. Overall, the evidence suggests that mentoring services can play an important role in a child's development.

Levine identifies five programs that use mentoring as their primary intervention, aim to improve the economic outcomes of mentees, measure educational outcomes (necessary to gauge the subsequent impact on economic wellbeing), and have been evaluated via RCTs.³⁴ Some programs were community-based and others school-based. School-based interventions focus on academic support, while community-based interventions address broader life issues beyond academics, with adult mentors who

meet with their mentee outside of school hours and beyond the school year. Other interventions are comprehensive in nature, offering extensive mentoring services but also providing additional features like financial incentives, community service requirements, supplemental education, and the like.

Community-based mentoring appears to be the most effective.³⁵ The evaluation of the Big Brothers Big Sisters community-based mentoring program, for example, indicates that the program has substantial benefits for youth.³⁶ This is perhaps the prototypical mentoring program. It targets children between the ages of 10 and 14 most of whom are economically disadvantaged and almost all of whom live in single-parent households. In the evaluation, mentors spent a few hours per week with their mentees over the course of a year. Even though the mentors focused their interactions on life skills rather than academic skills, the children reaped educational benefits that included reduced absenteeism, greater confidence in their academic ability, and, on average, a 0.08 increase in their grade point average (on a four-point scale). After translating that GPA increase into an impact on adult wages, Levine estimates a \$7,500 increase in lifetime earnings relative to a program cost of about \$1,600 (in 2013 dollars), a benefit-cost of ratio of almost 5:1.³⁷

The My Life program is among the more recently introduced mentoring interventions that have been rigorously evaluated. It addresses the needs of children aging out of the foster care system, typically at ages 16 to 19.³⁸ These young people have historically experienced substantial negative outcomes, including extensive interaction with the criminal justice system. My Life combined one-on-one mentoring services

with group mentoring workshops. It focused on improving “self-determination,” enabling young people to take action and make better decisions to control their lives. During a year of hourlong weekly meetings, mentors introduced role-playing, rehearsing, practicing, and other strategies to help mentees accomplish such practical goals as dealing with others and interacting with bureaucracy. Group mentoring focused on broader topics, like getting a job.

The longer-term effects of the intervention were impressive, particularly for men. Two years after the intervention, when participants were 19–20 years old, 29.3 percent of control group members had experienced some involvement with the criminal justice system, compared to 6.6 percent of the treatment group. Despite the intervention’s relatively small sample size (72 men), this difference is large enough to be statistically significant.

Recent studies show that comprehensive mentoring services can have sizable positive effects on educational attainment. In one study, academic researchers evaluated Pathways to Education, a comprehensive program targeting very disadvantaged students in a Toronto housing project.³⁹ The program offered high school freshmen extensive tutoring, mentoring, other adult advisers, and small-scale financial support, and it required a commitment from students and their parents. The evaluation wasn’t an RCT; rather, it compared program participants with students living in other, comparable housing projects. The researchers found that students who participated in Pathways were 35 percent more likely to complete high school and 60 percent more likely to enroll in college.

We see compelling evidence that well-designed mentoring programs can meaningfully improve outcomes for some disadvantaged youth.

Another encouraging study was recently completed by a team of economists (including one of us, Kearney) associated with the Lab for Economic Opportunities at the University of Notre Dame. We used an RCT to examine Stay the Course, a comprehensive case management program designed to help low-income students in Texas persist in community college. The intervention included coaching, mentoring, and referral services, along with emergency financial assistance.⁴⁰ We found that degree completion rates tripled among women, though we detected no significant effect for male students. Economists Scott Carrell and Bruce Sacerdote found a similar gender difference when they examined the impact of another mentoring program geared toward college completion, this one in New Hampshire.⁴¹ The intervention targeted high school students identified by their guidance counselors as being on the margin of applying to college; it focused on offering assistance with the college application process. Using experimental methods, the researchers found that girls who received the treatment were 15 percentage points more likely to attend college as a result of the intervention. The authors conclude that “the mentoring treatment is largely acting as a substitute for the potentially scarce resource of parental help or skill.”

In summary, we see compelling evidence that well-designed mentoring programs can

meaningfully improve outcomes for some disadvantaged youth. However, we need to know more about when and why some programs work better than others, or work better for some groups than for others. Role models and mentors potentially do a number of things—they affect attitudes and beliefs (either by example or through explicit messaging), they encourage and nurture (perhaps through coaching, positive messaging, or even explicit advocacy), and they impart information. We still lack clear evidence about which of these factors is especially effective, either in general or in particular contexts or for particular groups.

Empirical Evidence on Media Influences on Youth

Much recent evidence, provided by rigorous empirical studies across a diverse set of contexts and outcomes, shows that exposure to specific media content can have sizable positive effects on social and educational attitudes, behaviors, and outcomes. It's an encouraging finding, in contrast to the longstanding presumption that television exposure is likely harmful for children. Granted, sustained exposure to pernicious images on television might very well be harmful, though we know of no rigorous causal evidence. But a number of notable studies show that television can have beneficial effects—both intentional and unintentional.

We focus here on causal evidence, largely from the United States, on the effects of specific media exposure on children and young adults.⁴² Our review in this section is nowhere near exhaustive. We refer interested readers to work by economists Stefano DellaVigna and Eliana La Ferrara, whose more comprehensive reviews include a

broader set of outcomes, including political outcomes, and many studies conducted in developing countries.⁴³ We also acknowledge that our review of relevant evidence is almost entirely about television. No causal evidence has yet emerged about the impacts of exposure to social media personalities or social media more generally.

Adults have long worried that television is inherently counterproductive to child development. But rigorous causal evidence suggests otherwise. In a seminal paper on the topic, economists Matthew Gentzkow and Jesse Shapiro exploited the idiosyncratic timing of television broadcasting's arrival across US metropolitan areas, which was driven by government licensing procedures, to study how exposure to television during early childhood affects later educational outcomes.⁴⁴ Using data from the 1965 Coleman Study, which include standardized test scores for over 300,000 students in grades six, nine and 12, the authors found no evidence that exposure to television during early childhood meaningfully reduced test scores. Their findings present a powerful refutation of the commonly held view that exposure to television at early ages is detrimental to educational development. They also found that, among minority and immigrant children, exposure to television led to an improvement in educational test scores in English subject matter. This could be explained by the fact that for some groups of children, television increases exposure to the English language.

The revolutionary children's television program *Sesame Street* was created in the 1960s with an explicit educational purpose. Its creators recognized television's potential to reach millions of children with lessons in numeracy, literacy, and cultural awareness. The program's launch, in 1969,

was accompanied by a well-designed quasi-experimental study of its efficacy; the study confirmed that children exposed to the show saw relative improvements in measures of literacy and numeracy.⁴⁵ *Sesame Street's* mission has since expanded to include lessons in life skills, such as healthy habits, self-expression, self-regulation, empathy, and friendship.

Observational studies have found correlations implying that children who watch *Sesame Street* have better educational outcomes and test scores than children who don't.⁴⁶ But those types of comparisons are plagued by the problem that correlation isn't causation. For instance, more motivated parents may encourage their children to watch programs with an educational component, and those children might have received higher test scores anyway—making it difficult to conclude that the show is in fact what improves outcomes for children. That is, the types of children who watch an educational show and the types of parents who put educational television on for their children might simply be more interested in learning.

In a recent research project, we documented that children who were in their preschool years when *Sesame Street* first aired on television in 1969, and were exposed to the show, did indeed perform better when they entered school.⁴⁷ To isolate the show's causal effect, we conducted an empirical analysis that exploits geographic variation in broadcast reception. We then used 1980, 1990, and 2000 US Census data to relate variation in preschool-age exposure to *Sesame Street* to later grade-for-age status, educational attainment, and labor market outcomes. The results indicate that *Sesame Street* improved school performance, particularly for boys, and might have had

positive longer-term effects on educational and labor market outcomes.

Sesame Street was designed to educate, but even media purely meant to entertain can impart messages—either positive or negative—that lead to changes in educational and social behaviors and outcomes. A few studies from outside the United States are especially relevant on this point. One set of studies examines the impact of introducing *novelas*, or soap operas, in Brazil, and demonstrates the impact that media portrayals can have on social outcomes. Economists Eliana La Ferrara, Alberto Chong, and Suzanne Duryea capitalized on the staggered introduction of *novelas* (commercially produced by Rede Globo) in Brazilian municipalities.⁴⁸ They document that the broadcast introduction of *novelas* into a community led to a reduction in fertility, with the largest effects being among poorer and less educated women. The authors attribute this effect to the fact that the *novelas* portrayed families that were much smaller than the typical Brazilian family at the time. The authors hypothesize that the small families portrayed served as role models and led to a reduced demand for children among young female viewers. Using the same methodological approach, La Ferrara and a coauthor show that exposure to the *novelas* also led to higher rates of divorce and separation.⁴⁹

Economists Robert Jensen and Emily Oster employed a similar empirical strategy to examine the social effects of the staggered introduction of cable television across villages in India from 2001 to 2003.⁵⁰ They found that exposure to cable programming led to more progressive social views, including increased decision-making

among women and a lower tolerance for domestic violence. A number of examples from developing countries document positive effects from television and radio programs that were explicitly designed with progressive messages and information about healthy behaviors. For example, research has shown that exposure to a soap opera in Tanzania that conveyed messages about HIV prevention, family planning, and gender equity led to more responsible sexual behaviors.⁵¹

In a somewhat surprising example of how media content developed purely for entertainment can have positive social effects, our own research finds that MTV's reality show *16 and Pregnant* led to a sizable decrease in teen childbearing rates.⁵² The show followed the lives of teenagers during their final months of pregnancy and early months of motherhood. To investigate whether exposure to the show led to a change in teen childbearing rates, we started with data from the US Vital Statistics system, which records virtually all births in the country, including their location. We organized these births by geographically defined television markets and linked them to Nielson television ratings data. We found that after MTV began airing *16 and Pregnant* in 2009, places with higher MTV viewership rates experienced larger relative declines in teen childbearing. Our analysis implies that the introduction of *16 and Pregnant* produced a 4.3 percent reduction in teen births in the 18 months following its initial airing. An examination of data from Google Trends and Twitter provides corroborating evidence that the show led to an increased interest in birth control among viewers; we find that when episodes were aired, there was an increase in Google

search and Twitter activity using the words "birth control."

The impact of this MTV program on teen childbearing behavior and outcomes doesn't reflect a role model effect. Teenagers didn't emulate the behavior they observed among the teens on the show; instead, they took steps to avoid sharing their fate. This is most likely an information effect, through which the show's depictions of teen parenting—which featured frequent arguments with boyfriends and parents, being left out of partying with former friends, weight gains and health complications, and the sleep deprivation and constant work involved in tending to a newborn—relayed useful information to teens about how costly a pregnancy and birth would be.

Teenagers exposed to [16 and Pregnant] responded by changing their behavior and ultimately reducing their rate of childbearing.

Through this show, it seems that MTV created a compelling entertainment feature: ratings were extremely high. Teenagers exposed to the show—either through direct viewership, conversations with peers, or changed peer group norms—might otherwise have been cavalier about having sex and using contraceptives. But they responded by changing their behavior and ultimately reducing their rate of childbearing.⁵³

An as-yet-unpublished 2018 study by an economics PhD student directly considers

the effect that a media role model can have on students' educational aspirations and achievement.⁵⁴ The paper presents the results of an RCT in Uganda designed to test the effect of exposure to an aspirational movie on student achievement. A subset of students preparing to take their national exams were randomly assigned to view the movie *Queen of Katwe*, which features a poor girl who, through grit and determination, becomes a national chess champion; other students were shown a placebo movie. Students who viewed the aspirational movie were substantially less likely to fail their math exam, with the strongest effects among female and lower-ability students. Though the study design couldn't distinguish between informational and role model effects, the results are consistent with the notion that a movie depicting the aspirational true story of a girl who rises above her poor background can positively affect student motivation and outcomes. This study is intriguing from a policy perspective because the cost of the intervention was only \$5 per student—to cover the movie screening and transportation to the theater. Thus it's much more scalable than other, more intensive educational interventions that aim to increase student test scores and performance.

Taken as a whole, these studies provide powerful evidence that targeted media messages can promote positive youth development. People who design media programs and those who become media influencers can therefore be quite powerful. As with many things, whether that power is ultimately good or bad for children and society depends on how it's wielded. If we assume that the goal is to promote positive outcomes for young

people, the evidence appears to offer a few general lessons. First, a program will have a greater effect if it contains more informational content. Second, the impact of a role model, or of aspirational content depicting college completion, will be larger for young people who don't regularly encounter college students or college graduates in their own lives. For this reason, entertainment programs that are either explicitly designed to inform or inspire, or that include embedded narratives that might inform or inspire, will likely be most effective for youth who wouldn't otherwise receive that information or those messages from their families or peers.

Conclusions

There's no single way to increase the rate of upward mobility for children in low-income homes in the United States. To do so will require wide-ranging changes and interventions that address a host of challenges, many of which are discussed elsewhere in this issue. But the evidence we've presented here leads us to conclude that role models, mentors, and media influences can be deployed effectively to improve children's economic and social outcomes.

Based on our review of the relevant facts and research, we conclude that interventions designed to improve children's social influences can make important contributions. Mentors who help guide youth productively through the path of life can have a meaningful impact. Role models with whom children identify can advance children's aspirations and open doors for them. Using the media to promote positive messages can influence children's thinking and improve decision-making. From a fiscal perspective, none of these

interventions is particularly costly. From a policy perspective, none of them requires legislation or federal intervention. They should thus be recognized as cost-effective and readily implementable ways to improve

outcomes for children—including academic achievement, labor market success, and positive health behaviors—and especially for children from economically disadvantaged backgrounds.

Endnotes

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Peer and Family Effects in Work and Program Participation

Gordon B. Dahl

Summary

People don't base decisions about their economic life solely on their own individually formed ideas and preferences. Rather, they're influenced by the experiences of their peers and by social group norms. Gordon Dahl reviews the various ways family and neighborhood peer groups influence decisions to participate in the workforce and in government social assistance programs.

These social spillover effects are hard to estimate because of the problems that economists refer to as *reflection*, *correlated unobservables*, and *endogenous group membership*. Dahl explains how researchers have overcome these challenges to produce credible estimates of the effects of family and peer groups on work and program participation. He reviews the most rigorous evidence to date and discusses possible mechanisms.

Understanding neighborhood and family group influences is critical to thinking about policy, Dahl writes. The spillover effects on children, siblings, and neighbors can be just as important as the direct impact on parents and directly targeted peers, due to social multiplier effects.

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Elizabeth Ananat of Barnard College reviewed and critiqued a draft of this article.

It's a longstanding question in social science: do families and other peers transmit cultures of work and program participation? In this article, I review the evidence for two settings where these types of peer effects could be especially important: social assistance programs and a selected set of labor market outcomes. My focus is on family and neighborhood peer effects. The effects of other cultural factors, such as ancestry and language, have mostly been studied using an epidemiological approach, and have been reviewed elsewhere.¹ Likewise, research on peer effects for other groups, such as college roommates, and for other outcomes, such as crime, is beyond the scope of this review.²

First, I'll address the subject of intergenerational links in welfare use. Academics and policymakers alike have heatedly debated whether such links reflect a culture of welfare. A Nobel Prize winner in Economics, Gary Becker, expressed the belief that "mothers on welfare convey the impression to their children that it is normal to live off government handouts. In such an environment, it is difficult for children to place a high value on doing well at school and preparing for work by seeking out training on jobs and in schools."³ However, the fact that children with parents on welfare are more likely to be on welfare themselves as adults doesn't mean that the parents' participation is what caused the children to also participate. As the saying goes, "correlation doesn't imply causation."

Still, the question has proven difficult to resolve. Parents' participation in a welfare program isn't randomly assigned. On the one hand, when a child has a parent who isn't working and is on public assistance,

that could alter the child's perceptions about the relative costs, benefits, and stigma associated with the two alternatives. Information transmission or differential investment could also occur as a result of having a parent receive government transfers. On the other hand, characteristics like poor health or reduced opportunities could be correlated across generations, creating mechanical intergenerational links that don't reflect a behavioral response on the child's part.

Of course, the United States has many different social programs. Traditional welfare programs include Temporary Assistance to Needy Families and the earlier Aid to Families with Dependent Children. Other means-tested programs include the Supplemental Nutrition Assistance Program (that is, food stamps) and Women, Infants, and Children. Social assistance programs also include the Earned Income Tax Credit, Unemployment Insurance, and Social Security Disability Insurance. In this article, I discuss peer effects for a varied but limited set of social assistance programs, based on the availability of research.

Turning to family effects related to the labor force, we find the rhetorical debate less intense, at least when unemployment is decoupled from welfare participation. But people make similar arguments about whether family members and other peer groups influence how much individuals work and earn. For example, attitudes about traditional gender roles and the desire to fit into one's group might affect a mother's decision to work, especially after the birth of a child. But mothers in the same family or workplace are also likely to share common characteristics, such as similar levels of income, which affect work decisions.

It has proven difficult to estimate causality for these types of peer effects in work and social assistance programs, given the well-known problems of what economists refer to as *reflection*, *correlated unobservables*, and *endogenous group membership* (I define these terms below in the section “Challenges in Estimating Peer Effects”). It can also be difficult to define the appropriate peer group and to access data that link members of a peer group. But this is changing, both in the United States and even more in other countries, where high-quality administrative data collected by governments is increasingly available.

In this article I review recent advances in the estimation of causal peer effects in the family and neighborhood contexts. A key takeaway is that the statistical methods used to study peer effects aren't equally credible. Recognizing this, I organize my discussion by the statistical method used, rather than by type of question or peer group. Though early studies documented clear correlations in both program participation and labor market outcomes, causality was tenuous. Recent research has identified causal effects using more convincing methods and better data. Taken together, these more empirically rigorous studies generally indicate the presence of intergenerational links and a strong influence of families and neighborhoods.

The emerging evidence is compelling, but we should be cautious about how we interpret the findings. Just because spillovers—where one peer influences another—may occur in certain settings and for certain populations doesn't mean they occur in other settings and populations. Moreover, the existence of peer effects doesn't mean that other contextual factors aren't also important. With

these caveats in mind, the best evidence to date supports the idea that family members and neighborhood peers play an important role in decisions about work and program participation.

We know less about the mechanisms behind these peer effects. Several channels have been postulated, most of which can be classified into four categories. The first can be broadly defined as cultural factors, including the transmission of preferences regarding stigma related to program participation, or the desire to conform to a group's social norms. The second is information transmission, such as how to apply for a welfare program or how an employer will react if a mother takes parental leave. The third is direct interactions with other similar individuals; for example, the benefit of staying home could be greater if your friends aren't working and also have free time. The final category is changes to the home environment, such as in family income or parental stress levels. Economists and sociologists have found some suggestive evidence consistent with channels in each of these categories.

Preferences for work and program participation aren't fixed at birth or formed in isolation.

Recent findings on peer effects, regardless of the underlying mechanisms, have important policy implications. What children learn from their parents about employment versus governmental assistance could matter for the financial stability of a number of social insurance and safety net programs. Similarly,

peers who serve as important information transmission networks, or are influential in changing social norms, can amplify the effects of policy reforms that affect work and social assistance programs. This is particularly true when information is scarce and perceptions are still being formed. Some of the evidence indicates that these social interactions lead to long-run effects that are substantially larger than otherwise expected.

Possible Mechanisms

Most economists and sociologists would agree that preferences for work and program participation aren't fixed at birth or formed in isolation. The experiences of a person's families and neighbors are key inputs into preference formation. Moreover, families and neighbors could provide valuable information related to both work and program participation. With these ideas in mind, let's take a look at the four main channels that economists have postulated for peer effects in these settings. When discussing specific empirical studies later, I'll highlight what's been learned about these mechanisms. But it's important to note up front that researchers are just beginning to identify peer effects convincingly, and less is known about mechanisms.

The first main channel is a change in preferences, which could happen for several reasons. First, observing a parent on a social assistance program could change a child's perception of the stigma associated with participation. Similarly, children who grow up with a parent on welfare or another program may view that program as the default option for economic support.⁴ The same types of forces could also matter for employment, especially if parents serve as role models. Another preference-based reason that peers

could matter is social custom or group identity. People may be sanctioned for behaving differently, or may simply increase their happiness by behaving like their peers.

Information is another channel that scholars discuss. These channels include learning from family members and neighbors about how to sign up for a welfare program, what the requirements are, and what it's like to be on the program. Similarly, peers could provide insights about writing a résumé, job interviews, and proper work etiquette. When information is scarce, people can also learn from family members and peers about the costs and benefits of work.⁵ Moreover, peers can serve as a network for job referrals.⁶

Peers could also matter if the benefits of work or program participation directly depend on interactions with other similar individuals. That could happen if spending time with others in a peer group produces positive complementarities. For example, a new mother may get more enjoyment from taking leave after the birth of a child if she has other new mothers in her peer group to hang out with.

The final channel is changes in the family environment. Participation in a social program or reduced work hours could lower family income, which could directly affect children's future work and program participation. Related correlational studies document that long-term unemployment is associated with increased rates of depression and stress within the home.

Peer Effect Models

Peer effect models capture the idea that the actions of one individual can have a direct impact on another.⁸ It's natural and intuitive to think that parents influence their children's

decisions, individuals copy their neighbors, and siblings learn from each other. It's less obvious how large these types of peer effects are, and in what settings they're important, as it's empirically difficult to isolate the impact of peers from other factors.

To start, let's consider a case where a group has just two members—for example, a parent and a child, an older and a younger sibling, or two neighborhood friends. We're interested in how one peer's choices or behavior affects the choices or behavior of the other. Economists create simple models to capture the idea that choices aren't necessarily made in isolation, but can depend on what a peer chooses to do. These models allow for a person's own characteristics, as well as the characteristics of the peer and group, to influence decisions.

Take the example of two siblings and the outcome of participating in a welfare program. A younger sibling's welfare decision could depend on her own characteristics, such as her education level, and also on common sibling characteristics, such as family income while growing up. But the younger sibling's decision about welfare participation could also depend on two types of sibling spillovers: her older sibling's characteristics and her older sibling's welfare status. The first spillover is typically categorized as a contextual effect, while the older sibling's welfare participation is a peer effect. Identifying and estimating these types of peer effects is the focus of this article. A similar set of factors could influence the older sibling's decision to participate in welfare, including spillovers going the other direction (that is, from the younger to the older sibling).

Of course, peer groups often have more than two members. For example, one's peer group might consist of everyone living in a

neighborhood. Researchers have generally modeled these larger peer groups by assuming that individuals respond to the average behavior of all the group's other members. This model captures the idea that peers can influence decisions at a more aggregate level. For example, after the birth of her child, a mother living in a neighborhood where many peers work could be influenced to work as well.

For tractability, most researchers assume that peer effects are homogeneous, meaning that each peer in a group has the same effect on an individual. Researchers use this formulation not because they think all peers have identical impacts, but because it's simple and convenient. If the effects are heterogeneous, meaning that the size of the effect differs among peers, then estimates from this homogeneous model can be interpreted as an average effect across peers. Some researchers have moved beyond the homogeneous model by isolating the most relevant peers, while others have calculated the fraction of peers with different-sized effects.

Challenges in Estimating Peer Effects

Estimating peer effect models is difficult due to three problems famously laid out by the Northwestern University economist Charles Manski in the early 1990s.⁹ The first is reflection, which arises because peers can affect each other's decisions. This makes it difficult to tell who in a group is affecting whom. Reflection may not be a problem in some settings, such as when an older sibling is assumed to affect a younger sibling, but not the other way around. In other settings reflection is a more serious issue, such as when two peers make simultaneous choices,

with no indication in the data of who is influencing whom.

The second problem involves correlated unobservables. Suppose the researcher doesn't observe family income when a person is growing up, but family income plays a role in whether a person participates in a welfare program as an adult. This *omitted variable* will make it appear that a sibling peer effect is in operation, when in fact the correlation in welfare decisions is driven by adolescent family income. More generally, any individual-, peer-, or group-level variable that influences outcomes but isn't observable to the researcher will create a bias in the estimated peer effect. A bias means that the estimated peer effect is either too large or too small compared to the true peer effect. In many settings, it's difficult to eliminate the bias from correlated unobservables, as it's rarely the case that all relevant factors are observed.

The third problem, endogenous group membership, arises when individuals aren't randomly assigned to groups, but rather choose which group to be in. People may choose to be in a group because they share similar preferences—say, two women may choose to live in the same neighborhood because it has good daycare options. In this example, it would be incorrect to conclude that peer effects are driving female labor force participation after the birth of a child. Instead, it could be that both women planned to return to work, which is why they chose to live near daycare centers (and, by coincidence, near each other). In settings where groups are predetermined or randomly assigned, this issue disappears.

In the following sections, I discuss various approaches to contend with these three

issues in the context of existing studies. Some empirical designs are more convincing than others at recovering causal effects, and each type of design has its own set of advantages and weaknesses. Because the reliability of the various studies depends so much on the approach taken, the discussion is organized by statistical method rather than by topic. This makes it easier to understand the assumptions required for each approach and the relative strengths of the various designs.

It's hard to interpret observational studies as reflecting a peer effect. That's because with observational data, we generally don't know who's influencing whom, we don't observe all relevant factors, and individuals choose which peer group to be in.

Observational Studies

Observational studies report associations using data where there was no attempt to randomize who was affected by a treatment. In the context of peer effects, the treatment would be whether a person is part of a certain peer group. The most basic observational study is the reporting of a correlation—for example, whether someone's more likely to be on welfare if their neighbor is on welfare. More complex observational studies attempt to control for potentially confounding factors, such as people's education levels. They do this using a statistical approach called *regression analysis*. The primary challenge

of this approach is that it can only control for observable factors, and many confounding factors are not observed.

Given the problems of reflection, correlated unobservables, and endogenous group membership, it's hard to interpret observational studies as reflecting a peer effect. That's because with observational data, we generally don't know who's influencing whom, we don't observe all relevant factors, and individuals choose which peer group to be in. Therefore, I discuss observational studies only briefly.

Starting with peer effects in welfare participation, the correlational evidence finds a positive link across siblings and generations.¹⁰ Given the difficulty in interpreting these correlations as causal, the amount of observational research on this topic within economics has waned in recent years. The *Handbook of Labor Economics* effectively summarizes the state of the evidence up to 2010 this way: "while the intergenerational correlations in welfare receipt are clear, there is much less evidence that a causal relationship exists."¹¹

Turning to work outcomes, many researchers have studied intergenerational correlations in earnings.¹² The estimates, which suggest a large degree of persistence, are interpreted as measures of intergenerational mobility within a society. Economists have developed theories that rationalize these findings as the result of investments by parents in their children.¹³ There's also evidence that sibling earnings are correlated and that unemployment is correlated across generations.¹⁴

Work in the past two decades has focused on understanding what drives these relationships. For example, research using

data from the United Kingdom finds that 80 percent of the rise in intergenerational persistence in earnings over time can be explained by changes in cognitive skills (as measured by test scores), noncognitive traits (such as self-esteem), educational levels, and labor market attachment.¹⁵ More recent evidence from Norway finds that higher parental income in the early and middle childhood years maximizes children's education, an important determinant of future earnings.¹⁶

Studies of intergenerational persistence in earnings have considered several mediating factors, but only a few have investigated the possibility that preferences could be passed across generations. One study uses US observational data, following parents and children over time to see how labor market outcomes and work preferences are connected intergenerationally.¹⁷ That study finds a positive correlation in hours of work for parents and children and argues that it's most likely due to preferences. Other research using similar US data shows that mothers and their daughters have correlated behaviors and attitudes.¹⁸ That study finds that controls for a family's economic status do little to dampen intergenerational links, which offers suggestive evidence that attitudes themselves are passed from generation to generation separately from any investment channel.

A series of more recent observational studies has documented that the type of attitudes that are likely determinants of economic success are correlated across generations. These studies find a correlation in time preferences, in risk attitudes, and in measures of trust.¹⁹ The transmission of preferences is often found to be gender specific, with mothers' influence on

daughters being the strongest relationship in a family.

Considering other peers, there's also evidence that earnings are highly correlated within a neighborhood. But given the large amount of sorting that occurs across neighborhoods by socioeconomic status, most researchers interpret these correlations as the amount of spatial inequality in income, rather than trying to assign causality to the estimates. Several studies also examine the impact of neighborhoods on welfare participation; not surprisingly, they find that poverty and welfare use is concentrated in certain neighborhoods.²⁰

Fixed Effect Studies

Early research using observational methods attempted to control for as many group characteristics as possible. Yet most researchers today recognize that while such studies are useful as descriptive tools for documenting associations, they can't be used to determine peer effects. A natural next step is to use *fixed effects* to control for time-invariant determinants, an approach that's been used in many other areas of economic research. The idea of a fixed effect is to eliminate any observable or unobservable factors that are common to a peer group (such as a family) but that don't vary over time (such as family ancestry or shared genetics).

In this section I highlight a few of the more recent and compelling fixed effect studies.²¹ First, consider the case of intergenerational peer effects. The fixed effect approach compares siblings, one of whom grew up while a parent was participating in a program and one of whom grew up when the parent wasn't participating. The effect of relative exposure time of the two siblings can also

be estimated, allowing the researcher to eliminate any fixed characteristics or trends that are common to a family.

Scandinavian countries maintain high-quality administrative data that can link parents to their children and siblings to each other. Such data are ideally suited for a fixed effect analysis. Researchers studying disability insurance (DI) in Norway, for example, found a positive correlation between a parent's DI use and a child's, based on a regression analysis that uses fixed effects.²² The study also found that the longer a father is on the program, the greater the probability that his child will also receive benefits as an adult; the effects for mothers were insignificant. Another sibling fixed effect study, on the other hand—this time using administrative data from Sweden—found no support for the idea that a parent's use of welfare affects their children's participation in welfare.²³ This finding contrasts with a regression analysis that didn't include fixed effects; that observational analysis found a large positive intergenerational effect, even after controlling for a variety of background characteristics. One more study using a sibling fixed effect approach to analyze Norwegian data also found no evidence for an intergenerational link in unemployment.²⁴

The key identifying assumption in such models is that time-varying factors which can't be controlled don't matter for outcomes. But this assumption could be violated—for example, consider a family where a parent enters the disability insurance program because he or she is hit with a debilitating depression that makes work difficult. In this case, we'd need to assume that the parent's depression doesn't directly affect a child's future chances of participating in DI directly, but does so only through their

parent's participation in the DI program itself. But it's likely that having a depressed parent could cause the child to experience depression as well, and to be more likely to participate in DI later in life for this reason. Of course, the problem disappears if we can control for parental depression in the regression, but there's always the concern that the researcher can't observe all relevant time-varying factors.

The previous paragraph makes clear that the problem of correlated unobservables can still arise in fixed effect studies. In contrast, the other two issues that economists usually worry about when studying peer effects are less of a concern. In the intergenerational setting, reflection isn't likely to be a problem; we simply need to assume that parental DI use affects children, but not the other way around. Moreover, there's no concern about endogenous group membership, as long as fertility isn't directly affected by parental DI use.

To study neighborhood effects on intergenerational mobility, Harvard economists Raj Chetty and Nathaniel Hendren used a variant of the fixed effect design.²⁵ They assembled an impressive data set of over seven million families who move across commuting zones and counties in the United States. Using the fact that children are at different ages when their families move, Chetty and Hendren found that the outcomes of children whose families move become more similar to the outcomes of children already living in a neighborhood as years of exposure to the neighborhood increase. The effects are large, with a 4 percent improvement in earnings for every year spent in a new and better neighborhood. There were similar effects on education, fertility, and marriage.

This type of fixed effect design requires the assumption that the reasons families move when their children are young versus when they're older don't directly impact child outcomes. But biases could be introduced by correlated unobservables. For example, parents might postpone or accelerate a move, or choose which area to move to, based on how disruptive or beneficial they believe the move will be for their child. Similarly, if families move in response to a change in income or wealth, that could directly influence child outcomes. To help establish causality, Chetty and Hendren went beyond a traditional fixed effect approach by examining only moves resulting from unexpected job loss.

The same researchers have looked at the county level to explore the neighborhood characteristics that seem to have the biggest effects on intergenerational mobility.²⁶ Using the same approach as in their first study, they found that children who grow up in poor families have better outcomes when they live in neighborhoods with less poverty, less income inequality, better schools, more two-parent families, and lower crime.

Studies Using Random Assignment to Peer Groups

Another approach taken by researchers is to use random assignment of individuals to different peer groups.²⁷ Random assignment means the researcher decides which peer group people are placed in, rather than letting individuals choose for themselves. In some settings it's possible to enforce random assignment to peer groups; for example, children can be randomly assigned to different classrooms. But when that's not possible, researchers use a *randomized encouragement design* instead. This approach

randomly gives some people an incentive (often cash) to join a different peer group, while others receive no such incentive. Ultimately, all people in the study are allowed to decide which peer group to join. A good example of a randomized encouragement design is the Moving to Opportunity experiment, which randomly gave some families incentives to move to lower-poverty neighborhoods. Economists have studied a variety of child outcomes related to this experiment, including crime and health.

A randomized encouragement design gives some people an incentive (often cash) to join a different group, while others receive no such incentive.

More relevant to our topic, analyses of adults and older children in the Moving to Opportunity experiment found no effect on earnings or employment.²⁸ A similar study using Canadian data likewise found that neighborhood quality has little effect on a child's later life earnings, unemployment, or welfare use.²⁹ However, more recent work found large effects from Moving to Opportunity for children who were younger than 13 at the time of the move.³⁰ This work concludes that better neighborhoods have the potential to reduce the intergenerational persistence of poverty. The results are particularly interesting, as they align with the fixed effect analyses discussed above, which found that more years of exposure to a better neighborhood produces better outcomes for children.

The advantage of randomly assigning people to a different peer group (such as a better neighborhood) is that it solves the problem of endogenous selection into peer groups. And in cases where the number of randomly assigned individuals is small relative to the overall size of the neighborhoods, the reflection problem is minimal. The disadvantage is that it's impossible to separate direct from indirect peer effects. In other words, although we can estimate the effect of being assigned to a new neighborhood, we can't separate out the effect of peers' targeted outcomes and peers' background characteristics. Fortunately, this combined information is often what's most relevant from a policy perspective, even if the direct peer effect can't be isolated. A similar challenge in interpretation is that there could be neighborhood resource effects for young kids, with interaction effects from increasing resources in both early and later childhood.³¹

Thinking about families, it's hard to imagine a case where a sibling, spouse, or parent is randomly assigned, which explains why this approach hasn't been used to study family peer effects. (One exception is adoption studies, which aren't covered here.) But a related set of studies look at shocks to parents that can change children's long-run outcomes. One study using Canadian data found that later in life, the children of a parent who lost a job due to a firm's closure had lower earnings and higher participation in unemployment insurance and social assistance.³² In contrast, a Norwegian study that looked at worker displacement found no significant effects on earnings for the next generation.³³ A US study found that parents' job losses both worsen adolescent children's mental health and result in lower test scores and educational achievement.³⁴ A British study that examined major industry

contractions during the 1980s recession found that the children of fathers who lost their jobs had no change in their adult earnings many years later.³⁵ As with the random assignment of individuals to neighborhoods, studies of these shocks can't separate direct and indirect peer effects.

Peers of Peers Studies

Researchers have begun to impose restrictions on network structures to help identify peer effects in a variety of settings. The idea is to take advantage of partially overlapping peer groups.³⁶ In its simplest form, the approach assumes that while my peers may influence me directly, the peers of my peers affect me only through my peers' outcomes. This restriction allows the use of peers of peers' outcomes as instrumental variables for my peers' outcomes (see the next section for a discussion of instrumental variables). It's a clever idea, but it requires assumptions that may not hold in every setting. Beyond assuming that peers of peers have no direct effect, one also needs to assume that unobserved characteristics of peers of peers aren't correlated with an individual's choices. This second issue arises because of correlated unobservables and the endogenous sorting of peers into groups.

An interesting use of this approach appears in a recent study using Norwegian data.³⁷ It estimates the causal effect of family networks and of neighbors on mothers' decisions about whether to work. Starting with the family networks, the researchers looked at how siblings (and cousins) affect a mother's decisions about working after the birth of a child. The number of hours worked by a sister's (and cousins') neighbors after the birth of a child were used as an

instrumental variable for the sister's work decisions. The assumption is that a sister's neighbors influence whether or not the sister works, but affect the mother's decision to work only through the effect they have on her sister. The necessary restriction is that the mother doesn't directly interact with her sister's neighbors or learn from them.

To solve the reflection problem, the researchers take advantage of the timing of births, using the work behavior of the sister's neighbors who gave birth before the sister. But there's still potential for endogenous peer groups to create a problem. In this case, the researchers must assume there are no unobservable factors that affect the work decisions of both the mother's neighbors and her family's peer neighbors. In an attempt to control for these types of unobservables, the researchers include a control variable for the average hours worked by the mother's neighbors (similar to a neighborhood fixed effect, but excluding the mother). Finally, the authors attempt to control for factors that occur at the level of a geographic area larger than neighborhoods, such as large firms that hire workers from both neighborhoods.

The study found significant family spillover effects on the number of hours worked by mothers of preschool-age children. This included a large social multiplier effect, with each extra hour of work by a woman translating into 30 extra minutes for the other women in her family network. In comparison, the neighborhood spillover effects were smaller. The researchers found suggestive evidence that the family peer effect is driven by time investments in children, with earnings considerations also becoming important when a child reaches five or six years of age.

A recent US study also used peers of peers to study women's work decisions.³⁸ It examined how a woman's work decisions are affected by the labor market participation of her peers' mothers while she was in high school. The researchers used a regression analysis that relates a woman's labor supply as a young adult to both her own mother's labor force participation and that of her peers' mothers. Peers' mothers' working decisions had a strong impact, above and beyond the work choices made by a woman's own mother. The interpretation is that higher exposure to working mothers in an adolescent's peer group changes perceptions about gender roles regarding the ability to work and have a family at the same time. Both endogenous group membership and correlated unobservables are possible concerns in this setting, though the reflection problem is not.

Instrumental Variable Studies

Instrumental variables is a statistical method to deal with the problem of correlated unobservables. The idea is to find a variable, called an *instrument*, that influences treatment (such as a mother's participation in welfare) but isn't correlated with any unobservable factors common to the mother and child (such as living in an area with few jobs) that might also drive a child's participation decision.

To investigate intergenerational program participation, several studies in the United States have used instruments that vary at the state and year level. For example, an instrument could be the unemployment rate when a mother is in her early 20s. This should influence the mother's probability of being on welfare, but it arguably shouldn't be a factor in whether her daughter takes up

welfare years later. The reasoning is that the unemployment rate will have changed by the time the daughter is considering whether to work or be on welfare.

An early study, using state-level welfare benefits and net migration flows, and a method similar to instrumental variables, found evidence for intergenerational links.³⁹ In contrast, an instrumental variables study from the mid-1990s, using variation in state benefit levels and local labor market conditions, concluded that most of the intergenerational correlation in welfare use isn't causal.⁴⁰ This research highlighted the possibility that observed correlations are not causal but could instead be reflecting correlated unobservables.

Perhaps the best example of the instrumental variables approach is a recent study that used a large US data set spanning a long time period for mother-daughter pairs.⁴¹ This study takes advantage of the fact that states implemented welfare reform at different times, so the researchers could use temporal variation in program benefits across the country. The long time period in which these welfare changes occurred allowed the researchers to compare a mother's participation with her daughter's choices both before and after welfare reform. They focused on three programs to create their instruments: Aid to Families with Dependent Children, Temporary Assistance to Needy Families, and the Earned Income Tax Credit. Their key assumption was that the timing of changes in the generosity of these programs at the state level, and of welfare reform in general, is as good as random after a basic set of controls.

The study found large intergenerational effects, with a daughter's chances of

using welfare as an adult increasing by 25 to 35 percentage points if her mother also participated. Interestingly, when the researchers considered only traditional welfare programs, these intergenerational effects were cut in half. When food stamps and disability insurance were added to create a broader measure of welfare participation, the intergenerational effects were about the same size both before and after welfare reform.

Another instrumental variables study used data from France to examine how a mother's labor market participation was affected by that of her neighbors.⁴² The study first observed that whether a mother works is influenced by the sex composition of her two oldest siblings: mothers of mixed-gender children worked slightly less, on average. It further documents that a mother's labor market participation is affected by the sex composition of the older siblings of mothers living in the same neighborhood. Using the neighbors' older siblings' sex composition as an instrument, the analysis estimates that neighbors' work decisions have a sizable effect on a mother's own labor market participation. This leads to a large social multiplier, where one mother's decision to work can affect the work decisions of many others.

A final example uses Norwegian data to look at peer effects in the disability insurance (DI) program among older workers in that country.⁴³ As an instrument for neighbors' entry into the DI program, it uses plant downsizing events, which are arguably close to random. These downsizing events should increase DI use among an individual's previously employed neighbors, and at the same time take care of the problem of correlated unobservables. The study

found that a 1 percentage point increase in neighbors' DI participation causes a sizable 0.4 percentage point increase in a person's own DI participation over the next four years.

Natural Experiment Studies

A recent set of studies has taken advantage of *natural experiments* to identify family and neighborhood peer effects. Sometimes called *found experiments*, these are situations where an actual experiment wasn't planned or explicitly carried out, but in which variation occurs that's as good as random. Such natural experiments are often paired with instrumental variables estimation.

One example of this approach is a study I helped write on intergenerational peer effects in the setting of disability insurance participation.⁴⁴ The key to our research design was the way the DI system in Norway randomly assigns judges to applicants whose cases are initially denied. Some judges are stricter than others, which introduces random variation in the probability that a parent will be allowed on DI during the appeals process. As a measure of a judge's strictness, we used the average allowance rate in all other cases a judge has handled. This measure strongly predicts whether a parent will be allowed on DI, but it isn't correlated with observable case characteristics.

We find that if a parent was allowed on DI because of being assigned to a lenient judge, on average their child's participation rose substantially over the next five to 10 years. In contrast, we found no peer effects related to close neighbors' DI participation. We argue that the mechanism can't be information about how to apply to the program, as all the parents have been through that process. Instead, we see suggestive evidence that children's beliefs change about how best to

get onto the DI program; children whose parents received a lenient judge are more likely later in life to report the same type of medical disorder as their parent when applying.

Another article I helped write uses a different natural experiment.⁴⁵ We took advantage of a 1993 policy reform in the Netherlands that tightened the criteria for DI eligibility. Current DI recipients who were under age 45 at the time of the reform were re-examined and subjected to the new rules, which often resulted in reduced payments and exit from the program. In contrast, recipients aged 45 and older were grandfathered in under the older, more generous system. The idea behind this natural experiment is that a parent who was one day short of age 45 at the cutoff date should be virtually identical on all observable and unobservable characteristics to a parent who was one day older. The same should be true for their children. The only difference between the two families is whether the parent was subject to the harsher DI eligibility rules. To formally implement this intuition and allow the analysis to use parents who are more than one day away from the cutoff, we used a statistical technique known as *regression discontinuity*.

Prior work has found that the reform had large effects, which was also true for our intergenerational sample.⁴⁶ More than 5 percent of parents affected by the reform exited DI and saw their annual benefits drop by 1,300 euros, on average. Looking 21 years later, we found that children of the parents whose DI eligibility had been reduced were 11 percent less likely than the other children to participate in DI themselves. When we searched for other spillovers, we found that as adults these children didn't

change their use of other government social assistance programs, and that they earned 2 percent more. The reduced DI payments to children and the increased taxes paid by children account for 40 percent of the fiscal savings from the reform, relative to parents who account for the remaining 60 percent in present discounted value terms (that is, accounting for the fact that money today is worth more than money tomorrow). Moreover, children of parents who were subject to the more stringent DI rules completed more schooling, had a lower probability of serious criminal arrests and incarceration, and took fewer mental health drugs as adults. The weight of this evidence suggests that the reform curtailing parents' DI benefits had positive effects on children.

These positive child outcomes weren't due to increased income or parental supervision; in fact, both income and supervision declined as a result of the reform. Rather, the effects are most consistent with children learning about formal employment, having a better home environment, or experiencing a scarring effect where they infer they can't rely on governmental support.

A final natural experiment study looks at spillovers in social program participation.⁴⁷ It analyzes peer effects in a family allowance program in Chile. The background is that participation of eligible poor families in the program was perceived to be low—only 60 percent of eligible families participated. The government introduced home visits from a social worker with the primary goal of connecting the families to the social safety net. Eligibility to receive home visits depended on whether an index of a family's wealth was below a cutoff that varied across municipalities. Much like the Dutch DI work, this study made use of the fact that

families just above the wealth cutoff versus those just below should be essentially identical in all dimensions except for receiving home visits. The key assumption was that families weren't able to manipulate whether they were above or below the cutoff.

Eligibility for home visits turned out to have a large impact on participation in the family allowance program. To assess peer spillovers, the study examined whether an individual's geographically close neighbors were eligible for the visits. The idea was to compare participation in the program for families who had a larger fraction of neighbors just below versus just above the cutoff. Both this and the Dutch study use arguably random variation in treatment to identify peer effects.⁴⁸ Preliminary results from the Chilean study reveal strong evidence of peer effects on program participation; current iterations of the study are also incorporating the idea of using partially overlapping networks (as discussed in the section on peers of peers studies, above).

Studies Using Bounds

A final approach is the use of *bounds analysis* to study intergenerational peer effects. Bounds analyses impose a set of restrictions that can be used to limit the range of possible effects. A study from almost 20 years ago makes the bounding assumption that for a teenage girl, having her mother on welfare (Aid to Families with Dependent Children) doesn't decrease the time the daughter will later spend on welfare herself.⁴⁹ While this somewhat narrows the range of possible intergenerational effects, the resulting bounds are large. Therefore, the study combines the bounding assumption with variation in local unemployment rates as instrumental variables (see the section

on instrumental variables above). The result is that growing up in a household that participates in welfare increases the likelihood that a daughter will participate in adulthood.

A more recent study using bounds combines rich administrative data from Norway and imposes weaker assumptions compared to the earlier research.⁵⁰ The study assumes that children's mean potential welfare participation is either increasing or unaffected as a function of parental participation. The researchers also added two instrumental variables that help tighten the bounds based on local labor market conditions and parental education. The way they used their instrumental variables required weaker assumptions compared to the typical instrumental variable approach discussed earlier.

For both disability insurance and family assistance programs, the bounds obtained are reasonably tight, meaning that the range of possible effects is narrow. The findings imply that a substantial part of the observed intergenerational correlation in welfare use is due to correlated unobservables, at least when considering the average effect of welfare participation for the entire population.

Conclusions

The best research to date documents that families and neighborhoods have a strong influence on both social program participation and labor markets. Though the recent evidence is compelling, we should be cautious in interpreting the study findings. For example, the lessons on intergenerational spillovers in disability insurance for Europe might not generalize to the Temporary Assistance for Needy Families program in

the United States. The same caution applies to peer effects in the labor market, where results may not extrapolate across settings (such as different time periods, genders, or countries). We should also keep in mind that proving the existence of peer effects doesn't disprove the coexistence of other contextual factors on program participation, such as the impact of growing up in a poor neighborhood.

The more policymakers understand about peer effects, the more they can harness the power of peers to increase or discourage the take-up of a social assistance or work program.

With these caveats in mind, however, we can draw some general policy implications. Naively ignoring the roles played by family members and neighborhood peers would result in an incomplete understanding of the factors that influence decisions on work and program participation. The more policymakers understand about peer effects, the more they can harness the power of peers to increase or discourage the take-up of a social assistance or work program. For example, targeting information campaigns

toward people with large peer networks can be a cost-effective way to increase knowledge of and participation in a government program. This is particularly true when perceptions about the merits of the program are still in the formative stages.

Another important takeaway is that family and neighborhood peers can amplify the effects of policy reforms. A policymaker who focuses only on those who are directly targeted by a program could grossly underestimate the number of people who will be affected. This matters for cost-benefit analyses. For example, focusing only on how parents are affected by a policy reform, and not including the future effect on their children, could lead to an incorrect conclusion about whether the overall benefits exceed overall costs.

A final related point is that peer effects are large enough to matter for the financial stability of a variety of social insurance and safety net programs. Determining the long-term fiscal impacts of government programs requires a full accounting that includes changes in taxes paid and transfer program receipt for affected peers. The financial costs (or benefits) attributable to peers could be as large as, or larger than, those of the initially targeted individuals. This is particularly true in settings where peer effects can snowball over time—such as in a workplace or a neighborhood—in ways that change the prevailing norms within a society.

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Social Capital, Networks, and Economic Wellbeing

Judith K. Hellerstein and David Neumark

Summary

Scholars and policy makers alike are increasingly interested in understanding how social capital shapes people's economic lives. But the idea of social capital is an amorphous one. In this article, economists Judy Hellerstein and David Neumark define social capital as networks of relationships among people who are connected by where they live or work. Thus social capital, in contrast to human capital, resides in the connections among people rather than their individual characteristics.

The authors draw on survey evidence, case studies, and administrative data to document that social capital networks play an important role in improving wellbeing, especially in terms of better labor market outcomes. Labor market networks, they write, provide informal insurance or risk sharing, and they facilitate the transfer of information (about job opportunities for individuals, and about potential employees for businesses). Moreover, networked individuals' choices and outcomes affect others in the network, a phenomenon known as *peer effects*.

The evidence suggests that when it comes to getting a job, networks are especially important to low-skilled workers and immigrants. Hellerstein and Neumark also report some limited evidence on how neighborhood networks may shape children's health and educational outcomes. Throughout, they discuss how policy might strengthen (or inadvertently weaken) the beneficial effects of networks.

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The term *social capital* is used in casual social discourse, as well as in policy and academic discourse, to refer to something that can improve economic wellbeing and is beyond the productive capacity and skills of individuals. Everyone seems to recognize social capital as present when it's indeed present, and absent when it's indeed absent. But because social capital is defined in different ways, we run the risk of naively attributing many economic and social problems to its absence and proposing that simply increasing social capital might help. Unless we precisely identify the problems and pinpoint the mechanism by which specific forms of social capital can ameliorate them, we tend to get vague diagnoses and untested, ill-formed policy proposals.

One definition of social capital is the “networks of relationships among people who live and work in a particular society, enabling that society to function effectively.”¹ This definition encompasses what people mean by social capital in many contexts, but it's still narrow enough to be useful in identifying and studying social capital. In particular, it highlights two key features. First, it refers to *connections*, and thus shifts the focus from the characteristics of individuals and families to the ties between them. Second, it emphasizes that social capital is present not simply when individuals are connected to one another—through what can be described as networks—but rather when the relationships that undergird these networks lead to productive social outcomes. In that sense, social capital is *productive capital*, in the same way that economists think of physical capital or human capital (the accumulated skill that makes an individual productive) as productive capital.

Social capital, under this definition, is still very broad. Networks can be formed along virtually any of the many societal dimensions in which people interact—neighborhoods, workplaces, extended families, schools, and so on. In this article, we focus on networks whose existence fosters social capital in one specific way: by facilitating the transfer of information that helps improve the economic wellbeing of network members, especially (but not exclusively) via better labor market outcomes. Much evidence shows that networks play this important role in labor market outcomes, as well as in other outcomes related to economic wellbeing. In reviewing this evidence, we pay particular attention to how networks can help less-skilled people, who typically come from lower socioeconomic backgrounds. We also discuss the measurement of social capital, including new empirical methods in machine learning that might provide new evidence on the underlying connections that do—or might—lead to productive networks.

Throughout, we discuss the policy implications of what we know so far about networks and social capital. Two key questions arise: How can public policy encourage the formation of social capital in the form of network connections that transmit information to improve socioeconomic outcomes? And how can policymakers use existing networks to create social capital that leads to more effective public policies? The burgeoning research on networks hasn't focused sharply on policy; still, we draw lessons where we can, and we emphasize what we consider the important questions that remain.

Networks and Labor Market Outcomes

The labor market is perhaps the key area in which networks are known to affect social outcomes. Broadly speaking, networks can

play three roles in the labor market. First, they can provide informal insurance or risk sharing to protect against adverse shocks in the labor market from a layoff or other unexpected drop in earnings.² Second, when people who are networked together participate in the labor market, we may see the impact of *peer effects* among those network members. (Peer effects occur when the choices or outcomes of one networked person directly affect the choices or outcomes of another member of the network.³) Third, networks can facilitate the transfer of information in the labor market, where individuals face barriers to learning about job opportunities and employers face barriers to learning about potential employees.

Here we're concerned primarily with this third role for labor market networks. We don't focus on risk-sharing networks, which have more to do with what happens outside the labor market in response to adverse labor market events, rather than with what improves success within the labor market. And peer effects are covered by Gordon Dahl elsewhere in this issue.⁴ That said, it can be hard to separate peer effects from information transmission in networks; as a result, some of the research we discuss doesn't draw a hard and fast distinction.

In this section we review the evidence on how networks can improve information flows between employees and employers, and can also improve the employment and wages of network members. We believe this evidence establishes that labor market networks can be an important source of social capital that helps create strong labor force attachment and higher wages, thus making them critical for the wellbeing of families and children.

Evidence on Labor Market Networks

Early evidence on labor market networks established that many people search for and

find jobs through informal connections to others, in contrast to the usual job search models set down by economists. However, this research didn't demonstrate that the relationship between networks and labor market outcomes is causal.

A famous 1974 book by sociologist Mark Granovetter, *Getting a Job: A Study of Contacts and Careers*, is widely viewed as having launched the scholarship on the importance of networks in labor markets.⁵ Granovetter interviewed men in Newton, MA, who were in managerial, professional, and technical jobs and who had switched employers in the previous five years. He documented that networks helped many of these men find their current jobs, and that those whose network contacts, or *ties*, had led them to their current jobs earned more and had greater job satisfaction. About half the workers interviewed found their jobs through a social contact, and many more through a work contact. (Similar early evidence exists for less-skilled jobs.⁶)

Survey evidence has since confirmed Granovetter's findings. Economists Yannis Ioannides and Linda Datcher Loury reviewed evidence indicating that job searchers rely heavily on networks of friends, relatives, and acquaintances as part of their job search strategies.⁷ One of their findings, to which we return below, is that the use of informal network contacts is more common among some groups, such as less-educated job searchers. But Ioannides and Datcher Loury found little evidence of racial (black-white) differences in the use of network contacts in job search. Thus, the evidence they review only partially supports the belief that traditionally disadvantaged populations in the United States are more likely to use networks when searching for jobs.

Survey evidence can help establish how people use labor market networks, and how often. But for many reasons, such evidence may fail to answer the fundamental question of whether these networks have broad-ranging positive causal impacts on labor market outcomes. First, survey respondents who report using network contacts to find jobs may be fundamentally different from those who don't use them, making it difficult to identify the causal link between use of networks and labor market outcomes such as employment or wages. Second, cross-sectional surveys, which collect information about outcomes at only one point in time, don't offer much information about the importance of networks in securing employment for those who are currently not working, or in securing higher wages for those who are working. Third, survey evidence on the use of networks doesn't tell us much about how networks operate. Network contacts may be useful because they provide information to job searchers about available jobs generally or about jobs with those contacts' own employers.⁸ Or network contacts can provide information about potential employees to employers who are hiring (that is, *referrals*).⁹ To develop a behavioral understanding of labor market networks, and to consider how policy might improve the productivity of labor market networks in facilitating productive job search, it's important to disentangle these different roles for networks.

Experimental and Observational Evidence on Referrals

Because survey evidence has limitations, most recent research on labor market networks either turns to observational data on labor market outcomes for people who are (or seem to be) connected by networks,

or uses experimental methods to create or manipulate the functioning of networks in the real world. Some of this work—especially recently—pays careful attention to identifying the causal channels by which networks operate, which can more clearly demonstrate the effects of networks on labor market outcomes. This research establishes direct evidence that network connections can lead to productive hiring, including evidence on this effect for lower-skilled workers in the United States. For employers, the productivity of network hiring is measured as higher output and/or profit. When these outcomes aren't measured, the productivity of networks is often inferred when workers hired via networks earn higher wages and/or experience less job turnover than other workers.

[We have] direct evidence that network connections can lead to productive hiring, including . . . for lower-skilled workers.

Experimental studies, by their very nature, are narrow in scope. But when carefully designed and executed, such studies cleanly isolate the mechanisms by which networks affect outcomes.

A recent series of linked experiments by economists Amanda Pallais and Emily Sands tested whether referrals made by workers contain information about the quality of referred workers.¹⁰ The setting for their study is an online platform through which the authors hired workers in the Philippines to perform small online tasks. In the first

stage of the experiment, the researchers hired experienced workers. They then asked these workers to refer others for additional tasks. In the second stage, they hired the referred workers as well as other, non-referred workers to do these additional tasks. The referred workers were more productive than the non-referred workers. This was true whether or not the tasks involved team production with workers from the first stage, and whether or not the referred workers' productivity became known to the worker who made the referral, suggesting that the productivity differences in this study aren't generated by peer effects.

Economists Lori Beaman and Jeremy Magruder provide related evidence from an experiment in Kolkata, India.¹¹ They note that networks are common in developing countries as a way for members to insure each other against labor market risk, and that referrals to network members for job vacancies are also common: 45 percent of employees report having helped a friend or relative find a job with their current employer. For their research, Beaman and Magruder recruited participants and paid them to complete some basic tests of cognitive ability and to perform certain tasks for two hours. They then offered the participants monetary incentives for referring others to perform tasks, paying some based on the productivity of the workers they referred, and others a flat fee per referral. Participants who were paid based on the productivity of their referrals were much more likely to refer a co-worker than a family member.

The evidence from these studies shows that workers can refer other productive workers to employers. But labor market networks need not enhance productivity for employers.

Workers who refer family members are using their network connections to help their family members get hired, presumably enhancing the welfare of their family network but at the cost of not referring co-workers who could have been as productive or more so. Thus, employers may need to offer incentives for referrals of more-productive workers. This evidence illustrates our earlier point that network connections aren't necessarily social capital. In some cases, network connections could simply affect who gets jobs among equally productive workers. They could even (as in some of these studies) lead to referrals of less-productive workers.

Two other studies on referrals pertain to lower-skilled workers in the United States. One examines data from a single US financial services company, with information on whether an applicant to the firm was referred by a current employee of the company.¹² The authors tested for differences in outcomes between referred and non-referred workers, examining the probability of being hired, initial wages if hired, and subsequent wage growth and turnover. They found that referrals convey information that employers use in gauging the productivity of new employees. Applicants who were referred to the company were more likely to be hired, were paid higher wages early in their tenure at the firm, and had lower turnover. All of these referral effects were stronger for workers who were applying for and hired into lower-skilled positions at the firm. This suggests that the company finds it harder to screen lower-skilled applicants without the extra information conveyed by a referral. It also implies that networks may be especially important for workers who are more disadvantaged.

However, another finding from this study paints a less optimistic picture of the role networks may play in affecting labor market outcomes for more disadvantaged workers. In particular, the researchers found clear evidence of *homophily* in referrals; that is, current employees were more likely to refer individuals whose age, gender, race, and ethnicity were similar to their own. It's not surprising that referral networks are segmented at least partially along these dimensions, likely reflecting workers' social contacts. But when companies rely on referrals for hiring (and, at least as in this study, pay referred workers more), these referrals can lead to positive outcomes only for networked workers, perpetuating a cycle of disadvantage for those outside the network.¹³

The second study is a larger-scale examination of how referral networks affect less-skilled sectors in the United States.¹⁴ The authors used administrative data from nine firms in three industries (call centers, trucking, and high-tech/IT), covering millions of job applicants and hundreds of thousands of hired workers. They found that on many dimensions, the productivity of referred workers was similar to that of non-referred workers, although the referred workers were better on a couple of dimensions. But in the lower-skilled sectors (call centers and trucking), where workers' contributions to profits are measurable, referred workers often had lower turnover and were cheaper to recruit, and hence added more to firm profits.

Networked Individuals and Labor Market Outcomes

The research on referrals described above begins with the identification (or,

in experiments, the creation) of firms that hire, and then studies outcomes for workers hired via referrals versus other channels. This research can't capture outcomes for the workers who weren't hired by these firms (perhaps because they lacked a referral). Thus, although these studies examined how employers and the workers they hire benefit from the information provided by referrals, they don't gauge whether networks provide useful information about available job opportunities to job seekers. Understanding how labor market networks can help job seekers requires a research design that starts by identifying groups of individuals—including the non-employed—who are networked together. Once these groups are identified, it becomes possible to study labor market outcomes for these networked individuals across many dimensions, among which finding a job is particularly important.

Many recent studies that use observational data of this kind have documented similar labor market outcomes for individuals who are plausibly networked together across one of a host of formal or informal relationships. The results establish that labor market networks often deliver improved labor market outcomes for job seekers, including higher employment and wages, lower turnover, and faster re-employment after layoffs. At the same time, this research establishes that these networks have limitations, including stratification along ethnic or racial lines, possibly implying that minorities have less access to the benefits of labor market networks.

These studies don't consider all (or even a large number of) possible network links among potential workers. Rather, they typically take advantage of data sets in which workers are observed to be connected along

one potential network dimension. Once networks have been defined and identified in the data, the research usually proceeds by testing for correlated labor market outcomes—employment status, workplaces, wages—among network members. Finally, researchers try to isolate the extent to which the network connections actually cause the correlated outcomes, attempting to rule out the possibility that the correlated outcomes of network members are spurious by-products of network members' shared observable and unobservable characteristics. These attempts at establishing a causal impact in improving labor market outcomes are central to testing whether such network connections represent social capital.

Recent research on the impact of online social networks like Facebook and LinkedIn constitutes one example of the opportunistic use of potential network connections. For example, economist Laura Gee uses Facebook to test whether Granovetter's *weak ties* or *strong ties* are more valuable for finding jobs.¹⁵ (Weak ties are connections with those more likely to have different contacts, rather than the same contacts—say, a casual friend.) The evidence indicates that more jobs come from weak ties than from strong ties, simply because individuals have more weak ties, but that any individual connection is more helpful to job finding if it's a strong tie.

Research on online social networks and the labor market is still in its early stages, but might in the future provide policymakers with fruitful information. That said, the role of online social networks in transmitting information (or misinformation) is, understandably, controversial, so useful policy interventions may be difficult to design and implement. Given the uncertainty

surrounding these issues, we focus on network connections based in the physical world. These networks are generally well understood, can be influenced by policy, and may be especially relevant for less-skilled workers.

One example of this type of research is a study of World War I veterans that was based on an unusual data set: men who served in a particular infantry division and for whom information was later recorded in the 1930 US Decennial Census.¹⁶ Census data on the veterans' residential neighbors provided a baseline from which to compute the *excess similarity* of outcomes among those who served together. When a peer from the veterans with whom a person served gained employment, the likelihood of another veteran's employment increased by 0.8 percentage points. Because the veterans didn't choose their infantry division, we can be more confident that the study identifies the true effect of the network on outcomes, rather than the effect of some correlated factor that underlies both the creation of the network and later outcomes. On the other hand, the study has no direct or indirect evidence of information flows between members of the network, so the evidence could represent peer effects.

Other work on labor market outcomes in observational data where individuals are grouped together in networks includes studies of workers displaced from the same firm, of people who attended the same educational institution, and of people from similar racial or ethnic groups.¹⁷ Most of the studies find that a networked member's employment is boosted by the employment of others in the network, although, as in the study of World War I veterans, the mechanism isn't clear. Indeed, we suggest

that evidence based simply on membership in the same racial or ethnic group is particularly unlikely to reflect information flows.

Information that flows between neighbors about jobs may be especially relevant to less-skilled workers, for whom job markets are more local and where job search may rely more on informal methods.

Recent work has focused intensively on the geographic or spatial dimension of networks. Because residential segregation by race, ethnicity, and socioeconomic status is so pervasive in the United States, it's particularly important to understand how networks defined by residential proximity can affect labor market outcomes. Such evidence is also important because social capital in neighborhoods can be affected in meaningful ways by the institutions in those neighborhoods (schools, places of worship, libraries, and the like), and potentially by government intervention as well.

It's reasonable to assume that information about jobs will flow between people living in the same neighborhood, and much of the evidence we and others have assembled is consistent with this. Perhaps most importantly, information that flows between neighbors about jobs may be especially relevant to less-skilled workers, for whom job markets are more local and where job search may rely more on informal methods.

Our evidence supports this hypothesis as well.

Economists Patrick Bayer, Stephen Ross, and Giorgio Topa found evidence of neighborhood-based networks that affect labor market outcomes.¹⁸ They used confidential US Census data from the Boston area that identifies the census blocks where individuals live and the census blocks where they work. In urban areas, census blocks are like regular city blocks (they can be larger in suburban and rural areas), and thus they identify groups of individuals who live in close proximity and are very likely to interact as neighbors, thereby potentially forming a network.

Bayer and his co-authors find that individuals living in the same census block are more likely to be employed in workplaces that are also in a common census block than are individuals living in nearby areas (the same *block group*) but not the same block. Assuming that networks are stronger within blocks than within block groups, and that the unobserved characteristics of workers are similar within blocks and block groups (assumptions that the data appear to justify), this evidence suggests that residence-based labor market networks affect hiring.

As additional evidence, the authors estimate models that ask whether the relationship between residential and workplace proximity is stronger among pairs of people for whom a network connection is more plausible, such as people of the same race, people who have school-age children the same age, and so on. Some of the results provide this kind of supporting evidence. For example, living on the same block has a stronger effect on working on the

same block among people with young or adolescent children of the same age (but not children aged 18 to 24, since having children of this age probably doesn't lead to social interactions among parents). Having a similar education level (say, both people are high school graduates) also has positive effects, which might make sense if those with only a high school degree have labor markets that are more local, or rely more on informal networks, than do college grads. On the other hand, there appears to be no evidence of homophily along racial or ethnic lines.

Our own past work also assesses evidence on the importance of labor market networks among neighbors, using matched employer-employee data for the entire United States.¹⁹ The data provided evidence on whether neighbors work at the same business establishment (and not simply on the same block). Because the data identify co-workers in the same establishments, this evidence is more directly linked to information flows about specific jobs among residents than in Bayer, Ross, and Topa's study, though the findings are consistent across the two studies.

We developed an index of labor market network isolation that captures the extent to which employees of a business establishment come disproportionately from the same sets of residential neighborhoods (*census tracts*). The index is measured relative to the residential locations of other employees who work in different establishments in the same census tract. Thus the index measures the excess concentration of workers from the same residential neighborhoods in specific business establishments, beyond what would be expected if workers were assigned randomly to any business in that same census tract.

The evidence indicates that residence-based labor market networks play an important role in hiring. For white workers, the excess concentration of workers in specific establishments is about 10 percent of the maximum amount of sorting that *could* occur if networks were completely sorting workers across nearby establishments (an unreasonable expectation, but a useful benchmark). This figure is somewhat higher for black workers when we look at comparable tracts, and nearly twice as high when we compare blacks and whites in small establishments (which we do because the way the sample is constructed leads to disproportionate underrepresentation of small establishments for blacks). That is, overall, our evidence indicates that networked hiring is more important for blacks than for whites. Networks are also more important for less-skilled workers, which we would expect for network connections among residential neighbors, given that low-skilled labor markets tend to be local. And residence-based networks are considerably more important for Hispanics, for whom the excess concentration of workers from the same neighborhoods in the same business establishments is about 22 percent of the maximum.

Finally, this excess concentration is twice as high for Hispanic immigrants and those with poor English skills than it is for non-immigrant Hispanics. This suggests that informal labor market networks are particularly important for workers who aren't as well integrated into the labor market and have difficulty learning about job availability, and for whom employers may have less reliable information.

This study offers clear evidence that networks help funnel workers into jobs with specific

employers. But data limitations associated with the observational data preclude distinguishing whether networks break down the information barriers faced by workers or employers (or both).

Labor market information is less likely to flow between black and white co-residents than between co-residents of the same race.

Consistent with our earlier suggestion that hiring via networks may perpetuate disadvantage for some groups, other research finds that labor market networks may be racially or ethnically based. When they are, reliance on informal referrals in a predominantly white labor market, for example, benefits whites at the expense of other groups.²⁰ The simple fact that some networks are based on neighborhood of residence implies racial stratification. Beyond that, however, our study finds evidence of racial stratification of networks even within neighborhoods. And if networks among co-residents are racially stratified, then the likelihood that a black employee would work with a neighbor regardless of race should be smaller than the likelihood that a black employee would work with a black neighbor. The evidence points to much weaker network connections between black and white neighbors than between black neighbors; specifically, when we disregard the race of neighbors and co-workers, the empirical importance of networks falls by more than 40 percent. (There is other evidence of racially or ethnically stratified networks in both the

United States and Europe.²¹) Thus it appears that labor market information is less likely to flow between black and white co-residents than between co-residents of the same race.

The studies we've discussed so far examine how residential labor market networks may affect employment. As we've said, though, an important question from the point of view of social capital is whether the jobs that appear to have been found through network connections result in more-productive job matches.

We recently studied whether individuals who work in the same establishment and are networked together via residential proximity (living in the same census tract) have better labor market outcomes.²² If networks help direct workers to establishments and/or jobs in which they're productively matched, then these networked workers should earn more and leave those firms less often than do non-networked workers, as predicted in theoretical models.²³

Using a measure of neighborhood network connectedness that's closely related to the index in our first study, we estimated models with controls designed to isolate the impact of a worker's neighborhood network among his or her co-workers on wages and turnover.²⁴ The controls included measures of how many networked neighbors work for other employers nearby, and a rich set of controls that capture all the unchanging features of both workers and employers (these are known as *fixed effects*, and might capture such things as workers' individual productivity, or technology that affects their productivity).

One of our key findings is that workers with more neighborhood network connections at work have lower turnover, suggesting that information flows in the network get workers valuable jobs. We observed this network effect

both for connectedness to one's neighbors generally and for connectedness to neighbors of the same race or ethnic group.

But it could be that turnover is low when networks are strong simply because workers enjoy working with fellow network members, and not because the job is a productive match for the worker. Thus we also examined how earnings vary as a function of network strength among one's co-workers. We found that the overall neighborhood network measure had a positive effect on earnings. But when we measured network connectedness only within race and ethnicity, we saw a negative effect. This suggests that workers value working with neighbors of the same race and ethnicity so that they're willing to earn lower wages to do so. But the finding that network connectedness to all workers raises wages (and lowers turnover) suggests that networks are more than just workplace amenities, and that they lead to more productive job matches for workers.

Economist Ian Schmutte focuses on the relationship between neighborhood networks and wages.²⁵ Also using US matched employer-employee data, he defines a worker's network as individuals who live in the same census block; like Bayer and colleagues, he uses the slightly broader census block group as a comparison. He finds that when an individual is networked to others who work for high-wage employers, that individual is more likely to change jobs to move to a higher-wage employer. Only part of this effect occurs through job changing to a networked neighbor's employer, which suggests that the results reflect a blend of network and peer effects. Schmutte also demonstrates that local referral networks

have a stronger effect for immigrants than for the native-born, which is at least consistent with the idea that immigrant groups face more barriers to information about high-wage employers.

Finally, in our most recent work on this topic, we examined the role neighborhood networks play in securing re-employment for workers who experience mass layoffs.²⁶ A tremendous amount of evidence shows that displaced workers suffer long-term consequences from mass layoffs, including years of subsequent low (or no) earnings and higher mortality, as well as worse long-term outcomes for their children. Thus the potential role of networks in helping workers recover from mass layoffs can be important for long-term economic wellbeing, including across generations.

We used matched employer-employee data to examine the likelihood of re-employment for US workers who lost jobs in mass layoffs (such as plant closings) from 2005 to 2012—the period before, during, and right after the Great Recession. We found that neighborhood networks meaningfully increased the likelihood that workers would be re-employed in the calendar quarter following the layoff, often by finding jobs with their neighbors' employers. This was true in models that used extensive sets of variables to control for sorting and worker heterogeneity, making it much more likely that the results reflect the causal effects of networks.

The evidence that workers found jobs with their neighbors' employers, in particular, indicates information flows between residents about jobs at their workplaces—whether it was simply information about job availability or actual referrals. Moreover, the jobs found at neighbors' employers lasted

longer and paid more, consistent with the theory that network connections lead to more-productive job matches—which we interpret as a reflection of networks as social capital. Finally, and importantly, this evidence is driven by lower earners (those making less than \$50,000 per year), presumably reinforcing the idea that labor markets are more local for lower-skilled workers, whose job search relies more on informal methods.

More on Networks and Immigrants

Some of the evidence discussed so far shows that immigrant networks are especially important in the labor market. This conclusion is reinforced by a series of studies that specifically examine immigrant networks.

Networks can serve to increase information flows that affect outcomes beyond the labor market, and hence the social capital role of networks can extend to other dimensions of economic wellbeing.

As part of the Mexican Migration Project, sociologists Michael Aguilera and Doug Massey studied a sample of 2,000 Mexican migrants to the United States.²⁷ In their sample, 60 percent of documented immigrants and 71 percent of undocumented immigrants reported using friends or family to find work in the United States. For both types of immigrants, the

larger their social network, the better their labor market outcomes, holding fixed a host of workers' other personal characteristics. Moreover, undocumented immigrants who reported using distant relatives or friends to help them obtain jobs had better labor market outcomes—generally associated with finding a formal-sector job. Aguilera and Massey suggest that these better outcomes result from the social capital of these immigrants' networks, which funnel information to them about employers in the formal sector who are willing to hire workers without documentation.

More recently, economist Kaivan Munshi studied a larger sample of approximately 4,500 Mexican immigrants from the same data set as that used by Aguilera and Massey.²⁸ He also found that respondents used friends or family to find work at high rates, though he sees the networks as providing referrals to employers rather than information to workers about available jobs (based on evidence from surveys of immigrants in the United States). To isolate whether the network effects were causal, Munshi took advantage of the variation in rainfall in Mexico. New migrants enter the United States partly in response to rainfall fluctuations, which affect agricultural jobs. That creates random differences in the size of migrant cohorts, and hence the size of immigrant networks. The study uncovered a large role played by local existing migrant networks in the United States on labor market outcomes of new arrivals. In particular, migrants were more likely to be employed when the place to which they migrated had larger cohorts of previous migrants from their local Mexican community. The new migrants were also more likely to be working in better, nonagricultural jobs when they had more

network contacts already established in the labor market in their US locations.

Policy Implications

The research on the effects of networks in labor markets makes the case that labor market network connections can improve labor market outcomes for the less skilled, even during difficult economic times. For example, we found that although high unemployment rates and low vacancy rates during the Great Recession made it much harder for laid-off workers to find new jobs, neighborhood labor market networks still remained productive.²⁹ So policies that strengthen the information flows or the size of local labor market networks may be especially important during times of economic hardship. In the concluding section, we'll discuss how policy might help accomplish these goals.

Networks and Learning

Networks can serve to increase information flows that affect outcomes beyond the labor market, and hence the social capital role of networks can extend to other dimensions of economic wellbeing. Although these other roles for networks have received much less attention, there's clear evidence that networks can serve as conduits for information about health access, agricultural production methods, education, crime, and government subsidies. Much of this evidence is from developing countries, but the results uncovered may carry over to the United States—as is indeed evidenced by a limited amount of research on other kinds of network effects in the United States.

Health Interventions

A recent randomized controlled trial in India examined how social networks can provide

information to improve health outcomes.³⁰ The researchers studied whether patients diagnosed with tuberculosis (TB)—a prevalent but underdiagnosed contagious disease—are more effective than health care workers at referring other potentially infected individuals for diagnosis and treatment. They demonstrated that peer referrals for TB screening are much more effective (in terms of the number of new cases identified and of cost-effectiveness), both because current TB patients have better information than health care workers do about who in their networks might have TB, and because current patients are more effective at persuading these potentially infected network members to visit health clinics for screening and treatment.

Agricultural Production

A good deal of evidence from developing countries shows that information on agricultural production is transmitted through networks, with productivity-enhancing effects that are consistent with a social capital role. One study finds that neighboring pineapple farmers in Ghana are an important source of information about using fertilizer to increase productivity.³¹ A study in Mozambique shows that information transmitted within networks is important for the adoption of sunflower as a crop.³² And a study in India finds that information from neighbors about the productivity of high-yield seed varieties increased farmers' adoption of new technology.³³ The lessons of these studies should apply to other contexts where business owners, especially small business owners, use information from their network ties in the same industry to guide decisions about changing the nature of production or otherwise increasing their productivity and profitability.

Networks and Government Programs

A small but compelling set of studies shows that networks provide information about government programs to individuals who are eligible to use those programs but might not otherwise know to (or how to) take them up. Increasing evidence suggests that social assistance and income-support programs that aid families and children can have longer-term intergenerational beneficial effects on poverty reduction, earnings, educational attainment, and child health.³⁴ These findings imply a public policy interest in encouraging eligible recipients to take up these programs, making it important to understand whether networks can reduce barriers to doing so.

Economists Marianne Bertrand, Erzo Luttmer, and Sendhil Mullainathan examine how non-English speaking women's participation in social assistance programs is affected by the women's local network of individuals who speak the same (non-English) language and live in the same urban geographic area.³⁵ They show that the probability of a woman receiving social assistance is greater when her geographic area contains a higher concentration of people who both speak her language and themselves receive social assistance—a relationship that holds even after controlling for overall social welfare receipt in the area and the concentration of people who speak the same language. The authors are clear that they can't formally distinguish peer effects from the information about social assistance programs that's transmitted through networks. But they argue that, given the institutional complexity embedded in many of these programs, it's likely that information transfers play at least some role in their findings. A related study finds

that information flows are responsible for the variation in the use of specific social assistance programs across networks of immigrants.³⁶

There's also evidence that information flows within communities affect the take-up of the Earned Income Tax Credit Program (EITC), which provides refundable tax credits to low-income households. This large program reaches many families: 20 percent of households filing taxes and 44 percent of households with children, at an annual cost of around \$70 billion.³⁷ The EITC is credited with increasing labor supply among single women with children, improving infant and maternal health, improving children's test scores, and increasing educational attainment.

Recent work using detailed tax data offers evidence that local information about the EITC encourages take-up of the program.³⁸ The study examines EITC claims by self-employed taxpayers, who—in contrast to wage-earners—have some ability to manipulate their reported income to maximize EITC payments. The authors present two compelling types of evidence that neighborhood information flows can change individuals' knowledge of the EITC system. First, the self-employed are more likely to maximize their EITC after moving to a zip code where other self-employed individuals also maximize their EITC, while self-employed people who move from those zip codes to zip codes where fewer engage in similar behavior continue to maximize their EITC. This asymmetric response suggests that information is transmitted across taxpayers within the high-EITC neighborhoods, in contrast to local variation being driven by local tax preparers, or by local policy to encourage people to claim

the EITC (such as San Francisco's Working Families Credit, which pays a one-time credit to families that claim the federal EITC). Second, when self-employed taxpayers have their first child and become eligible for a significant EITC benefit, those who live in places where fewer self-employed taxpayers maximize their EITC also don't maximize, while the opposite is true in high-maximizing locations. Similarly, another study, which analyzes data on the intensity of Facebook connections across counties, also finds evidence that information networks operate to change EITC-claiming behavior among the self-employed.³⁹

Networks and Children

Labor market networks that increase employment and earnings, and informational networks that facilitate productive outcomes outside the labor market, can improve the wellbeing of children in affected families. A small amount of evidence suggests that learning through networks can directly benefit children.

Some qualitative research shows that childcare centers in high-poverty neighborhoods can serve as *resource brokers*, helping families gain access to external organizations like businesses, nonprofits, and government agencies.⁴⁰ (Other work documents a similar phenomenon for different kinds of institutions, such as beauty salons in immigrant neighborhoods and churches in black neighborhoods, although in these cases the evidence doesn't pertain to benefits to children.) Sociologist Mario Small and his co-authors write that "the childcare center is arguably the most

important neighborhood institution for low-income mothers."⁴¹ In some cases, these centers deliver informational or educational benefits to children, such as information on treating asthma, preventing lead poisoning, reducing domestic abuse, negotiating school enrollment, and instructing children on fire safety. Other benefits are direct services, such as free health care, speech therapy, or dental work. Small's work explicitly documents both formal informational interventions in these settings—such as parent workshops with government agency workers, bulletin board postings, and referrals of parents to outside organizations—and informal information sharing. It also documents informal connections between parents, such as those forged on field trips and in parent association meetings.

Moving from qualitative to quantitative evidence, a recent study implemented and examined an intervention explicitly aimed at increasing social capital among parents of children in Head Start.⁴² The experiment randomly assigned children to Head Start classrooms based on two different treatments associated with greater potential for making connections among parents who live near one another—one based only on residence in the same neighborhood, and the other that added an explicit attempt to pair parents in the same classroom to support each other and share in solving problems (like assistance in picking up a child). The evidence pointed to gains in social networks in the treatment groups (for example, an increase in the size of the self-reported social network, or in willingness to ask a fellow parent for help). There's also evidence that both treatments increased classroom attendance in the winter, when attendance was lowest (with

positive but not statistically significant effects on attendance over the whole year).

Policy Implications

In our view, the most concrete evidence on the potential for using networks to spread information comes from research in developing countries on health interventions and agricultural productivity. We suspect that the same kinds of productivity-enhancing information-sharing could work in the United States. The evidence on networks among parents at childcare centers is also intriguing, especially as it relates to disadvantaged neighborhoods; we should search for more information and evidence about neighborhood institutions that can play a similar role.

The evidence on the EITC speaks directly to policy effectiveness rather than wellbeing. But it's important to note that roughly 25 percent of households eligible for the EITC don't claim it.⁴³ Given that networks can increase information about the EITC, and that receiving the EITC improves outcomes for families, it's possible that EITC claims could be increased by disseminating information about the program through local networks, leading to improved socioeconomic outcomes for eligible low-income households. More generally, using community-based networks to increase information about the availability of and application process for social assistance programs—whether income-based programs like the EITC or in-kind transfer programs like Medicaid or the Supplementary Food Assistance Program (formerly known as Food Stamps)—has the potential to increase the use of these programs by households in need, which could lead to important increases in the wellbeing of both adults and children.

Understanding and Measuring Social Capital in Networks

We've seen significant evidence documenting that social capital plays an important role in networks, and evidence that networks play a key role in facilitating information transfers among network members. But how can we measure the extent of this social capital? How can research understand network boundaries and membership? And can research identify the underlying factors that build strong social capital in networks? In this section, we consider these difficult questions.

In one respect, we've already offered a method for measuring social capital in communities—by providing measures of the extent and strength of networks that are productive in creating better job matches, as in some of the studies discussed above.⁴⁴ But the more standard approach is to study readily available proxy variables that are hypothesized to measure the strength of social capital in communities.

For example, economists Anil Rupasingha, Stephan Goetz, and David Freshwater have created a widely used and regularly updated index of social capital across US counties.⁴⁵ Their Social Capital Index is based on four variables previously used as proxies for local social capital: voter turnout and response rates to the US Census, both interpreted as measures of trust and civic participation; the number of nonprofit establishments (using data from the National Center for Charitable Statistics); and the per-capita number (as reported by the US Census Bureau in its County Business Patterns data) of business establishments for 11 industries thought to increase cooperation and trust (like bowling alleys, as in Robert Putnam's work).⁴⁶ The authors justify the four variables underlying

their index as derived from the work of “scholars from various disciplines (who) have reached a degree of consensus on this issue and have put forward a list of factors that contribute to social capital formation in a community.”⁴⁷

The Social Capital Index is based on a statistical tool known as *principal components analysis* that weights the variables so as to best capture the variation in the four variables combined. The authors define their index as the most important of the principal components in their analysis; its weighted combination of four social capital variables creates the highest variance across US counties.

The researchers argue that the county-level variation in their index captures social capital produced by individuals and families who live and work in those counties. As evidence, they show that their index is related to county-level demographic characteristics such as ethnic homogeneity, education levels, and the proportion of households with children, some of which are hypothesized to be factors in the creation of social capital. Other studies, in turn, use this index, along with other variables, as measures of social capital that are inputs into the production of socioeconomic outcomes. For example, economist Raj Chetty and his co-authors found more intergenerational upward mobility in geographic areas with higher measures of the index, which they interpret as an effect of social capital.⁴⁸

The fact that researchers differ in interpreting social capital measures as inputs or outputs reinforces the challenges of measuring social capital. As an example, consider the variables that underlie Rupasingha, Goetz, and Freshwater’s index.

High voter turnout and strong response rates to the US Census are more plausibly outcomes of what happens in communities that have strong social capital, rather than direct components of social capital, because it’s unclear what these measures produce in terms of socioeconomic outcomes. Thus the index may not capture variations that would be of interest to either policymakers or researchers hoping to create social capital that improves such outcomes.

A second challenge lies in determining which industries contribute to local social capital—which is somewhat subjective—and how to measure the geographic dispersion of these industries and aggregate across them. For example, data from the National Center for Charitable Statistics on the number of nonprofits in a county doesn’t distinguish among organizations in terms of their ability to create local social capital. It also misses some nonprofits, and places nonprofits with multiple locations at one central site, which for large organizations may be far removed from where they’re creating social capital. Finally, the county borders that Rupasingha, Goetz, and Freshwater use are driven by geography and the availability of data, not by the fundamentals of how people and organizations interact in communities.⁴⁹

Our own recent work also takes a data-driven approach to understanding the factors underlying social capital in communities.⁵⁰ But our method of measuring social capital is tied more directly to a measure of *productive* social capital—specifically, the local labor market networks studied in some of our earlier research.⁵¹ As we’ve discussed, this measure captures the extent to which people who live in the same census tract also work in the same establishments, and reflects the way neighborhood networks can decrease barriers

to information flows in the labor market for job searchers or for employers. Thus, we seek to understand which underlying social capital determinants work at the neighborhood level to create strong labor market networks that connect neighbors to workplaces and produce better labor market outcomes.

Our analysis focuses on which nonprofit industries that might boost social capital are in fact associated with stronger labor market networks. This analysis is done simultaneously with consideration of the role of measures of social capital based on past research. Given that many possible social capital measures can predict labor market connectedness at the neighborhood level, the study's key innovation is to use a machine learning algorithm called LASSO to identify which potential social capital determinants best predict variation in the labor market network measure. Like principal components analysis, the machine learning algorithm is a data-reduction technique. From the many possible social capital determinants that could contribute to strong labor market networks, only the most important ones are chosen, and they're chosen not by the researchers but by the algorithm. However, compared to past work, a fundamental difference is that social capital determinants are selected based on their ability to predict a measure of productive social capital—the measure of the strength of local labor market networks.

We incorporate four sets of social capital determinants as candidates for determining the strength of neighborhood labor market networks. The first set reflects the demographic and socioeconomic characteristics and the homogeneity of neighborhoods, which may capture cooperation and trust within neighborhoods

(but could also reflect the economic conditions of local labor markets). These measures include tract-level poverty rates, educational attainment, ethnic composition, commuting to work, and residential stability.

Because parental involvement in schools can raise social capital, the second set of social capital predictors captures information on the size and characteristics of local school districts.⁵² These variables include the student/teacher ratio, how connected students are across schools in the district, and the proportion of students receiving free or reduced-price lunch.

The third set is closer to the measures discussed above that may reflect outcomes of the creation of social capital at the local level, more than inputs. As suggested by prior research, it includes voter turnout, prevailing political opinion, and ideological homogeneity.⁵³

Finally, we chiefly aimed to build on past work suggesting that civic institutions, religious organizations, and other nonprofits contribute importantly to social capital.⁵⁴ To this end, we incorporated data from the National Establishment Time Series—a data set that hadn't previously been used to measure the number and composition of nonprofits by census tract. This data set contains the precise geographic location, employment numbers, and North American Industry Classification System codes for, essentially, all establishments in the United States. The data are recorded at the level of an establishment's physical location, thus overcoming some of the limitations of the data from the National Center for Charitable Statistics.

We used the National Establishment Time Series data to construct census tract-level

counts of the number of establishments in the nonprofit sector (including government institutions)—such as libraries, churches, civic associations, and community centers—that might facilitate the kind of social capital that builds labor market networks. We used a broad definition of the nonprofit sector, partly to account for data limitations and partly because some for-profit establishments in heavily nonprofit industries may perform similar functions when it comes to creating social capital. Despite restricting our attention to establishments in the nonprofit sector, the data still represented about 90 distinct industries. We used LASSO to identify the most important predictors of the strength of labor market networks from a very large set of potential determinants of social capital.

LASSO helped us select social capital predictors that explain two alternative but related labor market network indexes defined for residential neighbors in the same census tract. The first is the census-tract average of the individual labor market network index, used in our earlier work, for each worker in a census tract.⁵⁵ Because this measure captures how much workers living in the same neighborhood are connected with one another at work, on average, it is by definition limited to those who are employed. The second measure includes non-employed workers in the index, assigning each an individual network measure of zero because they don't work with any neighbors. Our results turned out to be robust across both indexes.

The analysis proceeded in two stages. In the first, the LASSO algorithm chose the set of social capital predictors that were most strongly associated with the census-tract network indexes. The second stage

estimated the magnitude of the effects of the selected social capital predictors on the network indexes.

We must interpret the results cautiously, since we didn't explicitly try to isolate the causal effects of the social capital predictors. Still, our analysis suggests that some of the more traditional measures used in research on social capital (such as residential stability and the share of residents with a college education) predict stronger labor market networks at the neighborhood level, while others (such as voter turnout) do not.

The results for nonprofit industries were most interesting. In a number of these industries, a concentration of establishments at the neighborhood level predicted strong local labor market networks. Moreover, the selected industries seem likely to create social capital either by providing public goods or by facilitating social contacts. These industries include churches and other religious institutions, fire and rescue services, schools, police departments, ambulance and rescue services, country clubs, mayor's offices, nursing homes, and amateur or recreational sports teams and clubs.

This study can also be viewed as a preliminary exploration of the role that machine learning could play in helping us understand the determinants of social capital in networks. Although we limited our focus to the nonprofit sector, it may well be that social capital is also created by the for-profit sector—for example, by neighborhood restaurants and gyms where people gather, or by local businesses that invest in their communities through volunteering or other kinds of outreach. A machine learning approach makes it entirely

feasible to take a more expansive look at which kinds of businesses create social capital.

Moreover, a key limitation of nearly all the studies reviewed in this article is that each one examines only a limited set of networks, and the boundaries of these networks are typically driven by the connections that can be measured in the data, rather than the connections reflected in the outcomes that interest the researchers. In reality, network boundaries are fluid. They can be shaped intentionally or unintentionally by the choices people make. Individuals can have ties to a host of different networks, many of which overlap and most of which shift over time and across people. What's more, individuals may have ties to only some of the people we identify as potential network members in the data—for example, they may have ties to only a subset of neighbors in their census tract. Given enough information on the different network links that individuals could have across the many dimensions of their daily lives, and information on most of the individuals in a potential network, machine learning techniques could be used to determine the composition and boundaries of networks, and to pinpoint which networks and which network connections are better than others at fostering the social capital that improves economic wellbeing. And, to be sure, this evidence could be complemented by the kind of qualitative evidence marshaled by sociologists Eric Klinenberg and Mario Small regarding the roles of neighborhood businesses and institutions.⁵⁶

Policy Implications

Our inquiry into what constitutes productive social capital raises more policy questions than it answers. For example, our study

predicting network strength, if interpreted as causal evidence (rather than simply predictive), might point to certain types of civic institutions that merit public support. Klinenberg, for instance, argues for increased support for what he calls *social infrastructure*—such as libraries, parks, and community gardens—to strengthen community interactions.⁵⁷ Though he relies largely on qualitative evidence, more sophisticated empirical methods could in principle guide the choice of priorities for public investments to increase social capital.

Public Policy and Networks

We've already discussed some broad policy implications stemming from the existing research. In this final section, we turn to specific evidence on public policy and networks, most of which pertains to labor market networks.

A key question is what kinds of institutions and policies can help less-skilled workers find jobs (or find better jobs), especially when they're members of disadvantaged communities who may have limited access to job and employer contacts because of their social and residential isolation. We begin by asking the opposite question: What might weaken these connections? For example, informal evidence suggests that one reason the Moving to Opportunity program (a 10-year demonstration project in five large cities that helped randomly selected families move to wealthier neighborhoods) failed to improve labor market outcomes was the loss of informal labor market connections among those who moved.⁵⁸ One consequence of Moving to Opportunity was that it encouraged participants to move to areas where there were more jobs. But the program could have been rendered

ineffective or even counterproductive for the adults who moved if it severed ties to labor market networks among the movers, perhaps in part because it moved many black participants to areas with smaller minority populations.⁵⁹ The flip side is that similar programs might be more effective if they helped to develop labor market networks in the areas to which people move.

Similar issues arise regarding place-based policies that focus on creating jobs where disadvantaged people live. Economist Helen Ladd describes “the social isolation of many residents in distressed areas” that “results in incomplete knowledge of the labor market and limited exposure to people in the labor market who may serve as the informal contacts needed for successful job searches.”⁶⁰ Depending on how they’re designed, place-based policies (such as enterprise zones) that offer incentives for job creation in disadvantaged neighborhoods may or may not strengthen labor market networks in those areas. In particular, these policies may be ineffective at improving local labor markets because businesses in these neighborhoods may not hire locals. In a case study, sociologists Philip Kasinitz and Jan Rosenberg found that employers relied on hiring networks that excluded local, poor residents, and hired from networks of workers living farther away. (In part, Kasinitz and Rosenberg suggest that employers may have preferred to hire those who lived farther away out of fear that local residents would have trouble avoiding family problems while at work, and could be pressured by other local residents to help burglarize their businesses.)

Thus, policymakers must consider the geographic targeting of efforts to build networks and social capital, and think about

how to design policies to build social capital where it’s needed. For example, if enterprise zones are meant to help the disadvantaged neighborhoods that are the intended beneficiaries, it may be essential to offer incentives only for local hiring.

The Jobs-Plus program, sponsored in the late 1990s by the US Department of Housing and Urban Development and the Rockefeller Foundation, aimed to increase labor supply incentives for public housing residents in a number of US cities by reducing the rent hikes that accompany increases in earnings. Reflecting the problem identified by Ladd, Jobs-Plus tried to encourage the formation of labor market networks or to provide functions similar to those supplied by networks. Most sites had staff job developers responsible for cultivating relationships with local employers in an effort to place Jobs-Plus participants.⁶¹ The program also employed residents as *court captains* or *building captains* who maintained contact with other participants, sharing information about employment opportunities. More generally, Jobs-Plus didn’t just try to change individual behavior. Instead, the program attempted to transform the community through a saturation strategy that targeted all non-disabled working-age residents of public housing projects. This effort was based on the network-related (and peer effect–related) theory that saturation can lead to tipping points, creating a critical mass of employed residents who succeed in the workforce. In theory, employed residents would “signal to others the feasibility and benefits of working, elevate and strengthen social norms that encourage work, foster the growth of work-supporting social networks, and ... contribute to still more residents getting and keeping jobs.”⁶² The attempt to link residents to employment opportunities via job developers

and captains was also meant to provide participants with the labor market contacts many of them lacked.

Some evidence suggests that the Jobs-Plus program delivered higher earnings and employment for its participants.⁶³ But two key problems make it difficult to draw firm conclusions about the value added by the efforts to build labor market network connections. First, implementation of the network component of Jobs-Plus was spotty and encountered unanticipated difficulties. Second, it's hard to tell which specific program components delivered economic gains to participants.

More sobering is the qualitative evidence from reports on Jobs-Plus of problems encountered in trying to build and strengthen labor market networks, often related to the fear of referring an employee who would be unsuccessful, or worse.⁶⁴ But despite these difficulties, the description of implementation reveals numerous cases of job developers and sometimes captains finding ways to link residents to employment opportunities.

Finally, our discussion of learning about social assistance and income-support programs may point to the lowest-hanging fruit that policymakers can exploit to improve economic wellbeing. In particular, if we already have policies like the EITC and SNAP to deliver important improvements in economic wellbeing, then it would seem especially efficient for policymakers to look to network connections among potentially eligible recipients (as well as other ways of increasing information about how to apply for these programs). Should we view such policy encouragements as spurring social capital? We argue that the answer is yes, because these programs were deliberately created to serve those who are eligible—presumably with some calculation of positive benefits relative to the costs underlying the creation of the policy. Still, we imagine that a less controversial and more widely embraced goal is to enhance the capacity of networks to build social capital that leads to more productive workers and jobs, thereby reducing reliance on public support. That challenge, however, is more formidable.

Endnotes

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The Double-Edged Consequences of Beliefs about Opportunity and Economic Mobility

Mesmin Destin

Summary

Beliefs about socioeconomic mobility have important consequences, writes Mesmin Destin, especially for young people. Moreover, research by psychologists shows that such beliefs are malleable, based on the information and circumstances people encounter.

The consequences of beliefs about mobility can be quite positive. When young people perceive that they have opportunities and financial resources to help them reach their goals, they are more likely to take the steps that can lead to upward socioeconomic mobility. But the consequences can also be negative. Overemphasizing opportunities while de-emphasizing systematic barriers and inequality, Destin writes, makes it less likely that people will take collective action against discrimination and address inequality's structural roots.

Destin proposes several ways that policymakers and others could navigate this tension. One, for example, is to convey a more balanced notion to young people: that opportunities are available, but unfair barriers exist that particularly affect members of certain groups. In the end, though, he concludes, perhaps the most effective way to shape people's perceptions of opportunity is to expand the pathways to upward socioeconomic mobility and make them more accessible to all young people.

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One of the most widely recognized values in American society is the idea of the “American dream”—the belief that people who work hard and play by the rules can improve their life circumstances. In more formal terms, part of this belief is known as socioeconomic mobility. Economists have significantly expanded the understanding of how much socioeconomic mobility actually occurs in society. For example, about 45 percent of children born in 1980 into families at the middle of the income distribution earn more than their parents did as adults.¹ Overall, extreme mobility isn’t very likely. Some mobility does occur for a significant number of people, but many people experience no socioeconomic mobility at all. To complicate the picture, rates of socioeconomic mobility differ widely depending on where a person lives, with some of the largest recent declines occurring in the industrial Midwest.² Because people’s experiences—and the stories they tell themselves about opportunities in society—vary so much, the extent to which people *believe* that socioeconomic mobility occurs in society varies widely. A growing amount of research demonstrates that these beliefs have important consequences, especially for young people.

Emerging research regarding people’s beliefs about socioeconomic mobility reveals some new and important insights. First, beliefs about mobility are malleable: people might overestimate or underestimate the likelihood of socioeconomic mobility based on the information and circumstances they encounter. Second, these beliefs matter. An optimistic belief in mobility can have a positive effect on young people’s outlook on life and their pursuit of life goals. At the

same time, a strong belief in the likelihood of socioeconomic mobility can diminish people’s support for policies aiming to increase opportunity and reduce inequality. Altogether, these studies contribute to a model that highlights the central role played by economic inequality in driving people’s beliefs about the likelihood of socioeconomic mobility.

The Foundation of Beliefs about Mobility

The study of people’s thoughts about socioeconomic mobility builds on a long history of research on people’s beliefs about groups in society.³ In short, people have a strong tendency to understand themselves and others around them in terms of the groups they belong to. Dividing a complex social world into discernible groups serves a number of functions: it helps people identify potential allies and threats; it gives them a sense of belonging; and it boosts their sense of self-worth. This pervasive type of social categorization can begin early; even young children can view themselves and others in terms of their membership in visible groups like gender and race.⁴ More recently, this area of research has expanded to consider how people develop an understanding of socioeconomic groups in their society.

When children begin to make distinctions about people’s socioeconomic group membership, they often base these categorizations on the visible lifestyles and material possessions of their families and those around them.⁵ As they move toward adolescence, children develop increasingly complex understandings of socioeconomic groups, and they form their own explanations for socioeconomic inequality between people and groups in society.⁶ For example,

they might pay more attention to structural factors like family wealth and discrimination, or they might lean more toward individual factors like hard work or bad decisions. They also begin to think more concretely about their own goals and possible futures.⁷ These developing ideas and explanations for people's socioeconomic circumstances form the foundation for beliefs about whether a person's status in society is likely to change.

People have a strong tendency to understand themselves and others around them in terms of the groups they belong to.

Measuring Beliefs about Socioeconomic Mobility

Several social psychological studies have developed methods to evaluate people's beliefs about socioeconomic mobility and to draw conclusions regarding whether people tend to overestimate or underestimate the likelihood of mobility in society. In one study, researchers distributed a survey to over 700 participants that included measures of their beliefs about mobility. In one mobility question, they asked participants "to think about 100 people during a ten-year time period from 1997 [to] 2006" and to "assess how many of these 100 people would ... move from the bottom 20 percent of income to the top 20 percent."⁸ Participants significantly overestimated the likelihood of socioeconomic mobility, a pattern that the researchers replicated in multiple additional studies.⁹ Similarly, other researchers distributed a survey to over 3,000 people

across the United States in which they showed participants a figure displaying the country's five income quintiles. They asked participants "to imagine a randomly selected American born to a family in the lowest income quintile and to estimate his or her likelihood of either remaining in this quintile as an adult or rising to each of the four higher income quintiles." On average, participants believed that the individual would have a 43 percent chance of reaching the middle quintile or higher, compared to the actual likelihood of 30 percent.¹⁰

Other studies have drawn different conclusions about people's beliefs regarding socioeconomic mobility. In one set of studies including over 850 participants, researchers found that people underestimated rates of socioeconomic mobility. These researchers asked people to "imagine a group of American children born in the early 1980s" whose parents were in the bottom third of the income distribution. They then asked participants to "estimate the percentage of children in that group who ended up in the bottom, middle, and top third of the income distribution by the time they reached their mid 20s." Participants estimated that 39 percent of the imagined people would experience socioeconomic mobility to the middle or upper third, compared to the actual figure of 51 percent.¹¹ In other work, researchers reconciled the conflicting findings as a function of the different types of measures (specifically, whether participants were asked to think about the income distribution in thirds or in fifths).¹² Such conflicting findings may reflect the fact that people's perceptions of socioeconomic mobility are quite malleable depending on social circumstances and cues in the environment. Other research has indicated that these malleable beliefs about

socioeconomic mobility have important consequences for how people engage with the world around them and pursue their goals.

Positive Consequences of Believing in Mobility

In particular, young people from backgrounds with low socioeconomic status (SES) often receive implicit and explicit messages that school is important because it is a route toward reaching future goals and improving their lives. Experimental studies show that this type of messaging does indeed motivate low SES students to devote more time and energy to schoolwork.¹³ But this route to motivation relies on the belief that socioeconomic mobility is indeed possible. In a series of studies involving high school and college students, researchers directly evaluated the potential relationship between young people's beliefs about socioeconomic mobility and their academic behaviors.¹⁴ First, in a correlational study, low SES high school students completed a measure of perceptions of socioeconomic mobility that included items like "No matter who you are, you can significantly change your status a lot." The study found a significant correlation between stronger beliefs in socioeconomic mobility, on the one hand, and both higher scores on a measure of academic persistence and higher grade point averages, on the other.

Two more experiments advanced the research by testing whether this relationship between perceptions of socioeconomic mobility and academic motivation was causal. In the first experiment, college students were randomly assigned to be guided to endorse either weak or strong beliefs about socioeconomic mobility. The experimental manipulation used a forced-agreement paradigm, which momentarily shifts people's beliefs through the way a survey is constructed: participants

are only given the option to agree with statements, from "somewhat agree" to "strongly agree." In the weak beliefs condition, they can only respond to (and are therefore subtly forced to agree with) statements indicating that socioeconomic mobility is unlikely. In the strong beliefs condition, on the other hand, they can only respond to (and are subtly forced to agree with) statements indicating that socioeconomic mobility is likely.¹⁵ After low SES college students were successfully guided to have temporarily strong (as opposed to weak) beliefs in socioeconomic mobility, they showed more persistence on an academic task.¹⁶ This experiment demonstrated a causal relationship between beliefs about socioeconomic mobility and how students respond to an academic task.

In a second similar experiment, the researchers guided high school students to have momentarily weak or strong beliefs about socioeconomic mobility by viewing figures that, although accurate, were manipulated to emphasize either low or high rates of socioeconomic mobility in society. The low SES students who were randomly assigned to have temporarily stronger beliefs in socioeconomic mobility scored higher on a measure of academic persistence than those randomly assigned to either the weak beliefs condition or a control condition.¹⁷ This and other measures of persistence were significant predictors of students' actual grades, indicating that believing in socioeconomic mobility can have positive consequences for important academic outcomes.

Potential Negative Consequences of Believing in Mobility

Maintaining optimistic beliefs about the possibility of socioeconomic mobility can have consequences that could be considered

negative for society. Most of these potential negative consequences pertain to people's attitudes about inequality and fairness in the world around them. For example, a study including a sample of almost 28,000 participants from 19 countries showed that those from nations with higher rates of socioeconomic mobility showed greater tolerance for inequality in society.¹⁸ In other words, participants who were more likely to see opportunities for economic advancement were less concerned about disparities in income, even when controlling for a wide range of national and individual demographic characteristics.

A rigid belief in meritocracy can perpetuate systemic inequality, with especially negative consequences for members of low status groups.

Experimental methods have provided additional evidence for a causal relationship between beliefs about socioeconomic mobility and attitudes about inequality. One study randomly assigned more than 500 US participants to read articles suggesting either low or high rates of socioeconomic mobility. After reading the articles, those who read about high rates of mobility agreed more with statements like "I think that the current amount of income inequality in the United States is acceptable" than did those who read about low rates of mobility.¹⁹ The mobility articles influenced attitudes about inequality by shaping people's thoughts about their children's possible futures and about meritocracy in society.

Relatedly, in experiments including over 2,800 participants, researchers demonstrated that exposure to "rags-to-riches" stories exemplifying the American dream led people to increase their meritocratic belief that individual factors like ambition explain whether people succeed in society.²⁰ On the other hand, when inequality is made salient, people are more likely to support the efforts of government and business to mitigate the role of structural factors like family wealth and to redistribute resources. In fact, multiple studies have demonstrated that believing mobility can occur leads to a stronger belief in meritocracy.²¹ Although the idea of meritocracy can be viewed as desirable and congruent with American values, a rigid belief in meritocracy can perpetuate systemic inequality, with especially negative consequences for members of low status groups.

Risks of Unwavering Belief in Meritocracy

Many Americans persistently defend the meritocratic belief that people's outcomes in life are primarily a result of their own hard work or lack thereof.²² This belief helps people understand, justify, and find meaning in social hierarchy. Regarding members of higher status groups in particular, the more they endorse meritocratic beliefs, the more they tend to negatively stereotype members of low status groups, feel entitled to their own high status, and downplay claims of discrimination.²³ Meritocratic beliefs have especially strong consequences for how people view individuals with low levels of education, perceiving them as blameworthy and responsible for their life circumstances.²⁴ However, belief in meritocracy is malleable and can be strengthened or weakened by experiences and situational cues. In experimental studies, participants who were

cognitively primed to endorse meritocracy were less receptive to evidence of prejudice, stereotypes, and discrimination faced by low status groups. It is important to note that meritocracy has consequential effects on people's attitudes and behaviors in both high and low status groups.

For members of low status groups, evidence suggests that meritocratic beliefs are linked to having more contact with high status outgroup members, leading them to oppose potentially beneficial reparative policies.²⁵ For example, greater contact with high status outgroup members was associated with a stronger belief that “the law should not make provision for minority groups because of their ethnicity.” On the other hand, more connection with other low status ingroup members was associated with weaker beliefs in meritocracy and stronger support for reparative policies. For example, more contact with low status ingroup members was linked to a stronger belief that “some ethnic groups are currently more disadvantaged than others and require additional assistance.” These beliefs are, in turn, linked to stronger support for reparative policies that aim to counteract the effects of prior injustices, such as restoring ownership of land to indigenous communities.

Meritocracy beliefs can also influence low status group members' ability to effectively pursue academic goals. In one experiment, about 150 fifth-grade students were randomly assigned to either a meritocracy condition, where they read materials reinforcing the idea that those with motivation and ability are the ones who succeed, or a control condition, with neutral reading materials. Compared to the control condition, the meritocracy condition

created an SES gap: low SES students felt that their academic efficacy was lower, and they performed worse on a standardized academic test than did high SES students.²⁶ At the same time, studies show an association between meritocratic beliefs and feelings of control and general wellbeing among low status group members.²⁷ Together, these findings suggest that meritocratic beliefs help low status group members make sense of social hierarchy, but that these malleable beliefs also reinforce people's positions in society, whether they are low or high in status. Ironically, this suggests that a strong belief in meritocracy can undermine the actual ability of low status people to express and realize their potential achievements. It is likely that the most beneficial contextualization of meritocratic beliefs is the idea that effort and ability contribute to people's success in life but are rarely sufficient. In other words, most people must work hard to reach their goals, but hard work is no guarantee of success, which requires other forms of support—and even luck.

The Overarching Role of Inequality

Given that perceptions of socioeconomic mobility can have positive and negative consequences for young people, it is important to understand the broader social and environmental factors that shape these beliefs. Some evidence, for instance, suggests that higher SES itself is associated with a stronger belief in socioeconomic mobility.²⁸ There is more consistent evidence that political orientation is associated with beliefs in socioeconomic mobility, with greater conservatism predicting a stronger belief that people can rise up the socioeconomic ladder.²⁹ Perhaps the broadest social predictor of beliefs about socioeconomic mobility with the most compelling evidence is exposure

Figure 1. Model Depicting the Role of Beliefs about Socioeconomic Mobility in Linking Inequality to Young People's Outcomes



Source: Alexander S. Browman et al., "How Economic Inequality Shapes Mobility Expectations and Behaviour in Disadvantaged Youth," *Nature Human Behaviour* 3 (2019): 214–20, <https://doi.org/10.1038/s41562-018-0523-0>.

to economic inequality. More specifically, greater inequality in a society appears to signal to people that there is a weaker likelihood of experiencing socioeconomic mobility.

A multidisciplinary model provides theory and evidence linking economic inequality to young people's behaviors and outcomes via their perceptions of socioeconomic mobility.³⁰ First, a greater distance between those at the top end of the income distribution and those at the middle and bottom ends decreases young people's belief that they can change their position in the hierarchy. A series of five studies with over 3,000 participants shows direct evidence for this relationship.³¹ In some of these studies, researchers experimentally manipulated inequality by showing participants a pie chart showing the wealth distribution in a participant's state as either highly unequal (with the richest fifth of the population possessing 81 percent of the wealth, and the poorest fifth 1 percent) or less unequal (with the top fifth possessing 35 percent and the bottom fifth 11 percent). Whether it is measured or experimentally manipulated, the perception of greater economic inequality consistently predicts weaker beliefs in socioeconomic mobility.

Another series of correlational studies and experiments found the same relationship between the salience of high inequality and low perceptions of socioeconomic mobility.³² So, as young people occupy different social environments with different cues about the economic distance between social classes, they develop corresponding ideas about whether they and others can likely ascend the economic hierarchy. These ideas have consequences for their own behaviors related to reaching their life goals.

The model linking inequality to perceptions of mobility and outcomes of young people (shown in figure 1) is supported by evidence from multiple academic disciplines. In economics, for example, studies show a connection between economic inequality and an increased likelihood of behaviors—which they explain as driven by economic despair—such as dropping out of school and young parenthood.³³ Similarly, in psychology, the studies described above demonstrate a causal link between the belief that socioeconomic mobility can occur and stronger academic motivation.³⁴ The idea that thoughts about possibilities for the future can guide people's behaviors is grounded in a rich body of theory and evidence.³⁵ In other words, the more that contexts convey that opportunities are

available and remind young people of the goals they aspire to, the more likely it is that young people can effectively pursue those goals. On the other hand, when contexts fail to reinforce young people's desired futures, and instead present many barriers to success, it becomes harder to identify the route to desired goals and to remain focused on it.³⁶

Concluding Points

When young people are led to perceive that they have opportunities and financial resources to help them reach their goals, they are more likely to take the steps that can lead to upward socioeconomic mobility. At the same time, overemphasizing opportunities while de-emphasizing systematic barriers and inequality makes people less likely to take collective action against discrimination and to address the structural roots of opportunity. One way to navigate this tension is to convey a more balanced notion to young people: that opportunities are available, but unfair barriers exist that particularly affect members of certain groups. A complementary approach is to consider *when* particular messages about opportunity in society are most developmentally appropriate. It may be especially important for students in lower SES environments to learn at young ages and during early adolescence that resources and opportunities for advancement exist.³⁷ As they move into later adolescence and early adulthood, young people commonly become increasingly attuned to fairness, justice, and societal complexity.³⁸ During these later years, they may need the support to explore the historical and structural roots of inequality

and opportunity. Altogether, programs that offer young people mentorship to explore their interests and plan for their futures, and that also acknowledge potential individual and structural barriers to their success, can provide this type of robust support.³⁹ On a broader level, such practices can be linked to policies that increase actual opportunity for socioeconomic mobility—such as by reducing racial and economic segregation in schools and neighborhoods.

Most existing research focuses on the consequences of young people's thoughts about upward socioeconomic mobility because that is the type of trajectory that fits the dominant cultural narrative. At the same time, many Americans experience downward socioeconomic mobility—and some studies suggest that people in this country tend to underestimate the likelihood of that trajectory.⁴⁰ This risk has received increased attention in both research and popular media, yet it remains unclear how concerns about moving down the socioeconomic hierarchy might influence young people's motivation and behaviors. It is increasingly important to investigate this topic.⁴¹

People's beliefs about their possible life trajectories are quite malleable, and sensitive to information in their local or broader social context. These beliefs have significant consequences for how young people engage with opportunities in their own lives and make sense of the lives of others. Perhaps the most effective way to shape people's perceptions of opportunities, though, is to expand the routes to upward socioeconomic mobility and to make these paths truly accessible—regardless of potentially challenging circumstances.

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How Discrimination and Bias Shape Outcomes

Kevin Lang and Ariella Kahn-Lang Spitzer

Summary

In this article, economists Kevin Lang and Ariella Kahn-Lang Spitzer take up the expansive issue of discrimination, examining specifically how discrimination and bias shape people's outcomes. The authors focus primarily on discrimination by race, while acknowledging that discrimination exists along many other dimensions as well, including gender, sexual orientation, religion, and ethnicity. They describe evidence of substantial racial disparities in the labor market, education, criminal justice, health, and housing, and they show that in each of these domains, such disparities at least partially reflect discrimination.

Lang and Kahn-Lang Spitzer note that the disparities we see are both causes and results of discrimination, and that they reinforce each other. For instance, harsher treatment from the criminal justice system makes it more difficult for black people to get good jobs, which makes it more likely they'll live in poor neighborhoods and that their children will attend inferior schools.

The authors argue that simply prohibiting discrimination isn't effective, partly because it's hard to prevent discrimination along dimensions that are correlated with race. Rather, they write, policies are more likely to be successful if they aim to eliminate the statistical association between race and many other social and economic characteristics and to decrease the social distance between people of different races.

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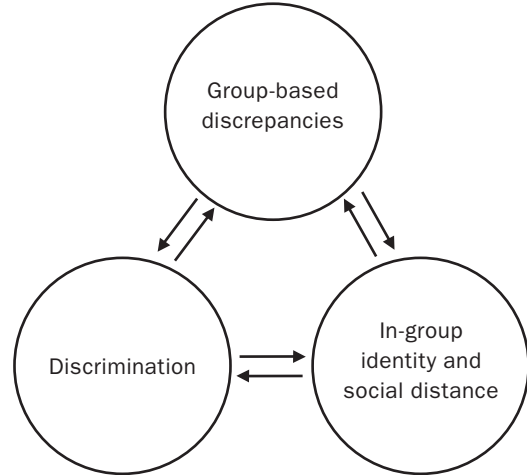
We all use information about the groups to which other people belong so we can determine how to treat them. We may use such information consciously or unconsciously, and it may be based on accurate statistical inference or on inaccurate beliefs. Consequently, our treatment of others can depend on the groups with which we associate them. Using statistical information based on race or other observable factors to make inferences about a person can alter the behavior of either party, or of both: for example, students may respond to their teachers' low expectations by not working hard. In some cases, discrimination is necessary and efficient. But in other cases, it can create and maintain a system of inequality.

In this article we focus primarily on discrimination based on race. However, people discriminate based on far more things than just race, including gender, sexual orientation, religion, ethnicity, and almost any other observable characteristic. Even race itself is a somewhat ambiguous distinction, and one that has evolved over time. Though today many people conflate race with skin color, historically these concepts were distinct. For example, in the first half of the 20th century, southern and eastern European (SEE) immigrants to the United States were considered both white and racially inferior. This is reflected in low rates of intermarriage. In 1910–20, 86 percent of married second-generation Italian women age 18 to 33 were married to first- or second-generation Italian immigrants, a rate of endogamy that's higher than that among Asians and Hispanics today. Over time, in a process that has been described as “becoming white,” the

social distance between SEE immigrants and whites decreased, intermarriage rates increased, and SEE immigrants gradually were no longer considered racially distinct from whites. Some see Asians and Hispanics currently undergoing the same process.¹ In other words, even our conceptions of how we define race, and who belongs to which race, are shaped by societal perceptions and social norms.

In the United States, we have substantial evidence of racial disparities across many domains, including, but not limited to, the labor market, education, criminal justice, health, and housing. The evidence suggests that in each domain, at least some of the disparity is due to discrimination.

Figure 1. Mutual Reinforcement: Disparities, Identity, and Discrimination.



As figure 1 shows, disparities are both the cause and the result of discrimination. The fact that blacks are more likely than whites to come from disadvantaged backgrounds means that, on average, they arrive in kindergarten less prepared for school. This leads some teachers to have lower expectations for their

black students, which can produce further disparities in outcomes. Similarly, disparities both cause and are caused by racial identity. Racial disparities across domains contribute to residential and social distance between groups. Disparities between groups can be incorporated into a sense of within-race identity. Since group membership is important, our identities as a member of a group may also be important to us. We may generate a sense of wellbeing by confirming this identity. We may also be rewarded by other members of the group for confirming this identity, and punished or shunned if we don't. These group identities help create social distance between groups. Differences in language and norms of behavior can lead to miscommunication or to a reduced ability to assess members of a different group. This, too, can contribute to discrimination and reinforce disparities. And identity and discrimination reinforce each other. Identity contributes to the salience of race, and discrimination adds to social distance.

Disparities also reinforce each other. Harsher treatment by the justice system makes it harder for blacks to get good jobs or rent homes in better neighborhoods. This makes their children more likely to attend low-quality schools. And so on. This perspective suggests that ultimately eliminating discrimination would require reducing disparities across a large range of outcomes or finding key points of leverage.

We argue that policy designed to counter discrimination will be most effective when we consider the dynamics of discrimination. Simply prohibiting discrimination doesn't stop it, partly because we can still discriminate based on factors correlated with race. Furthermore, prohibiting discrimination based on factors correlated

with race can actually increase race-based discrimination. Instead, we argue that the most effective policies are those that decrease disparities in outcomes and reduce residential or social distance between races. Increased spending on education for disadvantaged children and more integrated housing and schools are plausible candidates for this sort of focused policy.

What Is Discrimination?

We distinguish between *prejudice*, which refers to tastes, preferences, or inaccurate beliefs, and *discrimination*, which refers to actions or outcomes. Someone who dislikes working for a female supervisor is prejudiced. So is someone who has incorrect statistical beliefs, such as that immigrants are more likely than natives to commit felonies. But if these people don't change their behavior as a result of their prejudice, they aren't discriminating. To discriminate is to actively treat someone differently based on characteristics such as race, gender, ethnicity, or sexual orientation. Moreover, such behavior may not result in a *discriminatory outcome*. If the subjects of the discrimination can easily compensate for or avoid the discriminatory behavior, it is inconsequential. In some settings (but certainly not all), discriminatory behavior by a small number of people can be inconsequential and thus not lead to a discriminatory outcome.

Economists differentiate between *taste-based* (or *prejudice-based*) and *statistical* discrimination. Taste-based discrimination occurs when we treat people differently because we dislike or have false beliefs about people with a certain characteristic—for example, if an employer hires male candidates more often than female candidates because she prefers working with men. In

contrast, statistical discrimination describes differential treatment of individuals based on statistically valid inferences made using group membership—that is, using observable characteristics such as race to make statistically valid inferences that affect how we treat different people.

Statistical discrimination is universal. You're more likely to give up your seat on the bus for an elderly lady than a tall and broad young man. This is based on the perception that the elderly lady needs it more. But you don't know this. The young man may be recovering from surgery. You're just going with the odds. In other words, you're discriminating statistically. We all use signals of dress and, for better or worse, age, sex, and race to make statistical inferences about people and to act on those inferences. Statistical discrimination is often both legal and socially acceptable. Insurance companies pay for routine mammograms for older women but not for older men because the risk of breast cancer among men is low, although not zero. However, whether insurance companies should be able to charge men and women differently for health, disability, life, and auto insurance is controversial and varies among states.

As a society, we also accept taste-based discrimination in some settings. Some state courts have used privacy considerations to permit women-only health clubs as an exception to the civil rights law prohibiting sex discrimination in public accommodations. We often accept taste-based discrimination intended to counteract other forms of discrimination. Though controversial, certain types of affirmative action are legal and broadly considered socially acceptable.

Making the distinction between statistical and taste-based discrimination can be useful,

because understanding which form of discrimination is at work can help us identify potentially effective policy solutions. But even when we can identify discrimination, it's often impossible to distinguish between the two forms.

Discrimination may also be conscious or reflect implicit bias. People may not be aware of the associations they have—associations that may even contradict their expressed beliefs. Implicit discrimination, documented by much evidence from social psychology, occurs when we treat members of groups differently based on these associations.² Thus an employer may unintentionally choose white candidates because she unconsciously associates whiteness with greater intelligence.

Implicit discrimination could reflect dislike or the accurate or inaccurate use of statistical association. Many people who identify as African American also demonstrate implicit bias against their own group, so it's unlikely that the bias is solely dislike. On the other hand, since implicit bias against blacks is more common among whites, it's unlikely that everyone unconsciously uses statistical association in an unbiased way. It's plausible that implicit bias reflects statistical associations unfiltered by rational updating.

Finally, discriminatory outcomes may not be the result of discrimination on the part of a given individual, but rather the result of institution-level policy or practice. For example, a policy that enforces harsher mandatory sentences on possession of crack cocaine relative to cocaine powder disproportionately affects blacks relative to whites, and therefore leads to discriminatory outcomes. In some cases, these policies may have been designed by a discriminating individual or a group of discriminating

individuals. In other cases, discriminatory outcomes may be the unintended effects of the policy or practice. In either case, discrimination at the institutional level can lead to widespread discriminatory outcomes. This is also referred to as *systemic discrimination*. In this article we primarily focus on individual- and group-level discrimination, although many of the factors that favor discrimination by individuals also influence institutional behavior.

Where Do We Discriminate?

Identifying and measuring discrimination is notoriously challenging. We can measure disparities among groups in various settings, but such disparities don't necessarily indicate discrimination. Disparities could reflect differences in preferences, innate differences between groups, and/or unequal treatment that occurred before contact with a given institution. For example, the absence of women in the National Football League could reflect biological differences between men and women, or the fact that young girls have less access to youth football and therefore don't develop the necessary skills and interest. It seems less likely to be driven by the discriminatory exclusion of a substantial number of qualified women.

Disparities in one domain can reinforce disparities in another.

So how do we identify discrimination? We can't conduct randomized controlled trials where we randomly assign some people to be black and others white. We can *pretend* that some people are black and others white,

but as we'll see, that's not quite the same thing. Social scientists have used a number of techniques to try to identify discrimination in a wide range of settings, such as the labor market, medical care, education, criminal justice, and consumer markets, including credit and housing markets.

In this section we provide a brief overview of this research in various domains.³ But these settings don't work in isolation. It's important to note their interconnected nature, which means that disparities in one domain can reinforce disparities in another.

The Labor Market

Substantial research provides evidence of differences in labor market outcomes among members of different races and ethnicities. An author of this article, Ariella Kahn-Lang Spitzer, has shown that in 2010, black men were 28 percent less likely to be employed relative to white men, and those who were employed earned 31 percent less annually.⁴ While this doesn't prove that there's discrimination, it suggests that the labor market is an important domain in which to consider it.

A number of researchers have tried to isolate discrimination by looking at how much of the racial wage gap can be explained by observable characteristics such as education, test scores, location, and so on. Their results depend on the data source and the observable characteristics considered, but nearly all of these studies find that, after accounting for such observable factors, a smaller but still significant wage gap remains.⁵ A typical finding is that the hourly earnings gap between blacks and whites falls by a little over half when we control for age, education, and a measure of cognitive skill.⁶ But this approach has substantial weaknesses that

limit its usefulness to measure the extent of discrimination. First, we may not be able to control for some worker characteristics that are correlated with race, such as measures of school quality. These are often missing from data sets and are imperfect when included, but black people are likely to have attended lower-quality schools. Second, we risk overcontrolling for observable factors. For example, the difference in the occupational distribution of blacks and whites may explain a substantial portion of the earnings differential, but it may also reflect discrimination.

Despite these concerns, it's interesting to note that black and white women who had similar family incomes when they were growing up have similar wages and hours as adults, and thus similar personal incomes. In contrast, even when comparing men from families with similar incomes, black men have notably worse labor market outcomes than do white men.⁷

Although we can't assign race randomly, we can randomly assign résumés to individuals of different races, chosen to look as similar as possible and trained to act similarly, and see whether they have similar rates of interview and job offers.⁸ Such studies, called "audit studies," fairly consistently find that employers discriminate among candidates based on race. For example, when sociologist Devah Pager assigned pairs of auditors to apply for jobs in Milwaukee, she found that white candidates were more than twice as likely to receive a follow-up call as black candidates.⁹ But critics of audit studies point out that despite attempts to match on dress and appearance, such studies may pick up differences between applicants, and there are concerns that the auditors unconsciously bias the results.

To answer these criticisms, University of Chicago economists Marianne Bertrand and Sendhil Mullainathan randomly assigned black- and white-sounding names to résumés they sent to firms that were advertising job openings. By design, as in the audit studies, applicant quality was unrelated to the implied race of the candidate, but applicants with black-sounding names were still less likely to be called for an interview (6.4 percent versus 9.6 percent).¹⁰ There has been some dispute about whether this experiment captures the effect of race or of names. The black female name with the highest callback rate got more callbacks than the white female name receiving the least, and this difference has been larger in other studies.¹¹

More significantly, neither audit nor correspondence studies tell us whether this form of discrimination is important. Workers don't apply to jobs randomly. If black applicants have information about which firms discriminate, they may be able to avoid those firms with very little loss in terms of their labor market outcomes. Alternatively, if applying is sufficiently easy, a lower success rate may be easily offset by a larger number of applications.

Although these studies can provide compelling evidence of discrimination, they don't distinguish between statistical and taste-based discrimination. In an effort to identify whether discrimination is driven by prejudice (taste), economists Kerwin Kofi Charles and Jonathan Guryan compared wage disparities across states.¹² They argue that because only a minority of potential employees are black, if prejudice is the dominant factor behind discrimination then its impact should be driven by how prejudiced the relatively

less prejudiced individuals are. Consistent with this hypothesis, the researchers find that disparities are largest in states with the highest percentage of blacks among their population and, at the same time, where the relatively less prejudiced individuals (the 10th percentile in the state) are nevertheless more prejudiced than their counterparts in other states. This suggests that at least some of the gap between blacks and whites is driven by prejudice.

Education

There's little question that a large achievement gap between black and white children—and a somewhat smaller gap between non-Hispanic whites and Hispanics—emerges by kindergarten. There's some ambiguity as to whether the black-white gap grows or remains constant as children age, at least partially because of ambiguity in how to scale test scores.¹³ Purdue economist Timothy N. Bond and Kevin Lang, an author of this article, have shown that when scores are scaled to predict educational outcomes, the black-white test score gap is fairly stable between kindergarten and seventh grade, remaining in the vicinity of somewhat less than a full year of predicted education.¹⁴

A wide range of factors have been proposed to explain test score gaps, including school quality, home inputs, early childhood education, differences in innate ability, and differences in education quality between and within schools. One strategy to measure the effects of family background is to analyze what share of the black-white test score differential can be explained by observable characteristics. At least some of the studies taking this approach find that controlling for socioeconomic and home environment differences between blacks and whites fully explains the test score gap.¹⁵

That's not to say there's nothing to be done. Teacher expectations can also have meaningful impacts on their students' academic performance.¹⁶ Students perform worse when they're assigned to teachers with lower expectations of their ability, even after controlling for students' abilities. Both black and white teachers have been shown to have lower expectations for their black students, and, indeed, their black students do perform worse than their white students.

At the same time, findings that the black-white test score gap is predictable based on scores in kindergarten—and is also largely, if not entirely, explained by socioeconomic factors—suggest that successful policy may target disadvantaged students generally, rather than being race-specific.

The wide range of factors that contribute to education disparities highlights the interconnected nature of discrimination. Neighborhood segregation, which may in turn reflect housing discrimination or disparities in the labor market, can lead to segregated schools that may have fewer resources than predominantly white schools. Labor market discrimination can lead to socioeconomic status differences, which lead to fewer home resources for children. Another factor that contributes to the racial gaps in educational achievement is *stereotype threat*, the phenomenon by which individuals internalize stereotypes about the groups they belong to, and these beliefs become self-fulfilling. For example, a number of studies have found that when female students are reminded of their gender before a math test, their performance goes down. Similarly, one study found that black students performed worse on a test when it was described as an aptitude test, compared to when it was described simply as a problem-solving task.¹⁷

The fact that blacks, on average, receive less education than whites obscures a lesser-known fact: if we compare black and white students with similar high school test scores, the blacks go on to get more education than the whites. The disparity in educational attainment is driven by blacks' lower test scores, which, as we've noted, are found very early on. Lang and Boston University economist Michael Manove argue that blacks' greater investment in education, given their test scores, reflects their greater need to signal their ability. The authors further argue that this greater investment isn't driven by affirmative action in higher education: only very high-performing black students go on to colleges that use affirmative action, but the difference between blacks and whites is found primarily in the middle of the test score distribution. Thus, compared with a similar white student who would leave school after obtaining a high school diploma, a black student is more likely to attempt an associate degree. We can only speculate about whether this contributes to low completion rates. The twin result of lower test scores and higher educational attainment conditional on test scores suggests that improving cognitive outcomes for blacks through early interventions is likely to be a key way to reduce disparities.

Racial discrepancies are a particular issue in higher education. In 2017, black and Hispanic high school graduates were 16 and 3 percent less likely than white high school graduates, respectively, to attend college.¹⁹ Furthermore, only 38 percent of black enrollees and 46 percent of Hispanic enrollees graduate from college within six years, compared to 62 percent of white enrollees.²⁰ This is partially driven by the fact that blacks, on average, attend

colleges with lower graduation rates—which, in turn, at least partially reflects the preparedness of the students who attend them.

Elite colleges and universities have responded to racial disparities in education by favoring underrepresented groups in admissions decisions, commonly referred to as *affirmative action policies*. There's mixed evidence on how affirmative action affects college enrollment. By one estimate, these policies have nearly tripled the number of black students at elite institutions and more than doubled the number of Hispanic students.²¹ But another study found that when California ended race-based admissions at the University of California, the impact on the student body's racial composition was minimal.²² One explanation is that universities changed their admissions rules to consider factors that served as proxies for race.²³ Critics argue that affirmative action policies could be harmful if the students who are accepted due to the policy are less prepared than their classmates, and therefore struggle academically. Some evidence suggests that within-institution graduation rates for blacks rise when affirmative action is halted.²⁴ But multiple studies have found that affirmative action raises the overall graduation rates of blacks and Hispanics.²⁵

Housing

Recent research demonstrates that neighborhoods are important, especially for young children.²⁶ Neighborhoods vary greatly with respect to safety, amenities, peer characteristics, public transportation, and access to job opportunities. And many resources, including public schools, are

distributed at the neighborhood level. Clearly, residential segregation contributes to the persistence of racial disparities. In the 2010 Census, the average white respondent lived in a neighborhood that was 75 percent white, 8 percent black, 11 percent Hispanic, and 5 percent Asian. In contrast, the average black respondent's neighborhood was 35 percent white, 45 percent black, 15 percent Hispanic, and 4 percent Asian.²⁷ Similarly, fewer than 5 percent of black children grow up in areas where the poverty rate is less than 10 percent and more than half of black fathers are present, while 63 percent of white children grow up in such low poverty areas with at least half of white fathers present. One study estimates that up to 25 percent of the gap in intergenerational mobility between blacks and whites is due to neighborhood effects, although those effects vary somewhat by race.²⁸

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Residential segregation is driven, at least in part, by discrimination. Audit studies—similar to those described above in the Labor Market section—reveal that prospective renters and buyers are treated differently depending on race, although

the differences have generally declined over time.²⁹ Audit studies of mortgage applications would be illegal, but statistical comparisons suggest that blacks are less likely to receive a mortgage loan than whites with similar backgrounds.

Despite this evidence, the degree to which discrimination explains residential segregation is still uncertain. To some extent, residential segregation may reflect preferences on the part of most people to live near others of the same race. Furthermore, residential segregation can arise even if nobody prefers fully segregated neighborhoods. If whites are willing and able to pay more than blacks are to live in heavily white neighborhoods, we may end up with completely segregated neighborhoods even when everyone prefers some level of integration. If, for example, all whites preferred neighborhoods that are 20 percent black while all blacks preferred neighborhoods that are 40 percent black, we could still end up with every neighborhood being either all white or all black.³⁰

The Justice System

Racial disparities exist at almost every level of the justice system. Black and Hispanic Americans are more likely to be arrested, less likely to be released on bail, and likely to receive harsher sentences than white Americans. Black adults are 5.9 times more likely to be incarcerated than are white adults; Hispanics are 3.1 times more likely.³¹ Arrested black and Hispanic youth are also much more likely to be booked than are arrested white youth. Some of this variation can be explained by the characteristics of the offense and the suspect's prior record. But there's ample evidence that much of the discrepancy is due to differential treatment. For example, the American Civil

Liberties Union estimates that blacks are 3.7 times as likely as whites to be arrested for marijuana possession, despite the fact that the two groups have comparable rates of usage.³² Likewise, having stopped a motorist, police are more likely to search the car of a driver whose race is different from their own. Since police officers are disproportionately white, this fact disadvantages blacks and Hispanics.³³

Some of the differences in criminal justice outcomes can be explained by neighborhoods. Booking rates are higher in heavily black and Hispanic areas. Police presence, arrests, and bookings are more common in high-crime neighborhoods, where blacks and Hispanics are overrepresented.³⁴ Because of where they live, white juveniles are less likely to be caught when they commit a crime, less likely to be arrested if they are caught, less likely to be booked if they are arrested, and less likely to have a record if they're caught again.

Substantial evidence demonstrates direct discrimination and racial prejudice in criminal justice settings. One study examined felony trials in Florida's Sarasota and Lake counties, using random variation in the jury pool (not the actual jury) to examine the effect of race on convictions. All-white jury pools convicted 81 percent of black defendants but only 66 percent of white defendants, while pools with at least one black person were likely to convict whites and blacks equally.³⁵

Some recent research is predicated on the argument that if criminal justice officials are prejudiced, if a black person and a white person are treated similarly (for example, they receive the same bail), then

the black person should, on average, have a more positive outcome, such as being more likely to make a court date. One study finds that black defendants are less likely to be released on bail than white defendants who have the same estimated likelihood of reoffending, but that white defendants who are on the margin for release are 22 percent more likely to be rearrested prior to the outcome of the court case.³⁶ Similar studies document racial prejudice in traffic stops and death sentences.³⁷

Not all studies point to discrimination in this direction. Some studies have found that when black and white motorists are stopped and searched, they're similarly likely to be caught with contraband, suggesting that the decision to search isn't prejudicial.³⁸ But the conclusion that the lack of difference in the conditional outcome implies no discrimination relies on strong assumptions about the distributions of probability of having contraband among blacks and whites. In a controversial study, Harvard's Roland Fryer Jr. finds that blacks and Hispanics are more likely to experience the use of force during a police stop but are no more likely than whites to be the victim of a police shooting if they're involved in an interaction. Moreover, when police officers do shoot, they're more likely to shoot first if the suspect is white than if the suspect is black.³⁹

Disparities in Medical Treatment

Health is important, among other things, as an input into a child's educational success and later labor market success. A strong correlation exists between earnings and health, partially because higher earnings buy better medical care, but also because healthy individuals can earn more. There

are clear disparities in medical outcomes by race and ethnicity. In 2015 the Centers for Disease Control and Prevention estimated that the average life expectancy of a non-Hispanic black infant was 3.6 years less than that of a non-Hispanic white infant and 6.8 years less than that of a Hispanic infant. This finding is partially driven by the fact that infant mortality rates are more than twice as high for black babies than for white and Hispanic babies.⁴⁰ At the same time, unless we want to argue that the medical system discriminates in favor of Hispanics, the discrepancy between non-Hispanic whites and Hispanics tells us that we can't automatically ascribe the disparities to discrimination.

A substantial amount of research has documented differences in the medical care received by patients of different races. For example, black patients are less likely to receive such treatments as coronary artery bypass graft surgery, revascularization procedures, and thrombolytics. Some of these disparities reflect differences in where people live and the quality of their health insurance and, therefore, which physicians and hospitals they can access. It's hard to establish whether minorities and whites are treated differently when they have similar conditions and see similar physicians in similar hospitals. Economists Amitabh Chandra and Douglas Staiger argue that if there's discrimination in the provision of medical care, minority patients on the margin of receiving treatment should benefit more from treatment than their majority counterparts do. In contrast, they find that women and black patients realize slightly lower benefits from treatments following a heart attack, despite receiving less treatment. They argue that this suggests that, in fact, doctors may overtreat female

and black patients due to equity and liability concerns.⁴¹

Why are black patients less likely to consume medical treatment? One answer is mistrust, driven by a long history of mistreatment of blacks by the medical field.

One explanation for inferior health outcomes for blacks has been lower usage of medical research and lower compliance with physician recommendations. Blacks are less likely to visit a doctor for either preventive care or treatment. In a study of patients being treated for chronic heart failure by the same physicians at the Veterans Health Administration, blacks were no less likely than whites to be prescribed the recommended medications, but were less likely than whites to comply with the physician's instructions. The study found that the strong adverse effects on blacks of failure to comply accounted for the racial disparity in survival probabilities.⁴²

Why are black patients less likely to consume medical treatment? One answer is mistrust, driven by a long history of mistreatment of blacks by the medical field. Perhaps the most salient example is the Tuskegee Study of Untreated Syphilis, in which black men with syphilis were not informed of their diagnoses but were led to believe they were receiving treatment for a blood condition. Meanwhile, researchers passively observed the course of their untreated disease. Even after an effective syphilis treatment became available, the participants didn't receive access until

1972, when details of the study became public. After the details were released, black men in areas close to Tuskegee lowered their medical usage, causing a 1.5-year drop in their life expectancy.⁴³

Better within-race communication may also explain blacks' lower take-up of medical care. One study set up a pop-up clinic providing preventive services in Oakland, CA, and randomized black men to a black or non-black (white or Asian) physician, about whom they were provided basic information, including a photo revealing the physician's race.⁴⁴ The patients were then offered complimentary cardiovascular screening and a flu shot. After viewing the photo, subject choices were independent of race prior to meeting with a physician, suggesting that the men weren't prejudiced against non-black doctors. But after an in-person meeting, subjects who met with a black physician were more likely to accept the services. Perhaps the black physicians were simply better doctors, or were more persuasive. Two results suggest otherwise. First, the subjects rated the black and non-black physicians equally highly on feedback forms. Second, the few subjects who didn't self-identify as black were less likely to choose the services when assigned to a black doctor. Moreover, black and non-black physicians spent similar amounts of time with the patients for the same services. The authors conclude that communication was better within-race, a finding that's reinforced by the beliefs of both blacks and whites that they communicate better with physicians of their own race.

The poorer communication between non-black doctors and their black patients and the lower rates of compliance by those patients may be causally related. There's often considerable uncertainty regarding the

best treatment for a patient presenting a set of symptoms. If non-black physicians have more difficulty assessing the best form of treatment when working with a black patient, they're more likely to offer the treatment that they believe works best on average. This could result in overtreatment or undertreatment relative to whites, but in either case it will be worse, on average, than treatment that responds more precisely to the patient's condition. Since the treatment offered to black patients is, on average, less likely to be appropriate, the patient has less reason to comply. But, further, knowing that their black patients are less likely to comply with treatment, physicians may also shift their treatment recommendations to those that are less sensitive to imperfect compliance.⁴⁵

Why Does Discrimination Persist?

In many ways, the persistence of discrimination remains a mystery to economists. If there are no true innate differences between groups, then there should be substantial returns to deviating and not discriminating. Thus, employers could make more profit by hiring more minority employees. We'd need only a small number of unprejudiced potential employers to eradicate discrimination. While dominant group members may benefit from maintaining their elite group status, it's implausible that group members could collude in a meaningful way. In this section we discuss some of the mechanisms that allow discrimination to exist and to persist over time.

Identity

One explanation for the persistence of discrimination is the role of group membership in our sense of identity.

According to this theory, individuals define themselves in the context of group membership. Social identification is defined as a “perception of oneness with a group of persons.”⁴⁶ This identification leads people to identify with the characteristics, activities, and organizations associated with their group.

Crucially, identity includes a view of how people in the group should behave and a sense of who is not a group member. George Akerlof and Rachel Kranton suggest that individuals can, to some extent, reduce their otherness by adopting dominant-group behaviors, thereby increasing their social acceptability with the dominant group. But the reduction in otherness reduces the utility derived from behaving as dictated by “own-group” identity. Individuals choose how to behave depending on access to dominant group resources and own-group resources.⁴⁷

In addition to any psychological benefits to identity, group membership offers important social and financial benefits. Groups provide companionship, as well as transfers from other group members. People are more altruistic towards own-group members and those they perceive as more similar to themselves. Economist Eli Berman discusses the many benefits of group membership in his study of ultra-Orthodox Jews in Israel.⁴⁸ Berman points out that group members benefit from access to social insurance, a substantial set of resources reserved for in-group members, community, and even potential marriage partners.

In the Akerlof-Kranton model, group membership is at least partially defined by conforming to the stereotypes of own-group identity. Berman describes this behavior

as highly costly to ultra-Orthodox Jews in Israel, who may study full-time until age 40 while living in extreme poverty. Failing to conform to group norms, he explains, would result in loss of group membership. This may be more intuitive in the context of religion, but Fryer and Northwestern University’s David Austen-Smith document similar mechanisms among black adolescents.⁴⁹ They argue that achieving academic success is viewed as “acting white” and therefore suggests disloyalty to a black identity. Using data on friendship networks and own-race friendships, Fryer and Austen-Smith find that a white student’s popularity is positively correlated with GPA. In contrast, the correlation between GPA and popularity for black students is weak at low GPA levels and negative at high GPA levels. As the authors are well aware, these relationships are difficult to interpret. It’s unlikely that getting good grades makes adolescent students more popular. More likely, it’s the factors that are correlated with good grades that make students more popular. Still, either something weakens the link between these types of factors and popularity for blacks, or getting good grades (“acting white”) actually reduces popularity for black students.

Not all research supports the acting-white hypothesis. Adjusted for socioeconomic background, blacks and whites report similar aspirations for completed education, spend similar amounts of time on homework, and have similar rates of aspirations except among the highest-performing students.⁵⁰ As we’ve already noted, the black-white test score gap at seventh grade is, if anything, less than would be predicted on the basis of kindergarten scores, suggesting that the factors causing poorer performance of blacks are largely socioeconomic rather than racial.

Although, as we've discussed previously with respect to race, the definitions of groups may change over time, the saliency of group membership can have important effects. First, we all use group membership to adjust our inferences about individuals. If police officers believe that blacks, on average, are more likely to commit crimes, they will treat otherwise similar blacks and whites differently; in turn, blacks will respond differently to police officers. The belief may even be self-fulfilling. Second, since group members often share common vernacular, cultural norms, and social circles, employers may find it difficult to identify high-ability out-group workers.⁵¹ This encourages out-groups to shift toward easily observed forms of human capital investment and away from less easily observed forms.

Mutually Reinforcing Disparities

Disparities across domains, whether or not they're caused by discrimination, often reinforce each other. For example, if black children receive lower-quality schooling due to residential segregation and their parents' lower earnings, they will tend to be less prepared for the labor market. The correlation between lower skills and race can lead to statistical discrimination that perpetuates racial disparities above and beyond the intergenerational transmission of economic status that would occur in the absence of racial differences. Due to disparities that affect young children, such as socioeconomic status and residential segregation, black students, on average, arrive in kindergarten less prepared than their white counterparts. If this lowers teachers' expectations for their black students, the students may confirm these teachers' expectations. Lower school performance not only directly worsens labor market

outcomes, but also contributes to statistical discrimination that further adversely affects employment and earnings. As we've said, these disparities can support a sense of racial identity and a view among whites that blacks are other, and thus they contribute to prejudice-based discrimination.

As long as there are salient racial disparities, people will use race as a heuristic to make statistical inferences about people. This creates substantial challenges to developing policies that effectively target discrimination.

Policy Implications

Simply prohibiting discrimination doesn't eliminate it, partly because it's hard to prevent discrimination along dimensions that are correlated with race. Furthermore, as long as there are salient racial disparities, people will use race as a heuristic to make statistical inferences about people, whether valid or invalid. This creates substantial challenges to developing policies that effectively target discrimination, and it suggests that eliminating the statistical association between race and many other social and economic characteristics must be both the goal of policy and the means by which that goal is achieved. As was the case with southern and eastern European immigrants in the early 20th century, doing so will likely come at the expense of elements of culture and identity. In this section we discuss

some of the challenges in designing policy to combat discrimination, and we highlight some promising policy directions.

Integration

While contact between people of different races could theoretically increase or decrease both taste and statistical discrimination, the clear weight of the evidence is that—at least as currently experienced—contact has desirable effects. A meta-analysis of 515 studies found strong overall support for intergroup contact theory, under which such contact tends to reduce prejudice.⁵²

One study used the random assignment of freshmen to squadrons at the US Air Force Academy to examine how being assigned to a squadron with more blacks affects both attitudes and behaviors.⁵³ The study found that having an additional black member in a squadron of roughly 35 people increased the probability of having a black roommate as a sophomore (usually not a freshman squadron member) by about one percentage point, or about 18 percent. However, the authors' estimates imply that having one rather than no black squadron members has no effect on the probability of having a black sophomore roommate if the black member's academic score was substantially below the Air Force Academy average. Similarly, those exposed to more black peers with better admissions scores were more likely to say that they'd become more accepting of African Americans, and less likely to say they'd become less accepting. Again, it appears that attitudes were worsened only if the black squadron members to which they were exposed were substantially less academically prepared than average.

The Air Force Academy study suggests there's a role for policies that increase integration in schools and neighborhoods—at least if the policies don't involve the mixing of groups that are too disparate along other dimensions. The goal is to break down both prejudice and the statistical association between race and disadvantage. Increased exposure to blacks who confirm negative stereotypes is unlikely to be beneficial. At same time, the Air Force Academy experience suggests that fairly large gaps are still compatible with beneficial effects. Subject to legitimate concerns about projecting from results at a unique institution, these results imply that increasing the number of black students at an elite institution is likely to decrease prejudice, even if the average academic performance of the additional students is at the 25th percentile among the institution's enrolled students.

This perspective also sheds light on the debate about whether colleges should be required to use race-blind but not race-neutral policies instead of directly using race in admissions. As we've noted, by relying on correlates of race instead of race itself, colleges have largely been able to maintain the proportion of minorities that they enroll. However, such policies end up enrolling a quite different set of students, with noticeably lower test scores among black students.⁵⁴ In addition, when we use policies that are race-blind but not race-neutral, we may, intentionally or unintentionally, use selection criteria that favor certain groups. For example, a University of Texas rule admitting students who were in the top 10 percent of their high school class not only favors blacks and Hispanics but also favors students from schools with more low-performing students.

Information

As discussed, even when we decide it's not permissible to use characteristics such as race in decision-making, we sometimes permit policies that are race-blind but not race-neutral. This poses two key challenges. First, it requires identifying criteria that are necessary or reasonable for effective screening. Second, limiting information available to decision-makers sometimes has unintended consequences.

In *Griggs v Duke Power Co.*, a 1971 decision it has since overturned, the Supreme Court ruled that Duke Power Company's use of a high school diploma as a requirement for employment in certain jobs was illegal because it had an adverse disparate impact on black applicants, and because there was no business necessity, since many people without high school diplomas had done those jobs successfully. The Court's struggle with disparate impact cases reflects the difficulty of determining whether a practice is designed to discriminate or whether it exists for good reason, with disparate impact an unfortunate unintended consequence. In *Griggs*, the Court ruled that to be permissible, the policy generating disparate impact must be shown to be a business necessity. However, the Court later relaxed this standard.

The standard for justifying adverse impact has become increasingly relevant in the era of big data, when algorithms can predict an individual's race with great accuracy. But given that such algorithms are often quite opaque, an organization could unwittingly use race in its decisions. Consider a judge who, when deciding whether to grant bail, cares only about the probability that the defendant will be rearrested prior to disposition. The judge may turn to an algorithm that predicts

the likelihood of re-arrest. Many predictors of re-arrest, such as number of prior offenses, zip code, and family situation, will be correlated with race. Therefore, any model will create a prediction that's correlated with race. Determining which variables should be included, and how much correlation is too much, is far from straightforward. And as we noted above, blacks who commit a crime are more likely than whites to be arrested. So even an ostensibly unbiased algorithm generated using arrest data will likely result in bias.

It can even be challenging to determine whether a policy limiting the information used in screening will decrease discrimination. Consider the heated debate around the use of criminal records to screen potential employees. We know that revealing a criminal record reduces the probability that a worker will be interviewed or hired. Blacks are more likely than whites to have criminal records. Therefore, requiring information about criminal records could be expected to have an adverse impact on blacks. In response, some cities and states have "banned the box," prohibiting employers from requesting such information on applications, though typically they can later conduct a background check or ask about it during an interview. But when firms can't use criminal records to screen applicants, they may screen by using correlates of criminal history, such as being a young black man. Rutgers University economist Amanda Agan and Sonja Starr, a law professor at the University of Michigan, submitted job applications for black and white male candidates with randomly assigned résumés both before and after the box was banned in New Jersey and New York City. Before "ban the box," companies with the box called black and white male

candidates without criminal records for interviews at similar rates. After the box was banned, callbacks of black men declined relative to otherwise similar whites.⁵⁵

Another study found that when states ban the box, the probability of employment falls by 3.4 percentage points for low-skill young black men and 2.3 percentage points for low-skill young Hispanic men.⁵⁶

Other studies have consistently found that increasing information in hiring tends to help black candidates. Abigail Wozniak, of the Federal Reserve Bank of Minneapolis, finds that drug testing increases the employment of black candidates.⁵⁷ Like Agan and Starr, Wozniak hypothesizes that when employers have less information, they rely more on race to make decisions. Similarly, there's evidence that requirements for occupational licensing increase the share of minority workers in an occupation, despite their lower pass rates on licensing exams.⁵⁸ Another study finds that prohibiting employers from using credit reports in hiring reduced job-finding rates for blacks.⁵⁹ These studies show that adding more information in hiring, even when that information is highly correlated with race, may actually move employers away from using race directly. This suggests a more challenging job for the courts when judging adverse impact cases, further complicated by the fact that hiring practices by one firm tend to impact other firms. Therefore, if a set of firms introduces additional information into hiring practices, the quality of hired workers will likely increase, which may decrease the quality of the available worker pool. More research is needed to understand how these practices impact hiring when this feedback from the practices of individual firms to the pool of job seekers is taken into account.

Leverage Points

We've noted that disparities tend to reinforce each other. University of Washington sociologist Barbara Reskin describes these interrelated disparities as a "system of discrimination," arguing that policies aiming to counter discrimination in one domain must recognize this system or set of interactions. Consequently, she maintains that the most effective solution is a broad policy attack, like the civil rights reforms of the 1960s, that hits many components of the system.⁶⁰ Indeed, evidence suggests that civil rights policies reduced racial disparities in education and earnings.⁶¹

Reskin also argues for policies that target discrimination at *leverage points*—key points at which change is likely to have a substantial system-wide impact. She speculates that residential segregation is particularly promising as a leverage point because many resources exist at a neighborhood level, making disparities almost inevitable. A number of policies could help integrate neighborhoods. These include increasing the stock of affordable housing units in higher-income neighborhoods, reducing exclusionary land-use policies, and making public transportation more available and more affordable.⁶²

Many researchers have pointed to education as a potential leverage point, although generally without using that term. Education, especially early education, is one of the first institutions we interact with in life. To the extent that education gives children the skills they need to be employable and successful as adults, any intervention that doesn't address the disparities in education is likely to be incomplete at best. We have strong evidence that high-quality early education has long-

term effects, and growing evidence that increasing school spending produces better student outcomes.⁶³

Above we discussed the compelling research that teacher expectations affect student performance. Some evidence suggests that educating teachers about how their expectations affect student outcomes can reduce teacher bias.⁶⁴ There's also some evidence that black students who are randomly assigned to black teachers have higher rates of high school graduation and college attendance.⁶⁵ However, assigning black teachers primarily to black students might come at the cost of increasing segregation, especially if it's done by moving black teachers to classrooms with more black students rather than by increasing the supply of black teachers.

Conclusions

We've argued that the strong statistical relation between race and various outcomes fosters statistical discrimination, and that social distance reinforces this discrimination by interfering with within-race preferences and communication across races. Our two goals are therefore to reduce the statistical associations and the social distance. Unfortunately, as in the example of moving black teachers to primarily black neighborhoods, these goals can conflict. When possible, policies that can both decrease disparities and increase integration have the highest potential to decrease discrimination. And, as we've noted, a policy's impacts aren't always consistent with the intent of the policy. We therefore encourage policy makers to enable empirical research on potential policies whenever possible.

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