Washington Center for Equitable Growth

Evidence for a stronger economy

Boosting wages for U.S. workers in the new economy

Ten essays on worker power, worker well-being, and equitable wages

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Washington Center
for Equitable Growth
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The Washington Center for Equitable Growth is a non-profit research and grantmaking organization dedicated to advancing evidence-backed ideas and policies that promote strong, stable, and broad-based economic growth.

Equitable Growth examines whether and how economic inequality—in all its forms—affects economic growth and stability, and what policymakers can do about it.

We work to build a strong bridge between academics and policymakers to ensure that research on equitable growth and inequality is relevant, accessible, and informative to the policymaking process. And we have the support and counsel of a steering committee comprised of leading scholars and former government officials. Members include Atif Mian, Alan Blinder, Lisa Cook, Karen Dynan, Jason Furman, Hilary Hoynes, John Podesta, and Robert Solow.

Since our founding in 2013, we have funded the work of more than 250 scholars and built a broader network through our working papers series, events, and convenings. By supporting research and bringing these scholars together to exchange ideas, we have learned a great deal and advanced a broad range of evidence-based policy approaches to addressing economic inequality and delivering broad-based economic growth to communities and families.

Cover illustration: David Evans

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Foreword

By Jean Ross, Bernard and Anne Spitzer Charitable Trust

The anemic wage growth that has characterized the U.S. economy for decades has deep structural causes that defy easy solutions. For decades, the benefits of economic growth have gravitated toward those at the very top of the income ladder, contributing to growing and increasingly dangerous economic inequality. While we Americans might value shared prosperity as a society, it will remain an elusive goal without comprehensive action to combat stagnant wages. Policy choices have led us to where we are today, and transformative new policies will be required to make real progress.

The Bernard and Anne Spitzer Charitable Trust is honored to support the Washington Center for Equitable Growth and the Institute for Research on Labor and Employment at the University of California, Berkeley in the development and publication of this book, *Boosting wages for U.S. workers in the new economy*, which makes an important contribution to the advancement of our vision of a more equitable and sustainable economy.

As the report notes, for decades, two ideas for lifting the wages of low- and middle-income workers have been prevalent: raising the minimum wage and enhancing education. While research confirms that both are necessary and have important effects, the evidence also suggests that they are not nearly sufficient to overcome the enormous forces in the U.S. economy that exert downward pressure on wages. Those forces are so strong that even in the extraordinarily tight labor market that existed just prior to the coronavirus recession, wages barely budged.

It is clear that structural changes are needed—no single intervention will solve the problem of wage stagnation. This volume includes 10 commissioned essays by forward-looking scholars that outline a wide-ranging set of ideas for tackling this problem. The approaches presented are not confined to traditional labor or human capital issues, but generally fall under three categories:

- Increasing worker power, which has been weakened dramatically with the decline in union membership resulting from both government policy and employer practices

- Improving worker well-being, not only by improving access to education but also by repairing and strengthening the social programs that support families

- Addressing the wage disparities that exist between White workers and Black and other workers of color, between men and women, between employees from different firms, and between workers in different geographic areas

This project brings together a set of labor scholars ranging across multiple disciplines—economics, sociology, management, and law—all of whom are diverse not only in race and gender, but also in the kinds of colleges and universities where they write, teach, and conduct their research. And they are diverse in another way: They are at varying points in their careers. This is a collection of established experts and rising stars with ambitious ideas and a range of perspectives.

Equitable Growth and the Institute for Research on Labor and Employment created a rigorous process to develop the project. They provided authors with feedback on their original drafts in terms of both content and presentation. They convened a half-dozen workshops, all conducted virtually amid the pandemic. And they brought together academics in the relevant fields, policy experts in Washington and elsewhere, and advocates working in the policy arena to make change. I hope you will agree that the results are outstanding.

The project is designed to provide policymakers throughout the new Congress and the new administration with an actionable agenda for transforming the U.S. economy by raising wages, reducing inequality, and producing shared prosperity.

—Jean Ross *is senior program officer at the Bernard and Anne Spitzer Charitable Trust***.**

Overview

By Kate Bahn, Washington Center for Equitable Growth, and Jesse Rothstein, University of California, Berkeley

Broad structural change is needed to boost wages in a U.S. economy that is more equitable to produce strong, sustainable economic growth

The U.S. labor market is shackled by decades of wage stagnation for the majority of workers, persistent wage disparities by race, ethnicity, and gender, and sluggish economic growth. The steady increase of income inequality since the 1970s leaves generations of U.S. workers and their families unable to cope with the daily costs of living, let alone save for emergencies or invest in their futures—conditions that have left many families ill-prepared for the "stress test" of the coronavirus recession.

These labor market ills particularly affect women and workers of color due to decades of gender inequality and structural racism erecting barriers to opportunities. There is increasing evidence that broad structural inequality leads to a misallocation of talent and the undervaluation of different types of work, which contributes to anemic economic growth and slower productivity gains.

Creating an economy that works for everyone and serves those who are historically marginalized requires addressing underlying economic structures that form the foundation for U.S. labor market policies. These unequal structures entrench barriers to opportunity based on race, ethnicity, and gender, and exacerbate the power imbalances that allow employers to undercut wages and allow gains of growth to accrue to the few while stifling a robust, dynamic U.S. economy.

Existing efforts to address wage stagnation and persistent disparities tend to be limited to two narrow approaches: minimum wages and educational investments. Both are critically important, but neither are sufficient to overcome the unequal structures in the U.S. labor market. Minimum wages reach only the bottom of the wage distribution, while increasing education as a response to stagnating or falling

wages at each education level amounts to asking workers to run faster on a treadmill, making little progress against the overall deterioration of worker compensation.

This book, a joint effort of the Washington Center for Equitable Growth and the Institute for Research on Labor and Employment at the University of California, Berkeley, presents a series of essays from leading economic thinkers, who explore alternative policies for boosting wages and living standards, rooted in different structures that contribute to stagnant and unequal wages. The essays cover a variety of strategies, from far-reaching topics such as the U.S. social safety net and tax policies to more targeted efforts emphasizing laws governing American Indian tribal communities and the barriers facing women and workers of color in the science, technology, engineering, and mathematics fields.

These essays demonstrate that efforts to improve workers' access to good jobs do not need to be limited to traditional labor policy. Labor income is still how most Americans achieve security and stability, but the determination of those earnings does not take place in a vacuum. Policies relating to macroeconomics, to social services, and to market concentration also have direct relevance to wage levels and inequality, and can be useful tools for addressing them.

We divide the essays presented in this book into three broad themes:

- Worker power
- Worker well-being
- Equitable wages

Here are brief synopses of each of these themes.

Worker power

In recent decades, worker compensation has failed to keep up with economic growth and productivity. This is, in large part, a reflection of eroding worker bargaining power, which has not been strong enough to ensure that workers receive their fair share of the gains. Decades of declining unionization, poorly enforced labor market protections, and competition policy biased toward corporations have eroded worker bargaining power in the United States. A critical part of boosting workers' earnings is to reverse this erosion and ensure that workers have the bargaining power to claim their share of employer profits.

A first step to boosting wages is making sure that legal protections and statutory minimum wages already on the books are enforced. In their essay titled "Strategic enforcement and co-enforcement of U.S. labor standards are needed to protect workers through the coronavirus recession," Janice Fine, Daniel Galvin, Jenn Round, and Hana Shepherd at Rutgers University's School of Management and Labor Relations highlight novel evidence on the prevalence of wage theft. This occurs when employers violate minimum wage or overtime pay statutes, essentially stealing the wages to which workers are legally entitled.

Unfortunately, workers have little recourse against this wage theft. The enforcement of these laws requires workers to file claims of their own accord, an expensive and risky proposition that is generally out of reach for exactly the groups of workers most at risk of wage theft. Fine and her co-authors propose strategic enforcement for likely violators, such as targeting wage theft investigations for employers in industries with higher rates of wage theft, and co-enforcement with organizations that are more effective at identifying violations, such as worker centers embedded within economically marginalized communities.

But the enforcement of labor standards takes place in an increasingly fissured and global economy. Work is increasingly outsourced from large companies to small contractors, where the large employer may control the work process but can disclaim responsibility for the treatment of workers. This depresses wages and reduces workers' ability to claim the benefits of their productivity.

Economist Susan Helper at Case Western Reserve University discusses what she calls "supply chain dysfunction," or when the outsourced company has little power against the outsourcing company so they must manage supply chain inefficiencies by cutting their own costs, which exerts a further downward pressure on wages. In her essay, "Transforming U.S. supply chains to create good jobs," Helper examines how production is connected across companies and space. She proposes a new industrial policy that addresses the power imbalances of production in the United States. Small companies need to be able to share in the value created by supply chains so they can provide quality jobs, and collaboration and partnership must be promoted, so that supply chain ecosystems across manufacturing and service industries create dynamic and healthy labor markets.

Another, related factor influencing worker bargaining power is the increasing concentration of the economy into a small number of large, dominant employers that are able to exert substantial wage-setting power. In neoclassical models, the fact that many employers are competing for each worker's labor ensures that workers will be compensated in proportion to their contributions, but when employment is concentrated (known as "monopsony"), this assurance falls apart. In "Boosting

wages when U.S. labor markets are not competitive," Ioana Marinescu at the University of Pennsylvania's School of Social Policy and Practice reviews the evidence relating labor market concentration to wages, and proposes antitrust enforcement and increasing worker power as two tools to offset the wage-setting power that comes from further concentration.

It is not only microeconomists who are grappling with the growing disconnect between productivity and wages. This is also an important challenge to standard macroeconomic models. In "Collective bargaining is a path to more equitable wage growth in the United States," economist Benjamin Schoefer at the University of California, Berkeley reviews the macroeconomic literature on the presumptions and evidence for how the macroeconomy works, and finds various policies that promote worker bargaining power, such as sectoral wage determination, may help workers share in the fruits of their own productivity growth.

The policies in any of these essays work in tandem with fostering worker voice. Growing attention on fostering worker power is evident in initiatives such as the clean slate for worker power agenda from Harvard Law School's Labor and Worklife Program. The proposals in the clean slate agenda would boost the effectiveness of each of the topics in this series, including a pathway toward sectoral bargaining and more protections for workers on-the-job.

Worker well-being

The second group of essays considers ways to improve worker well-being, given existing bargaining relationships. In "U.S. labor markets require a new approach to higher education," economist Andria Smythe at Howard University points to universities—anchors of local economic activity and innovation—as key institutions that can contribute to worker well-being. She demonstrates that broad policies that increase access to education also support the higher education industry, which, in turn, fosters an innovative U.S. economy, creating a virtuous cycle that links individual skill-building to local economic activity to a more equitable U.S. economy across cities and regions of the nation.

Furthermore, Smythe details how accessible higher education tightens labor markets by eliminating the need for students to work while in school, which often both limits their engagement with school and takes jobs that might otherwise go to nonstudents. More accessible higher education would increase demand for workers and increase worker bargaining power.

Another policy approach is to adopt labor market policies that enable workers' compensation to go further. An essay by one of the authors of this introduction, Jesse Rothstein at the University of California, Berkeley, and Columbia University's Sandra Black, titled "Public investments in social insurance, education, and child care can overcome market failures to promote family and economic well-being," demonstrates how rising costs of key necessities, such as higher education and medical and child care, as well as increasing risk faced by workers, erodes worker well-being and thus their effective wages.

Rothstein and Black argue that the public provision of early childhood education, the alleviation of student debt, and the provision of comprehensive social insurance such as Unemployment Insurance, retirement security, health insurance, and long-term care insurance would all help build the foundation for workers to have a lower cost of living and security to invest in their economic futures. This kind of social safety net would mitigate downside risks while also fostering a more resilient economy, in which economic shocks and business cycles will be less likely to lead to permanent negative consequences for workers and families.

Another aspect of promoting wage growth for workers are tax policies that influence corporate investment and sharing the gains of productivity growth. In an essay titled "Targeting business tax incentives to realize U.S. wage growth," economist Juan Carlos Suárez Serrato of Duke University describes the different ways that corporations respond to tax cuts. Do they take them as windfalls to distribute to shareholders, with no benefit for workers, or do they use them to invest in productivity enhancements that would lead to increased worker compensation? He suggests that the design of the tax cuts influences their allocation, and proposes that tax cuts need to be linked to wage gains for workers to ensure that companies share gains with workers to improve the well-being of their employees and their families.

Equitable wages

The third group of essays considers strategies for reducing wage disparities to create more equitable wage structures across the U.S. labor market for all U.S. workers. A labor market in which workers from historically marginalized backgrounds are able to access equitable opportunities is a labor market that works for everyone.

In her essay on racial and gender inclusion in the so-called STEM fields of science, technology, engineering, and mathematics, titled "Addressing gender and racial disparities in the U.S. labor market to boost wages and power innovation," economist Lisa Cook at Michigan State University demonstrates how marginalized groups,

particularly women and Black workers, face barriers at each stage of the innovation pipeline, limiting economic growth and prosperity for all. Cook argues for investments, mentoring support, and other practices to not only open the doors to STEM education and research for underrepresented groups, but also to allow Black and women innovators to share in the gains from their work.

Sociologist Robert Manduca at the University of Michigan demonstrates that a great deal of wage inequality ranges across geographic regions. In his essay, "Place-conscious federal policies to reduce regional economic disparities in the United States," he proposes place-conscious universal policies to address geographic wage inequality. Increasing geographic inequality is exacerbated by deregulation in the transportation and communications industries and by weak antitrust enforcement, which favors increasingly powerful companies and well-connected urban areas. Manduca points out that the enforcement of national antitrust policy is especially important in those locations where there are dominant employers, such as those described in Marinescu's essay. Universal programs, such as a broader social safety net and creating jobs through direct public investment and employment, can help boost wages in communities that have been left behind, increasing economic security for workers and families located in these economically depressed regions of the nation.

This book closes with an essay examining one of the most marginalized groups in the U.S. labor market, Native Americans, who face extremely high rates of poverty and unemployment due to myriad economic, social, and political injustices inflicted over centuries of oppression. In his essay, "Sovereignty and improved economic outcomes for American Indians: Building on the gains made since 1990," Randall Akee at the University of California, Los Angeles reviews the current status of tribal communities across the United States. He considers what is needed to create structures, including improving infrastructure and education, that allow for economic growth and prosperity after centuries of marginalization, oppression, and genocide.

Policies that address structural economic issues in tribal reservations can also impact economic inequality in the surrounding regions, particularly in states in the West and Southwest, where American Indians make up larger shares of the population. Akee writes that the specific historical and cultural context of tribal sovereignty is a critical aspect of boosting wages for workers from these communities. He also calls for improving outcomes in tribal communities by improving data collection and researching the barriers to economic development.

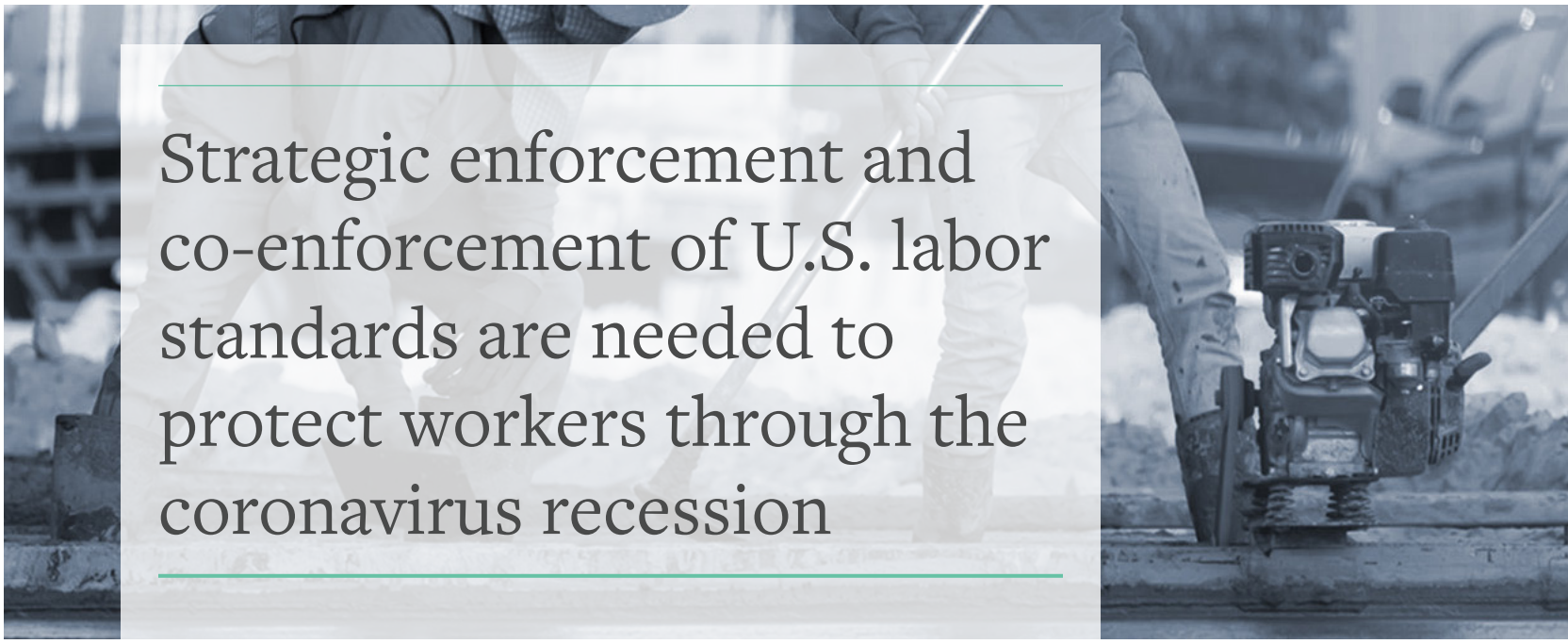
Worker empowerment matters for all policies

A theme that runs across all of these essays is that worker empowerment is crucial to ensuring wage equality and financial security across the U.S. labor market. The essays provide a set of roadmaps for encouraging wage growth and reducing wage inequality by the creation of underlying economic structures that allow workers, particularly those who face the greatest barriers, to advance in their careers, contribute to productivity growth, and share in the gains of a robust and resilient economy.

As the U.S. economy eventually recovers from the coronavirus recession and progresses into another period of economic growth, the policies developed by top academics in this series of essays provide a pathway for more equitable growth. Dealing with the baleful economic consequences of economic inequality now, which the current pandemic has laid bare, would result in stronger and more sustainable economic growth in the years and decades ahead.

Worker Power

Declining unionization, poorly enforced labor market protections, and competition policy biased toward corporations have eroded U.S. workers' bargaining power. Reversing this erosion would ensure workers have the bargaining power to claim their share of employer profits.



Strategic enforcement and co-enforcement of U.S. labor standards are needed to protect workers through the coronavirus recession

By Janice Fine, Rutgers University, Daniel J. Galvin, Northwestern University, Jenn Round, Rutgers University, and Hana Shepherd, Rutgers University

Overview

The coronavirus pandemic and resulting recession combine to create a uniquely dangerous time for low-wage workers. U.S. unemployment hit record highs in April 2020 and remains persistently elevated. And employers are more likely to break labor laws and take advantage of low-wage workers, both in sectors where labor law violations are traditionally high and in sectors that normally have higher rates of compliance. These dangers confront workers because in a pandemic-induced recession they are in even weaker positions to speak up for themselves, report violations, or find new jobs.

Evidence from the Great Recession of 2007–2009 indicates that high levels of unemployment weakened the labor market power of those low-wage workers who remained employed. Our recent research on minimum wage violations during the Great Recession found dramatic increases in these violations that disproportionately harmed noncitizens, Latinx, Black, and women workers.[1] It is therefore critically important that federal, state, and local labor standards are vigorously and strategically enforced during times of economic stress.

Yet state and local governments are facing extraordinary budget deficits. This fiscal crisis makes it even more difficult for state and local labor enforcement agencies to respond to violations, just when this work is needed most. This essay summariz-

es our findings and proposes two complementary frameworks for greatly strengthening enforcement:

- Strategic enforcement, in which labor standards enforcement agencies target high-violation industries and maximize the use of enforcement powers to increase the cost of noncompliance
- Co-enforcement, in which labor standards enforcement agencies engage in sustained partnerships with worker centers, unions, legal advocacy organizations, and other community-based organizations embedded in low-wage worker communities and high-violation sectors

We then put forward some federal policy recommendations to enact these two robust enforcement standards.

What constitutes wage theft?

Wage theft occurs when employers fail to pay workers all of the money to which they are legally entitled. Minimum wage violations are one of the most common means of wage theft, but other forms of this illegal practice include failing to pay workers for all hours worked, for overtime, for paid rest breaks, for legislatively required leave, and for reimbursements for employer expenses. This essay only examines wages lost to minimum wage violations rather than to all forms of wage theft, and thus is a conservative look at the broader crisis workers face.

The problem: High unemployment will likely lead to dramatically increased violations while state and local governments face massive budget deficits

The coronavirus pandemic and the resulting disruption to the global economy is unprecedented in modern times. In February 2020, unemployment in the United States was at 3.5 percent, a 50-year low.[2] By April 2020, unemployment rose to a staggering 14.7 percent, the largest increase in the history of the series.[3] In just 2 months, job losses due to the pandemic surpassed the total number of jobs

lost from December 2007 to June 2009 during the Great Recession.[4] These job losses disproportionately affected Latinx, Black, and female workers.[5] By the end of 2020's third quarter, the unemployment rate remained at 7.9 percent, with 12.6 million people without a job.[6]

Like the current recession, Black and Hispanic communities also faced disproportionate rates of unemployment during the Great Recession. Black unemployment peaked at 16.8 percent, while the Hispanic unemployment rate reached 13 percent, both of which were markedly higher than the 9.2 percent high for White workers.[7] Though shocking, these outcomes are unsurprising, as workers of color are disproportionately employed in industries and occupations that are more vulnerable to cyclical downturns.[8]

While the circumstances surrounding the Great Recession are markedly different, data from that period provide insight into what we can anticipate for workers amid the current coronavirus recession. Using Current Population Survey data, we estimate that the probability that any given low-wage worker would be paid below their applicable minimum wage ranged from about 10 percent to about 22 percent between 2007 and 2013, with each percentage point increase in their state's unemployment rate predicting, on average, almost a full percentage point increase in the probability they would experience a violation. The average amount of money these workers lost to minimum wage violations was 20 percent of their hourly wage, or $1.46 per hour on average. (See Figure 1.)

The chances a U.S. worker will be paid less than the minimum wage rises with the unemployment rate

Probability of minimum wage violations measured against state unemployment rates

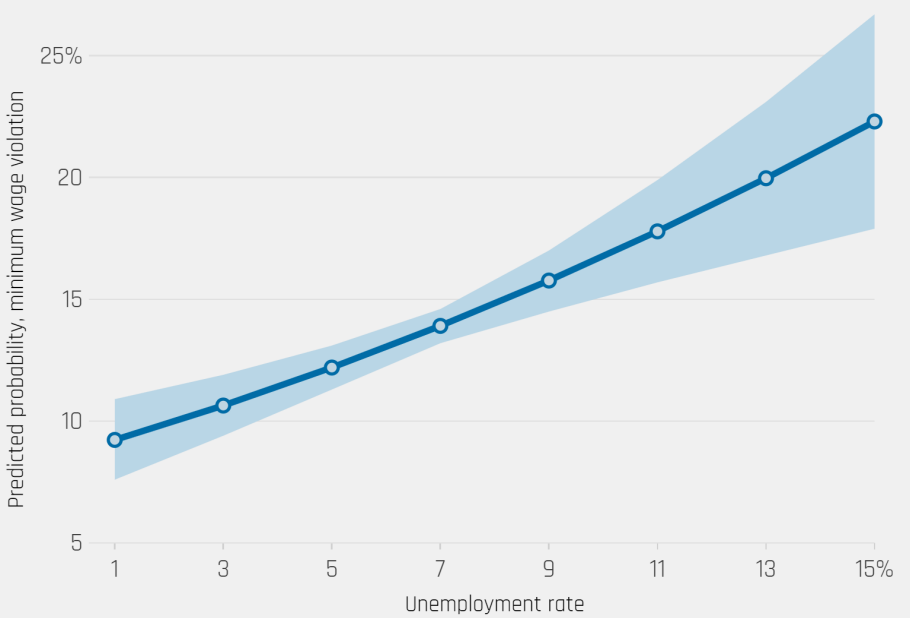


FIGURE 1

...we estimate that the probability that any given low-wage worker would be paid below their applicable minimum wage ranged from about 10 percent to about 22 percent...

Source: Unemployment data from Bureau of Labor Statistics, "States and selected areas: Employment status of the civilian noninstitutional population, Januart 1976 to date, seasonally adjusted" (n.d.), available at https://www.bls.gov/lau/rdscnp16.htm. Minimum wage violation rates calculated using CPS-MORG data, compiled by the Center for Economic and Policy Research, "CPS ORG Uniform Extracts, Version 2.3" (2017).

Notably, the negative consequences of the Great Recession were shouldered by some groups of workers more than others. To assess the relative likelihood that workers in key demographic groups would experience minimum wage violations (relative to the reference group), we examine all workers during the height of the recession and its immediate aftermath in 2008–2010. We find that the probability of experiencing minimum wage violations was much greater for women, noncitizens, Hispanic, and Black workers. When the interaction of gender, race, and citizenship are taken into account, the effects of discrimination are compounded. Hispanic women who were not U.S. citizens, for example, were 2.6 times more likely to experience a minimum wage violation than White female citizens, while noncitizen Black women were 2.4 times more likely. (See Figure 2.)

Immigrants, workers of color, and women are more vulnerable to wage theft

The demographics of workers and the probabilities of minimum wage violations relative to reference group, all U.S. workers, 2008–2010

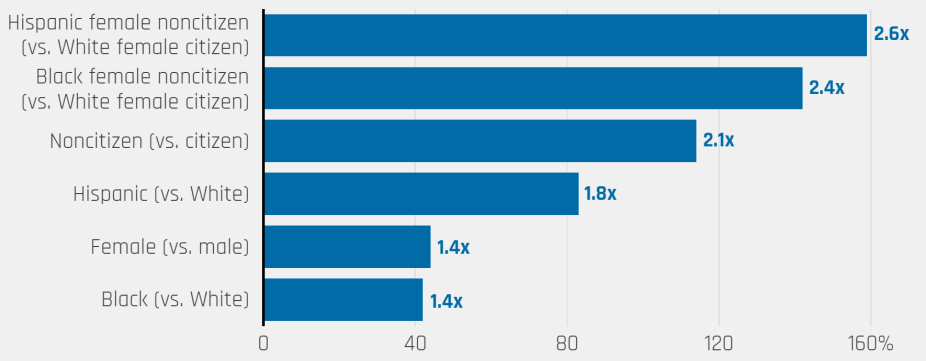


FIGURE 2

...the probability of experiencing minimum wage violations was much greater for women, noncitizens, Hispanic, and Black workers. When the interaction of gender, race, and citizenship are taken into account, the effects of discrimination are compounded...

Note: Comparing average marginal effects. See methodological appendix for multivariate models, sensitivity tests, and corrections for measurement error in Janice Fine and others, "Maintaining Effective U.S. Labor Standards Enforcement through the Coronavirus Recession" (Washington: Washington Center for Equitable Growth, 2020), available at https://faculty.wcas.northwestern.edu/~djg249/WCEG-Fine-appendix.pdf.

Source: Minimum wage violation rates calculated using CPS-MORG data compiled by the Center for Economic and Policy Research, "CPS ORG Uniform Extracts, Version 2.3" (2017.)

New research suggests that minimum wage laws can reduce the racial earnings divide, which is now larger than it was in 1979,[9] as well as income divides.[10] But when the right to be paid the minimum wage is not realized, policymakers can expect the efficacy of such efforts to be curtailed, with dire consequences of minimum wage violations for workers and their families. A 2017 Economic Policy Institute report found that failure to pay workers the applicable minimum wage for all reported hours increased the percentage of workers living in poverty from 14.8 percent to 21.4 percent in the 10 most populous states.[11]

In addition to the extraordinary job losses in the private sector caused by the coronavirus recession, the shuttering of the U.S. economy also sharply reduced public-sector revenues, which, combined with unanticipated expenditures related to the coronavirus recession, leaves state and local governments at all levels with substantial deficits, leading inexorably to more and more mass layoffs of public-sector workers.

As a result of state and local budget cuts, funding for labor standards enforcement is almost certain to decrease. Troublingly, even in times of economic prosperity, there is little funding for labor standards enforcement. A survey by two of the authors of this essay, alongside Greg Lyon at Rutgers University, conducted in 45 states and cities that enacted labor standards laws between 2012–2016, found that 27 percent of the states received no additional funding at all for enforcement, and another 13 percent received $50,000 or less. At the city level, more than 50 percent have no funding whatsoever to carry out the new policies, and another 22 percent have $50,000 or less.[12]

This lack of funding at the state and local levels means that even in some jurisdictions that have passed higher state and local minimum wage policies, the U.S. Department of Labor's Wage and Hour Division is effectively the sole enforcement agency working to ensure compliance. The division, though, has its own resources deficit. As of May 1, 2020, for example, it employed 779 investigators to protect more than 143 million workers, which is significantly fewer than the 1,000 investigators employed in 1948 when the division was responsible for safeguarding the rights of only 22.6 million workers.[13]

Research by labor economists demonstrates that U.S. employers weigh the costs and benefits of minimum wage compliance and are more likely to violate the law if there is a low probability of being investigated or face minimal fines even if they are caught.[14] Without resources for effective enforcement, hard-won state and local minimum increases are at great risk. More broadly, unaddressed wage theft facilitates unfair competition where weaker firms in an industry are able to undercut compliant firms. Widespread wage theft can undermine the whole structure of wages in an industry.

The challenge: Complaint-based enforcement overlooks violations against vulnerable workers

Labor enforcement agencies across the United States overwhelmingly engage in a reactive complaint-based approach to enforcement, in which agencies assume that when workers experience a violation, they will complain to the appropriate public agency that will then investigate it. Complaint-based enforcement became the default mode of enforcement in the early years of the Fair Labor Standards Act of 1938 and largely remained so until the Obama administration.[15] Likewise, in our survey previously cited above, 70 percent of cities surveyed indicated their enforcement is complaint-driven while 54 percent of states interviewed said the same.[16]

Despite the prevalence of complaint-based enforcement, the model is inadequate. First, complaint-based enforcement has failed to keep up with the growth of subcontracting and attenuated labor and product supply chains—new firm and industry structures and strategies and employment arrangements that continue to evolve.[17] Low-wage industries in particular are experiencing an explosion of what David Weil, the former head of the federal Wage and Hour Division, calls the "fissuring" of the employment relationship.[18]

Fissuring occurs when companies shift the direct employment of workers to other business entities through increased reliance on strategies such as subcontracting, use of temporary employees, and independent contracting arrangements.[19] Often, firms are embedded in subcontracting networks, in which one large firm or a few firms are setting the terms of exchange but are not the employers of record for the purposes of labor standards enforcement.

Second, complaint-based enforcement tends to embrace an individualized regulatory approach that conceives of each individual case—or worker complaint—as an isolated and idiosyncratic incident. This means that even a high number of individual cases or complaints are unlikely to lead to structural reforms across an industry. Agencies handle each worker complaint as a separate transaction that yields no other regulatory actions beyond opening and closing the particular case at hand; the case itself is considered apart from the broader structural context from which it emerged and without an eye toward systemic reform.[20]

Third, research on minimum wage enforcement suggests that workers in some of the industries with the worst conditions are much less likely to complain about wage theft.[21] Comparing complaint rates to estimates of underlying minimum wage violations in various state and local jurisdictions across the United States, we find an insufficient overlap to justify enforcement based solely on complaints.

Even in some of the most progressive cities with well-funded local enforcement agencies, there are stunning gaps between the industries with the highest rates of complaints and those with the highest violation rates. Our study of San Francisco, for example, demonstrates that in many industries, the number of minimum wage complaints reported to the San Francisco Office of Labor Standards Enforcement was significantly lower than estimated violation rates in those industries. We compare the actual number of complaints submitted to the agency to estimates of minimum wage violations by industry in 2005–2018, again using CPS data. We find that violations in the private households, social assistance, and food manufacturing industry sectors were among the highest of any industry, but workers in these three industries made very few complaints to the city's labor standards enforcement agency.[22] (See Table 1.)

San Francisco industries with some of the highest violation rates generate few worker complaints

Matrix of wage-theft complaints and levels of compliance, by industry, 2005–2018

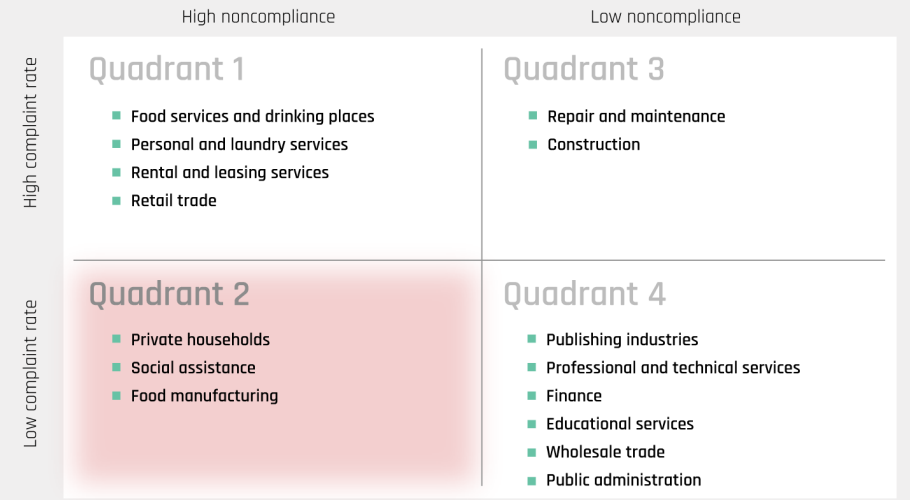


TABLE 1

Even in some of the most progressive cities with well-funded local enforcement agencies, there are stunning gaps between the industries with the highest rates of complaints and those with the highest violation rates.

Source: Minimum wage violation rates calculated using CPS-MORG data, compiled by the Center for Economic and Policy Research, "CPS ORG Uniform Extracts, Version 2.3" (2017). Complaint data provided by the San Francisco Office of Labor Standards Enforcement from May 2019. Employment by industry is from the Bureau of Labor Statistics, "Quarterly Census of Employment and Wages (average annual employment, 2005–2018)" (n.d.).

Another way to think about the extent of the discrepancy between individually driven complaints and minimum wage violations is to calculate a ratio for each industry.[23] In San Francisco, more than 1,300 violations are estimated to occur for every one worker complaint in the private households industry, which largely employs child care workers, personal and homecare aides, and housecleaners. In social assistance, an industry in which a significant number of child care workers, cooks, and homecare and home health aides work, more than 800 violations are estimated to occur for every one complaint. (See Table 2 on next page.)

Such results demolish the premise of the complaint-based enforcement model—that workers whose rights are violated will speak up. On the contrary, we find that some of the most regularly exploited workers are among the least likely to complain. In the complaint-based enforcement model, quiet industries are presumed to be compliant industries, not industries where workers are suffering silently.

The consequences of this faulty assumption are grave. Where enforcement is most needed, few investigations are triggered. Meanwhile, labor standards enforcement agencies inefficiently devote resources to pursuing complaints in far more compliant industries. These inequalities are only likely to be exacerbated in the context of a recession, and particularly amid the current pandemic-induced recession.[24]

The discrepancy between individual complaints and business violations is caused by asymmetries of power between low-wage workers and the firms for which they work. Workers with the least power and few alternative employment options face

Domestic workers and social assistance workers in San Francisco complain the least about wage theft by their employers relative to the number of violations

San Francisco's industries ranked by the ratio of wage theft violations to wage theft complaints, 2005–2018

Complaint case

Industry	Ratio
Private households	1327:1
Social assistance	811:1
Public administration	655:1
Finance	443:1
Waste management and remediation service	392:1
Educational services	372:1
Food manufacturing	293:1
Arts, entertainment, and recreation	210:1
Wholesale trade	160:1
Professional and technical services	159:1
Transportation and warehousing	152:1
Real estate	118:1
Rental and leasing services	101:1
Administrative and support services	78:1
Healthcare services, except hospitals	60:1
Membership associations and organization	59:1
Retail trade	56:1
Construction	49:1
Personal and laundry services	45:1
Accommodation	34:1
Food services and drinking places	30:1
Repair and maintenance	19:1
Textile, apparel, and leather manufacturing	16:1

TABLE 2

In San Francisco, more than 1,300 violations are estimated to occur for every one worker complaint in the private households industry, which largely employs child care workers, personal and homecare aides, and housecleaners.

Source: Minimum wage violation rates calculated using CPS-MORG data, compiled by the Center for Economic and Policy Research, "CPS ORG Uniform Extracts, Version 2.3" (2017). Complaint data provided by the San Francisco Office of Labor Standards Enforcement from May 2019. Employment by industry is from the Bureau of Labor Statistics, "Quarterly Census of Employment and Wages (average annual employment, 2005–2018)" (n.d.).

barriers that keep them from stepping forward to complain much of the time.[25] In a recession, high unemployment increases workers' desperation to maintain any job, thus tipping the power imbalance even further toward firms. Again, looking back at violations during the Great Recession is instructive. We find that workers who belonged to a union were more than three times less likely to experience a minimum wage violation than workers who did not belong to a union.

Just as noncitizen workers and workers of color became more vulnerable during the Great Recession, we expect, given the current coronavirus recession, that they will once again become highly vulnerable but unlikely to file a complaint out of fear of losing their jobs.

Frameworks for changing U.S. labor enforcement standards

Given the likelihood of the persistence of the coronavirus pandemic and recession, what is the most effective framework to enforce labor standards laws when viola-

tions increase and enforcement resources are further diminished? There are two primary, interrelated frameworks that answer this question: strategic enforcement and co-enforcement.

Strategic enforcement of labor standards

Strategic enforcement is a form of systemic regulation that conceives of each violation as a potential signal of a broader pattern of labor market violations.[26] Unlike complaint-based enforcement, in which each case is typically processed as an isolated or idiosyncratic incident, a strategic enforcement model analyzes complaints for underlying causes and targets enforcement resources to high-violation industries.

As articulated by David Weil, the overarching goal of strategic enforcement is "to use the limited enforcement resources available to a regulatory agency to protect workers as prescribed by laws by changing employer behavior in a sustainable way."[27] At the federal level, the main components of strategic enforcement include a proactive, rather than reactive, approach to investigations, targeting industries high in violations but low in complaints, maximizing the extent of legal penalties imposed on violators, informational campaigns to businesses and workers, strategic communications and signaling to employers, robust compliance agreements with violators, and using data to measure effectiveness.[28]

Of course, federal, state, and local enforcement agencies operate in vastly different political climates and with a wide variety of statutory powers and bureaucratic limitations. Accordingly, strategic enforcement cannot be cast in "one size fits all" or "all or nothing" terms. Instead, there is a full complement of tools and techniques that agencies can use at each stage of the process to achieve broad, long-term compliance. Agencies can adopt and incorporate some of these strategic practices and work toward adopting others by taking on administrative and statutory limitations over time. (See Figure 3 on next page.)

Strategic enforcement addresses gaps created by traditional complaint-based enforcement in several ways. First, the use of proactive investigations in targeted industries means enforcement resources are more likely to identify and reach vulnerable workers who are unlikely to complain. Agencies looking to target high-risk sectors in this pandemic-triggered recession should look to those low-wage sectors in which unemployment rates are the highest. These include food service and drinking places; accommodation; arts, entertainment, and recreation; transportation and warehousing; personal and laundry services; private households; retail trade; administrative and support services; and social assistance.[29] Likewise,

FIGURE 3

...there is a full complement of tools and techniques that agencies can use at each stage of the process to achieve broad, long-term compliance.

Source: CIWO Labor Standards Strategic Enforcement Training.

industry research to identify industry structure, influential employers, and widespread noncompliant industry practices help agencies target employers that are likely to get the attention of others in the industry.

In addition to proactive investigations, strategic enforcement includes implementing a triage system to sort complaints, so that high-violation industries with high- and low-complaint rates are prioritized,[30] maximizing the use of statutory tools that are designed to address common enforcement impediments and disincentivize bad-faith employers from acting to obscure noncompliance,[31] and assessing high damages and penalties in addition to back wages owed to deter future violations.[32]

Addressing the fissuring of employment relationships is also key. Holding those with the most power and reputational risk in the contracting relationship liable for downstream violations through joint employment analyses, combined with a press strategy to publicize investigations, is crucial for maximizing the ripple effects of strategic enforcement.[33] Finally, robust collections efforts and tools that ensure workers in fact receive money they are owed and innovative settlement terms that address the root of violations while promoting ongoing compliance are also central components of strategic enforcement.[34]

Co-enforcement of labor standards

Strategic enforcement is a logical response to the coronavirus recession, but it will not succeed unless it is accompanied by a significant enhancement of workers' voices.[35] Simply put, problems will remain hidden unless workers speak up, yet vulnerable workers will not speak up in isolation. Likewise, as strategic enforcement includes moving to a more proactive investigative approach, it renders co-enforcement—sustained partnerships with worker centers, unions, legal advocacy organizations, and other community-based organizations that are embedded in low-wage worker communities and high-violation sectors—essential to addressing the enforcement challenges created by the 21st century labor market.[36]

To illustrate this, we must consider why the vast majority of agencies continue to utilize the complaint-based enforcement model. One reason is that complaints often provide a foundation from which to build a strong case. In reacting to a complaint, before an investigation even begins, the agency has a cooperating witness and an array of information that may include the nature of the violations, how the employer may attempt to hide violations, names of management and ownership personnel, and other facts relevant to the case. Worker participation and evidence is particularly important in establishing violations and back wages owed in more difficult investigations, in which employers have no records or have falsified timesheets and payroll records to appear compliant. Without a connection to the workforce on which the agency can build an investigation, proactive investigations can be daunting and the agency may be unable to establish violations are occurring.

Worker organizations have access to information on compliance with labor standards that would be difficult, if not impossible, for state officials to gather on their own.[37] It is often only when the organization that has relationships with vulnerable workers has vouched for a government agency that they have been willing to come forward. By building on existing trust between workers and organizations, investigators can gain access to the knowledge and information workers possess about violations.[38]

Additionally, through their relationships and local credibility, community organizations can educate workers, encourage them to file complaints, and help to gather testimony and documentation. Drawing on workers' networks, community organizations can also recruit workers from problematic firms and industries by providing a safe space and interpretation and facilitation services, as well as helping state inspectors meet with workers who may be too intimidated to go to a government office. They also exercise a kind of moral power and broaden public support for robust enforcement when they document and publicize egregious examples and patterns of abuse.[39]

Enforcement agencies face a wide range of political pressures not to engage in vigorous enforcement. Worker organizations can act as countervailing points of pressure and when an investigation is undertaken by an agency, through their relationships with workers, can continue to monitor the employer over time, after inspectors have moved on to new cases.[40] (See Figure 4.)

FIGURE 4

Worker organizations can act as countervailing points of pressure and when an investigation is undertaken by an agency, through their relationships with workers, can continue to monitor the employer over time, after inspectors have moved on to new cases.

Source: CIWO Labor Standards Strategic Enforcement Training.

The effectiveness of combining strategic enforcement with co-enforcement is not merely theoretical. One of the greatest success stories comes from California, wherein Julie Su's appointment as labor commissioner in 2011 placed a longtime advocate from a legal advocacy organization who had seen firsthand the inadequacies of the existing system into a top leadership position. Su revolutionized the enforcement model and internal culture of the agency such that the California Labor Commissioner's Office marshalled its full powers, sought additional powers from the legislature over time (with the support of labor and community allies), systematically changed management and personnel practices, and brought community partners into the very center of its strategic enforcement efforts.

These changes achieved powerful results. Through its partnerships, the state's Labor Commissioner's Office is able to focus its resources on cases of a greater magnitude, resulting in the agency finding more violations per investigation and

more wages owed to workers in its history. Under Su, the agency was able to identify many more violations, increasing the ratio of violations to investigations from 49 percent in 2010 to 150 percent in fiscal year 2017–2018, and wages assessed per inspection rose from $1,402 to $28,296 over the same time period. As the Labor Commissioner's Office noted, "better targeting leads [to] fewer law-abiding employers to be inspected, more unpaid wages to be found, and more citations to be issued per employer."[41]

Federal policy recommendations to strengthen strategic enforcement and co-enforcement of labor standards

Given what we know about the impact of the recession on violation rates, the transition to strategic enforcement and co-enforcement is imperative at all levels of government. Maintaining agency budgets to fund strategic enforcement and co-enforcement at all levels of government is a good investment of scarce resources that will better protect the rights of workers and maintain a level playing field for compliant employers.

There are a number of legislative changes, which are more fully outlined here, that should be adopted at the federal level to empower the U.S. Department of Labor's Wage and Hour Division to implement a robust strategic enforcement and co-enforcement program.[42] These include key amendments to the Fair Labor Standards Act to create a number of important strategic enforcement tools, many of which have already been passed at the state and local levels. And they include the creation of a grant program to fund partnerships with organizations that have deep connections to vulnerable, low-wage workers and/or expertise in high-violation industries to facilitate co-enforcement.[43]

Finally, funding for the federal Wage and Hour Division must be appropriated such that the agency has sufficient staff to protect U.S. workers and compliant employers. As of May 2020, the division employed approximately one investigator per 183,568 workers, a critically insufficient investigator-to-worker ratio. The International Labour Organization has estimated a reasonable benchmark is one investigator for every 10,000 workers, a standard that calls for approximately 14,300 investigators in the United States.[44]

That's why, at the very least, funding should be appropriated at a level equal to that requested for FY 2016, wherein the division proposed funding for 2,044 full-time staff.[45]

These additional enforcement resources should be focused on industries hardest hit by the pandemic and where data indicate violations are high and workers are especially vulnerable, with the goal of achieving ongoing, industrywide compliance.[46]

Conclusion

The U.S. labor market today is characterized by growing income inequality, pay stagnation, declines in union participation, and deregulation such that the balance of power largely favors employers at the expense of workers. The coronavirus pandemic in particular threatens to exacerbate this power imbalance and undo the progress made in cities, counties, and states that have raised the minimum wage and passed other innovative worker protection laws.

Policymakers should work to maintain hard-fought state and local gains and consider passing additional federal worker protections. In these efforts, they must prioritize legislation that empowers agencies to engage in enforcement strategies as sophisticated as the industries and companies they are meant to monitor, proactively target those sectors where vulnerable workers are experiencing high rates of violations, implement robust retaliation protections, partner with organizations these workers trust, and impose damages and penalties high enough to compel compliance.

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Transforming U.S. supply chains to create good jobs

By Susan Helper, Case Western Reserve University

The two vignettes that open my essay illustrate the serious job-quality issues faced by U.S. workers and small businesses due to supply chain challenges. These challenges are due to the current structure of supply chains that reduce the bargaining power of workers and small businesses alike.

"After paying about $1,500 for home office equipment: a computer, two headsets, and a phone line dedicated to Arise; after paying Arise to run a check on her background; after passing Arise's voice-assessment test and signing Arise's nondisclosure form; after paying for and passing Arise's introductory training, to which she devoted 3 days, unpaid; after paying for and passing a certification course to provide customer service for Arise client AT&T, to which she devoted 44 unpaid days; after then being informed she had to get more training yet—an additional 10 days, for which she was told she would be paid but wasn't; and then, after finally getting a chance to sign up for hours and do work for which she would be paid (except for her time spent waiting for technical support, or researching customer issues, or huddling with supervisors), Tami Pendergraft spent 3 weeks fielding telephone calls from AT&T customers, after which she received a single paycheck. For $96.12." [1]

> *The owner of a small rubber manufacturing plant in Cleveland explained to me (prior to the coronavirus recession) the consequences of his current low-wage policy. He paid his workers about $12 per hour, resulting in frequent absenteeism, the inability to fire inattentive workers because of lack of replacements, and late fees owed to his customers. Yet even with generous assumptions about the impact of higher wages on his workers' efficiency, he makes a convincing case that raising wages by itself wouldn't pay off. To fill his last 10 positions, he explained, he would need to raise wages for all 60 workers, including those who haven't complained about pay so far. To fix his problems, he believed, he would need to invest in newer, more automated equipment, and pay enough (more than $20 per hour) to attract workers who could and would tend several*

machines. But such equipment costs millions of dollars, and if he takes out large loans to buy this equipment quickly, then it might lead to the loss of his house. He also would have to redesign many of his products to be compatible with the new equipment. He doubts that his customers would pay more, even if quality and delivery improve. And he's locked in competition with other low-wage manufacturers, many of them abroad; his current operations are optimized for the purchasing environment he faces. He thinks he can probably survive until retirement by slowly shrinking as his equipment wears out.[2]

Overview

Decisions about how firms structure their supply chains matter greatly for working Americans, yet this topic rarely takes a front seat in discussions of policies to address income inequality. The customer service agent, the factory owner, and his workers in the vignettes above suffer significantly because of supply chain dysfunction.

Firms have restructured their supply chains significantly in recent decades. They have outsourced many activities previously done in-house by full-time employees to a complex web of outside firms. These outside suppliers manufacture components and provide services such as logistics, cleaning, and information technology.

Some of this restructuring contributes to innovation. As final products become more complex, it makes sense for large firms to purchase key components from firms that specialize in that technology or process.[3] Supply networks based on product specialization do not necessarily reduce wages and could have the opposite effect.

But in other cases, firms outsource so as to offload production onto firms with weak bargaining power. These supplier firms have little ability to compete except by aggressively holding down wages. Aided by rampant worker misclassification, the erosion of workers' bargaining power, and periods of weak regulatory enforcement, these forces further erode the quality of jobs for these downstream workers. This "fissured"[4] or "low-road" model weakens innovation and suppresses wages, contributing to the erosion of U.S. workers' standard of living.[5]

This essay explains how the structure of supply chains affects wages—in particular, why current models of outsourcing and offshoring manufacturing and services operations often lead to worse jobs. I propose policies to make supply chains fairer and argue that these better, "high-road" supply chains also serve other social goals, especially innovation. Specifically, I propose:

- Improving bargaining power for all workers
- Increasing the capability of small suppliers to innovate and provide good jobs
- Redesigning supply chains to promote collaboration among firms, using both carrots and sticks
- Creating a new federal institute to develop and diffuse management practices needed for high-road supply chains because the worker-power policies mentioned above, which would make less-effective (and possibly illegal) many techniques that firms have used to compete, such as low pay and union avoidance
- Enabling the federal government to promote high-road supply chains through its purchasing power
- Strengthening productive ecosystems

To the extent that workers are caught in supply chains with cutthroat competition, policies that attempt to upskill individual workers or contractors without changing the incentives of lead firms will not raise their wages. Thus, policies to reform supply chains will make other pro-worker policies more effective.

Supply chains defined

A supply chain is a network of firms involved in designing, producing inputs for, assembling, and distributing a good or service. (See Figure 1 on next page.)

Overall, 43 percent of U.S. workers are in supply chain industries, employed either at lead firms or their suppliers.[6] Domestic U.S. firms purchase intermediate inputs equal to about 50 percent of their overall output, while intermediate inputs comprise 75 percent of the output of U.S.-based multinationals. Because of deregulation, market failures, and corporate policies, the providers of these intermediate goods are often small, weak firms that compete by cutting corners on existing products and processes, and thus innovate less and pay less.[7]

The customer service agent in the opening vignette is considered an independent contractor. Even though lead firms (such as AT&T Inc. or Walt Disney Co.) demand investments and methods of work that are specific to them, these firms bear no legal responsibility under current (inadequate) law to provide her with work hours

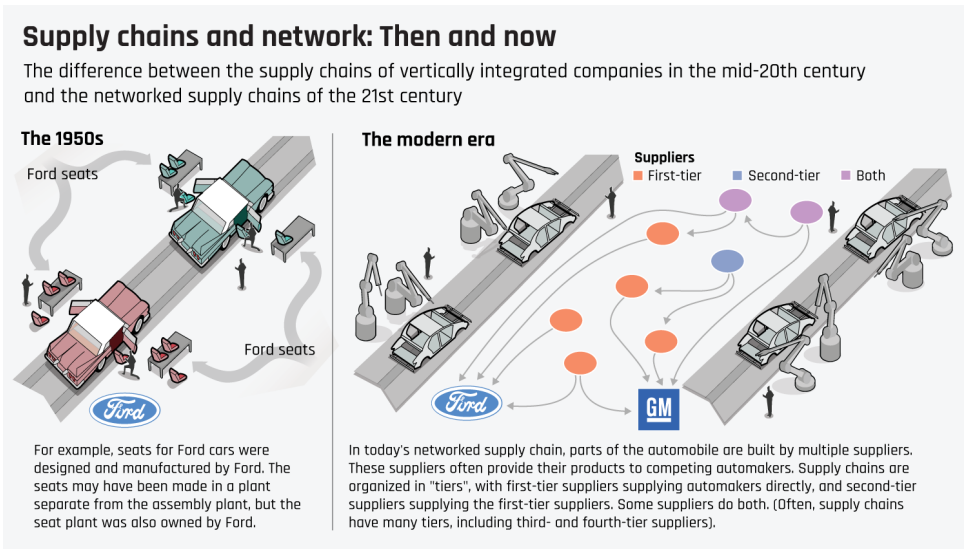

FIGURE 1

A supply chain is a network of firms involved in designing, producing inputs for, assembling, and distributing a good or service.

Source: htttps://equitablegrowth.org/building-high-road-supply-networks-in-the-united-states/.

or to pay for benefits. In a previous decade, she might have been a direct employee of one of these firms, with stable hours and pay that reflected the handsome profits earned by the lead firm. The factory owner in the opening vignette would like to provide defect-free products to his customers and a living wage to his employees, but can't find a way to fund the transformation required, given the terms of competition imposed by his customers and allowed by current law.

Low-road outsourcing is found in services such as payroll, janitorial work, and security, and now includes "employment activities that could be regarded as core to the company: housekeeping in hotels; cooking in restaurants; loading and unloading in retail distribution centers; even basic legal research in law firms."[8] (See Figure 2.)

Examples of unbundling of production

Hotels	Manufacturing
• Cleaning	• Component production
• Reservations	• Product design
• Front desk	• Research and development
• Legal	• Equipment design
• Strategy	• Equipment maintenance
	• Assembly

FIGURE 2

..."employment activities that could be regarded as core to the company: housekeeping in hotels; cooking in restaurants; loading and unloading in retail distribution centers; even basic legal research in law firms."

Source: Susan Helper and Timothy Krueger, "Supply Chains and Equitable Growth" (Washington: Washington Center for Equitable Growth, 2016), available at https://equitablegrowth.org/research-paper/supply-chains-and-equitable-growth/.

Some outsourcing contributes to innovation. As final products have become more complex, it makes sense for large firms to purchase key components from firms that specialize in that technology or process.[9] Supply networks based on product specialization do not necessarily reduce wages and could have the opposite effect.

High-road supply chains are possible. Dana Corporation, for example, is a $9 billion supplier of propulsion systems for both conventional and electric vehicles. They have long supplied multiple automakers based on their innovative capabilities. The company provides a complete electric propulsion system, reducing barriers to entry into the electric vehicle market. Many Dana production workers are unionized, earning $16 to $25 per hour, plus benefits.[10] These highly skilled workers were able to pivot quickly toward using 3-D printers to make face shields during the coronavirus pandemic.[11]

The impact of supply chains on U.S. employment

The outsourcing of work takes several forms, leading to a variety of types of workers in supply chains, sometimes working side by side. In many U.S. companies today, there are:

- Regular employees of lead firms
- Independent contractors working for other companies
- Independent contractors who are self-employed
- Subcontractors, including:
  - At lead firm's site
  - At another site

These employees may be full time, part time, or temporary (except those in the first category).

These forms of outsourcing of employment, especially as carried out in the United States, typically create undesirable outcomes for most of these workers. Compared to regular employees in lead firms, workers in other forms of employment experience worse outcomes in areas such as wages, benefits, job security, and safety.[12]

Research by Nathan Wilmers at the Massachusetts Institute of Technology's Sloan School of Management, for example, finds that firms that sell to a small number of buyers pay lower wages than do similar firms with more customers; this greater dependence on large buyers lowers suppliers' wages and accounts for 10 percent of wage stagnation in nonfinancial firms since the 1970s.[13] It is important to note that most of the workers in Wilmers' study are full-time, regular workers with all the rights and privileges that comes with that employment. Yet because they work in firms with less market power, they earn less.

Why are outsourced jobs generally worse for most workers?[14] Research suggests several reasons:

Rent-sharing. Outsourced workers don't benefit from norms of fairness that limit wage differentials within firms and encourage rent-sharing.[15] It is also easier to fire a supplier than an internal division, due to social ties, complex flows of information, and funds. Thus, wages may creep up at an internal division, leading to cost increases that would lead to an outside firm losing business.

Design for supplier interchangeability. Many lead firms structure their supply chains to make contractors easily replaceable. For instance, U.S. automakers in the past brought product design and complex subassemblies in-house, making it possible to have contractors compete on simple tasks like making a small, pre-designed component. This strategy lowered barriers to entry to being a supplier, meaning that suppliers did not capture many rents.[16] This has led to many lead firms in the apparel industry employing long chains of anonymous subcontractors; Walmart Corp., for example, professed to be surprised when goods marked with its label were found in the aftermath of the horrific Rana Plaza fire in Bangladesh.[17]

Monitoring without accountability. Other lead firms minutely specify the actions to be taken by workers in their supply chains, even those who are not their employees. That is, lead firms can control workers without taking responsibility for paying them benefits. Tight monitoring from lead firms means one of the few profit-making strategies available to subcontractors is to keep wages low.[18] In much gig work, contractors have no pricing power; they must accept the price given to them in the app. In addition, workers for Uber Technologies Inc. and Lyft Inc. are tracked continuously by the two firms using GPS, rating workers based on their speed, harshness of braking, and the efficiency of their routes.[19]

Low supplier capability. As a result of lead firms' strategies that maximize their replaceability and control their work methods, subcontractors' ability to create or capture value is low. Innovation is often not feasible, since it typically requires collaboration and organizational slack. Even though investments might yield productivity improvements, contractors often don't make them because they lack the capability to do so or would not capture much of the benefit due to fierce competition. As a result, subcontractors often cannot increase pay without risking bankruptcy.[20]

Weak ecosystems. Not only do U.S. suppliers lack support from lead firms, they are "home alone" in other ways as well.[21] The reason: There are few institutions to help with innovation, training, or finance.[22] In contrast, Germany's Mittelstand (medium-sized firms) are the backbone of the German manufacturing sector due to the help they get from community banks, applied research institutes, training institutions, and unions.[23]

Policy recommendations for fair, innovative supply chains

A different kind of outsourcing is possible: high-road supply networks that benefit firms, workers, and consumers alike.[24] Under this model, there is greater collaboration between management and workers, and along the length of the supply chain, there is sharing of skills and ideas, new and innovative processes, and, ultimately, better products that can deliver higher profits to firms and higher wages to workers.[25]

Getting to this better outcome, however, requires overcoming both market and network failures. Understanding the rationale for existing practice is key to designing good policies. Below, I propose policies that aim to directly address each of the reasons that outsourcing increases wage inequality. The first two sets of policy recommendations support workers and firms, respectively, more or less in isolation. The last three sets of recommendations improve job quality by redesigning the structure of supply relationships in which workers and firms are embedded.

Reduce bargaining power differences between lead firms and outsourced workers by improving bargaining power for all workers

The pro-labor policies discussed throughout this book would make it easier for workers to choose unions, raise the minimum wage, and provide universal access to healthcare and retirement savings. These policies would promote high-road supply chains, while discouraging low-road strategies.[26]

Increase the capability of small firms for quality and innovation

One consequence of the low-road supply chain practices prevalent among many lead firms is that it hinders the development of innovative capabilities among their suppliers. Government can help upgrade these suppliers' capabilities. For example, it can:

Provide technical assistance, subsidize, and directly engage in efforts to upgrade firms. In manufacturing, for exampe, the Manufacturing Extension Partnership, a state-federal program, has provided technical assistance to small firms since 1989. The program, at its current size, is very effective, with surveys suggesting that $1 of federal investment in the program leads to a $12 increase in economic activity. The Manufacturing Extension Partnership should be expanded significantly and given tools to work with supply chains as a whole, rather than firms one by one.

Develop and diffuse high-road management practices. Management practices within firms are a key determinant of productivity differentials.[27] The management of suppliers by lead firms affects their productivity and innovation.[28] Much research documents the ways that firms can utilize high-road policies or good-jobs strategies to tap the knowledge of all their workers to create innovative products and processes.[29]

High-road firms remain in business while paying higher wages than their competitors because their highly skilled workers help these firms achieve high rates of innovation, quality, and fast response to unexpected situations. The resulting high productivity allows these firms to pay high wages while still making profits that are acceptable to the firms' owners.

Diffusing new management practices is hard and risky, but these practices deliver social, as well as private, benefits.[30] That's why the government should fund the development and implementation of high-road management practice either through a consortium of universities or via a pilot project focused on manufacturing that could be established in the Manufacturing USA network.

Such an institute dedicated to managing a sustainable manufacturing ecosystem could collaborate with the Manufacturing Extension Partnership. The institute could develop and diffuse methods for managing high-road labor practices, establishing collaborative supplier relationships, and developing worker capabilities to participate in discussions of innovation. Such an institute or consortium would be particularly valuable in helping small firms adjust to the worker power policies mentioned above, which would make less effective (and possibly illegal) many of the low-road techniques that firms have used to compete, such as low pay and union avoidance.

Responding to these new rules would require not just changes in labor practices, but also changes in marketing, product development, and information technology to take advantage of the higher-skilled (but also higher-cost) labor entailed by the new policies.[31]

Redesign supply chains to promote collaboration and partnership among firms

Two problems with adopting solely the policies above is that firms embedded in low-road supply chains will have trouble finding capital to invest in innovation, and that

these policies do little to promote information exchange among firms. Thus, it makes sense to redesign supply chains to allow for this greater investment and interchange.

Simply expanding the Manufacturing Extension Partnership alone is unlikely to lead to dramatic effects on job quality. The program already spends a great deal of time marketing its services, and its average project size is less than $15,000—not nearly enough to make the interlocking changes in product development, information technology, marketing, job design, and labor relations that are needed for a firm to move to the high road.

Making such a transition comes with significant risk. Firms need to invest in new equipment and training, and then live with expensive downtime as kinks are worked out of the new systems. The factory owner in the opening vignette could afford to hire the Manufacturing Extension Partnership to help with small projects, but can't afford the high-road transformation described above. He's locked in competition with other low-wage manufacturers (many of which are abroad), his current operations are optimized for the purchasing environment he faces, and he doesn't think his customers would pay more for higher-quality products or reliable delivery.[32]

The federal government can promote supply-chain redesign in two main ways:

Encourage lead firms to build high-road supply chains. Low-road outsourcing strategies are costly to lead firms. These strategies slow innovation in auto manufacturing, for example.[33] And they increase the frequency of infections in hospitals.[34]

In contrast, collaboration among firms along a supply chain can lead to greater productivity and innovation.[35] By breaking down the usual silos within and between firms, lead firms can ensure that workers along the supply chain are exposed to ideas and training, to the ultimate benefit of all.

Collaborative relations could offset some of the stratification effects of outsourcing. Suppliers that collaborate with customers may be less interchangeable; workers at such suppliers may be more skilled and able to capture some of the supplier's rents.[36]

One reason that firms don't adopt high-road supply chain strategies is due to the slow diffusion of new management techniques. A new high-road supply chain initiative led by a new management institute or consortium should teach (and further develop) methods to help firms maximize the total value contribution of their suppliers rather than relying on price per-unit alone.[37]

That's why the federal government should build on the work of the Obama admin-

istration in convening lead firms for a Supply Chain Innovation Initiative, which can drive innovative solutions while complementing a strong regulatory approach.[38]

Even with greater awareness, lead firms are unlikely to capture all the gains to high-road purchasing policies; the benefits of higher wages, for example, spill over to society as a whole.[39] Thus, there remains a significant role for government in promoting high-road supply chains in its capacity both as a purchaser and as a regulator.

Act as a high-road purchaser. The federal government can buy preferentially from companies that use high-road practices. It can require its suppliers to pay prevailing wages, as is required in government-funded construction by the Davis-Bacon Act—a requirement that helps support the apprenticeships and training centers mentioned above. The Obama "Fair Pay and Safe Workplaces" executive order (which has since been overturned) blocked government purchases from companies if they or their suppliers had recent violations of labor laws.

Firms that receive government contracts should pay at least a living wage to their workers and subcontractors. In addition, government should allow prime contractors to count in their bids only 90 percent of the costs of small business subcontractors, as long as the forgiven costs went to investments in wages, training, or equipment. This would enable the government to invest more in contractors who invest more in their people.

The federal government also could offer technical assistance to its own and others' suppliers by expanding the Manufacturing Extension Partnership and the U.S. Department of Energy's Industrial Assessment Centers, which helps firms redesign their operation to conserve energy. Combining Buy America requirements with the Manufacturing Extension Partnership has proven effective. The Obama administration's Department of Transportation enacted rules requiring that any time a federal contractor requested a waiver based on a claim that something can't be made in America, it was published on a website for potential bidders and relevant stakeholders to see. The department contracted with the Manufacturing Extension Partnership's supplier scouting service to identify firms that had the capability to fill these procurement needs.[40]

Government should use its purchasing power to incentivize lead firms to adopt high-road supply chains. Government purchasing policies should include carrots, such as the convening and funding of joint networking, roadmapping, and training efforts.[41] But sticks are necessary, too, such as the enforcement of existing legal provisions that allow inspectors to confiscate "hot goods" at lead firms made by suppliers in violation of labor laws.[42]

The government should require firms that wish to exercise detailed control over workers to be accountable for those workers in order to end abuses such as those experienced by the customer service agent in the opening vignette. The new administration should put in place efforts to fight such misclassification of workers as independent contractors and to treat the lead firms that, in practice, direct the work as joint employers.

The new administration also should establish a commission to discover and end hidden incentives for firms to offshore their manufacturing and services operations. The new commission could recommend, for example, that the U.S. Food and Drug Administration should do unannounced inspections of offshore pharmaceutical manufacturing facilities as they already do for U.S.-based facilities.[43]

Finally, Congress should commission the National Academies of Sciences, Engineering, and Medicine to study the collection of data on supply chains. A potential model is the U.S. Chambers of Commerce's work with the U.S. Census Bureau to create a standard for learning and employment records that employers can use to keep track of employee information.[44] Once this is done, firms can easily opt in to having certain fields within this information automatically uploaded to secure servers at statistical agencies.

Participation in such an effort could be made a condition of receiving government contracts or other government funds greater than a certain threshold, since such data would be needed to determine compliance with proposed requirements for government prime contractors and their subcontractors to provide "good jobs."

Strengthen productive ecosystems

For reasons of both equity and efficiency, workers and small business should not depend solely on lead firms for strategic support. In the United States, the unionized construction sector has developed structures that create good jobs and fast diffusion of new techniques even though the industry remains characterized by small firms and work that is often intermittent.

Training is a way that workers can build their skills and thus potentially increase their wages. Building-trades unions work with signatory employers to provide apprenticeships, continuing-education programs, and portable benefits.[45] Other unions have begun similar efforts to create career ladders for workers in the hotel and hospital sectors.[46] A century ago, the federal government created an innovative farming sector by funding land grant universities, which led not only to the creation of knowledge but also to the creation of durable networks of researchers and practitioners through which such knowledge could quickly spread.[47]

Sectoral partnerships that include employers, unions, and community colleges have shown promise in providing stable, family-supporting jobs.[48]

Conclusion

This essay applies a supply-chain lens to the problem of income inequality. Some of the solutions proposed are fairly standard, such as various methods of paving the high road while blocking the low road. Others are more novel, including creating an institute to develop and diffuse management practices needed for high-road supply chains, directing the federal government to become a high-road purchaser and convenor of lead firms, and helping firms to collect better data on supply chains.

In closing, I note two key features of these proposals. First, complementary policies are needed to promote high-road supply chains. It is ineffective to simply attempt to enforce minimum wage laws when firms can go bankrupt and easily re-enter the market under a different name. Instead, long-term progress requires working with both suppliers and their buyers, using carrots (technical assistance) and sticks ("hot goods" enforcement) to transform production and purchasing practices toward a more productive model.[49]

Another example is that network failures make Buy America alone impractical.[50] Over the past 20 years, the answer in U.S. manufacturing has often been to turn to China because firms are frequently unaware of suppliers nearby who could meet their needs. The combination of supplier scouting and Buy America discussed above is more powerful than either policy alone in bringing good jobs back.

Second, policies aimed at creating high-road supply chains will make other policies more effective at reducing inequality. Training, for example, may well not lead to increased wages if workers are employed by low-road suppliers. Suppliers may be unable to reorganize to productively use the new skills, and gains from improved performance may instead accrue to a monopsonistic lead firm.

If policies such as those suggested above are enacted, then lead firms are likely to reduce outsourcing for the purpose of maximizing their bargaining power, and move both to bring work back in-house and to engage with high-road suppliers for their unique capabilities.

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Endnotes

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Boosting wages when U.S. labor markets are not competitive

By Ioana Marinescu, University of Pennsylvania

Overview

In many local labor markets across the United States, only a handful of employers compete for workers' services. In these markets, employers can take advantage of their market power to underpay workers. Stronger antitrust enforcement can increase competition across all U.S. labor markets, thereby raising wages.

When labor markets are not competitive, two other well-known policy tools can also play a new role—unions and minimum wages. Increasing workers' bargaining power by strengthening unions can counteract the effects of employers' market power and increase wages. Similarly, a moderate increase in the federal minimum wage would lift workers' pay without decreasing employment opportunities or existing jobs. An increase in the minimum wage can even create jobs in those parts of the country where there is little competition among employers.

In this essay, I will detail why so many workers are underpaid due to lack of competition for their labor among employers and how such labor market "monopsony" (the term for a monopoly in the labor market) suppresses wages. I will conclude with specific antitrust and labor market policy solutions to lift workers' wages and incomes to create a more equitable U.S. labor market that contributes to stronger economic growth.

The problem: Workers are underpaid due to lack of competition among employers

Interest in policies that can boost wages is growing today because wage growth

since 1980 has been very limited.[1] Anemic wage growth is disconcerting because there have been steady productivity increases over the same period.[2] To address this issue, a classic prescription from economics is to raise workers' skills by increasing education. The thinking goes like this: If skills increase, then wages go up because workers are paid in proportion to their productivity. The fundamental assumption of standard economics is that wages *exactly* reflect workers' productivity—their contribution to employers' bottom lines.

This assumption is sensible if labor markets are perfectly competitive and there are no frictions in the way of workers finding good jobs that value their skills. If an employer underpays a worker, then that worker can credibly threaten to immediately quit for another job. Therefore, in such a perfectly competitive, frictionless labor market, employers cannot afford to underpay workers if they want to keep them around.

But if labor markets are not perfectly competitive, then education may not be the best tool to raise wages. And in the U.S. labor market, perfect competition is stymied for a number of reasons. One is the lack of competition among employers in many U.S. local labor markets, which makes it hard for workers to shop around for a better wage offer. Another reason is what economists call search frictions: It can be difficult for workers to efficiently search for jobs, for example, because they lack information on jobs far away from their homes. And a third is job differentiation: Jobs differ in many ways, beyond how much they pay. For example, some jobs may be close to a worker's extended family, helping fulfill child care needs, and some jobs provide good health insurance, which is especially valuable to workers whose spouse has a chronic illness. When a job uniquely fulfills some of the worker's personal needs, the employer has some leeway to pay the worker less than the value of their contributions.

For all of these reasons, raising workers' skills may not be enough to significantly boost wages. In the extreme, if there is only one employer in the labor market, an increase in education does not increase workers' wages at all. This is because workers cannot threaten to take their education elsewhere. Without competition, employers are the only ones to benefit from more education through higher productivity.

In the 1930s, economist Joan Robinson already thought about how employers could suppress wages. She coined the term "monopsony" by analogy to monopoly.[3] While a monopoly is a situation where a single firm is supplying a product, monopsony is a situation where a single customer is buying a product. Applied to the labor market, monopsony is a situation where a single employer "buys" workers. This is obviously not perfect competition. While most labor markets have more than one employer, a handful of employers isn't perfect competition either. More broadly, economists have been referring to labor markets with limited competition among employers as monopsonistic labor markets.

Monopoly in the product market has been widely studied by economists, and it is now well-known that product markets are often not perfectly competitive.[4] If so, why should we expect labor markets to be perfectly competitive? Workers typically do not have that many options: Given the specificity of workers' skills, as well as other relevant considerations such as commuting time, the number of good jobs for a given worker can often be counted on the fingers of one hand.

Monopsony is a real problem leading to less worker power, less labor market competition, and wage suppression. Policies that can address monopsony and its root causes will boost wages.

Monopsony in labor markets suppresses wages

If an employer can retain workers even when they underpay them, this opens the door to wage suppression. The concept of labor supply elasticity, which measures how sensitive, or "elastic," workers are to wages, explains how much employers can afford to underpay their workers. If the labor supply elasticity is high, then workers are sensitive to wages, so an employer who underpays workers will run into serious recruitment and retention difficulties. Conversely, when the labor supply elasticity is low, workers are not very sensitive to wage changes, and employers can afford to underpay them without enduring high numbers of workers quitting to go to other jobs, alongside expensive and time-consuming efforts to recruit new workers.

In a competitive labor market, elasticity is high because workers can easily find another good job and will not tolerate being underpaid. With low labor market competition, elasticity is low because workers don't have many good employment options, so they can't afford to be picky about how much they're paid.

To measure the labor supply elasticity in various U.S. labor markets, my co-authors and I recently leveraged data on job applications submitted to CareerBuilder.com, an online job-matching platform, to estimate how sensitive workers are to wages when applying for jobs.[5] Given a number of assumptions, we can calculate how much profit-maximizing firms would underpay their workers, knowing that workers are not very sensitive to wages because of job differentiation. Our rough calculation implies that workers are about 17 percent more productive than the wages they receive. Our calculations also imply that wage suppression is similar for high-wage and low-wage types of jobs, despite the popular view that low-wage workers have more jobs from which to choose, say, as cashiers, retail sales clerks, restaurant servers, or dog walkers. But there are many ways in which jobs differ aside from skills. While low-wage workers may have more transferable skills, they care

more about other aspects of the job, such as commuting time. Job differentiation is important for both high- and low-wage workers, leading to a similar amount of wage suppression.

Low labor supply elasticity measures how sensitive workers are to wage changes within a labor market, and therefore measures employers' ability to keep wages low. The level of market elasticity answers the following question: how many more workers can a labor market attract and retain if wages increase? How much does accounting employment, for example, change in, say Washington, D.C. as wages increase? Are accounting firms in Washington able to attract more accountants from Peoria, IL, or other locations? Can higher wages in the accounting field attract Washington-area consultants with relevant skills?

My co-authors and I find that the market-level elasticity is much lower than the firm-level elasticity. This implies that workers are much more likely to change firms within a labor market than to change labor markets in response to a wage increase. If an accounting firm in my city offers higher pay, then I may well switch to that firm. Yet even if the pay for accountants is higher in another city, I may not be willing to relocate. This result makes sense, given that geographic mobility is low and declining.[6] Furthermore, we know that most workers apply to jobs in their existing commuting zones. Eighty-one percent of job applications occur where the job applicant and prospective employer are within the same commuting zone.[7]

Besides looking at how sensitive workers are to changes in their wages, economists also can investigate how many employers compete for workers in a labor market. This gives another, complementary measure of the degree of competition in different labor markets. Specifically, labor market concentration is a way to measure the dearth of employers in a labor market. We can measure labor market concentration using the Herfindahl-Hirschman Index, which is what regulators already use for measuring the concentration of firms in product markets. The higher the concentration, the less competition there is in the labor market.

To calculate labor market concentration, my co-authors and I use data on all vacancies listed online in 2016, as collected by Burning Glass International Inc., a software company that operates the labor market data site burningglass.com.[8] We find that U.S. labor markets tend to be highly concentrated, with an average HHI of 4,378, which is equivalent to 2.3 firms hiring in the case of equal number of job vacancies for each firm. Imagine that 50 percent of accounting jobs are posted by firm A, and the other 50 percent by firm B; this is roughly the degree of competition you can expect to find in the average U.S. labor market. Overall, 60 percent of labor markets in the United States are highly concentrated, according to the high concentration threshold defined by U.S. antitrust authorities' 2010 Horizontal Merger Guidelines.[9]

These highly concentrated labor markets account for 20 percent of U.S. employment. Larger cities generally have lower labor market concentration, whereas rural areas tend to have more concentrated labor markets.[10] These findings imply that many workers experience low labor market competition, and that workers in less-densely populated areas are especially affected. This may contribute to explaining why wages are higher in urban areas.[11] (See Figure 1.)*

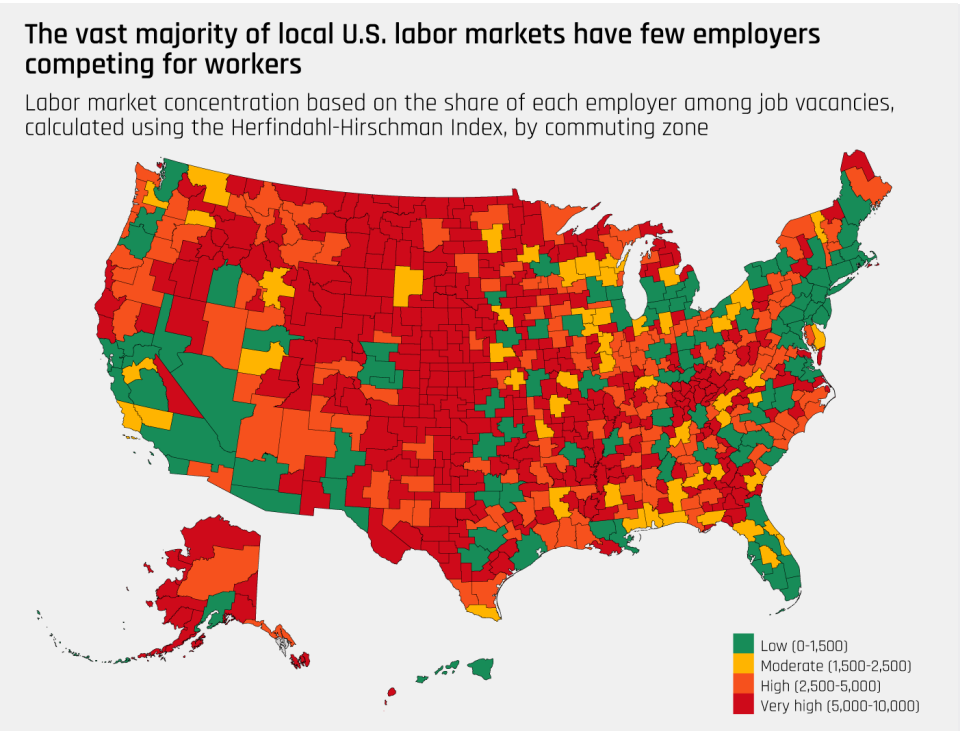

FIGURE 1

Larger cities generally have lower labor market concentration, whereas rural areas tend to have more concentrated labor markets.

Note: The figure shows average labor market concentration calculated using the Herfindahl-Hirschman Index, an antitrust tool that measures market concentration. The concentration is calculated using job vacancy postings collected by Burning Glass Technologies. A higher concentration means that there are fewer employers posting job vacancies and/or that some employers post a large share of the vacancies in the market.

* **Correction, January 21, 2021**: This figure has been revised to reflect an updated version of the map.

Source: José Azar and others, "Concentration in U.S. Labor Markets: Evidence from Online Vacany Data," Labour Economics 66 (2020), available at https://doi.org/10.1016/j.labeco.2020.101886.

Antitrust policy for U.S. labor markets

Federal antitrust authorities use powers granted under the Sherman Antitrust Act of 1890 to combat monopolies. From the time of the passage of this landmark legislation up to today, there is a clear sense that, left unchecked, companies will attempt to monopolize product markets, leading to inflated prices for consumers. Until recently, however, antitrust enforcers mostly did not acknowledge that employers can engage in similar anticompetitive behavior to suppress wages in labor markets.

Today, there is growing attention among labor market economists and antitrust authorities alike on the role of competition in labor markets, spurring a new set of empirical literature. This literature, including the evidence described in the previous section, shows that labor markets suffer from a lack of competition, which allows employers to suppress wages.

Yet federal antitrust enforcement remains focused on product markets, with almost no action to address a lack of competition in labor markets.[12] Given the new evidence for a lack of competition, labor antitrust enforcement must be enhanced in the following ways:

- Corporate mergers should require monopsony antitrust investigation and enforcement.
- Labor market monopsony requires its own antitrust investigation and enforcement.

Let's look at each of these enforcement issues in turn.

Corporate mergers should require monopsony antitrust investigation and enforcement

Company mergers that significantly increase labor market concentration should be scrutinized by antitrust authorities, following the same principles as for mergers in the product market.[13] Mergers that threaten to produce anticompetitive wage suppression should be blocked. This is not a new policy but merely an expansion of existing antitrust enforcement to U.S. labor markets.

Blocking mergers that significantly increase labor market concentration will boost wages. Indeed, wages generally decrease when labor market concentration increases.[14] Focusing on mergers specifically, economists documented that mergers decrease wages when labor market concentration significantly increased in the aftermath of the merger.[15] The evidence ranges across an array of markets, including hospitals and manufacturing industries.

Strengthening merger enforcement and allocating more resources to federal antitrust agencies could already raise wages.

Strenthen antitrust enforcement across the board to better protect workers from anticompetitive harm

Beyond mergers, antitrust enforcement against monopsony conditions in U.S. labor markets should require its own set of investigation and enforcement actions. This expansion of antitrust enforcement would be facilitated by a new law that would codify, clarify, and, in some cases, strengthen antitrust law as it applies to labor markets. Such a law would guide the decisions of judges in labor antitrust cases and would facilitate the work of federal antitrust agencies.

This new ability to enforce anti-monopsony actions also would facilitate private litigation against companies that lower wages through anticompetitive conduct. To achieve this objective, we propose federal legislation that would clarify that the antitrust laws protect workers from anticompetitive abuses.[16] The proposed bill, for the most part, draws on existing doctrine and concepts developed by courts for product-market litigation and applies them to labor markets.

Our legislative proposal begins with a simple restatement of Section 2 of the Sherman Act, except that we replace "monopolize" and related words with "monopsonize," and add the term "labor market":

> *It shall be unlawful for any employer engaged in commerce, in the course of such commerce, to monopsonize, attempt to monopsonize, or combine or conspire with any other person or persons to monopsonize, a labor market.*[17]

We then define a set of anticompetitive behaviors for which employers with market power would be liable. Such anticompetitive behaviors include mergers, the use of noncompetition clauses (or noncompetes), and mandatory arbitration provisions in employer-employee wage and job disputes. These proposals would likely increase wages by strengthening competition in the labor market, which makes it harder for employers to underpay workers.

Unions counteract employers' market power

Antitrust enforcement in labor markets would increase workers' options within those labor markets, but unions can increase workers' bargaining power within firms. Union households in the United States in the 20th century boasted about 20 percent higher incomes, while the decline of unions beginning in the last quarter of that century contributed to wage stagnation and growing income inequality.[18]

Specifically, unions counteract the negative effects of labor market concentration on wages. As detailed above, increases in labor market concentration tend to depress wages, yet this negative effect of concentration on wages is attenuated in the presence of unions.[19] In other words, when labor markets become less competitive, unions are able to protect workers and keep their wages high, even though outside options are dwindling.

Worker power in the form of unions can thus counteract employer power. Unions are able to boost wages by weakening the adverse effects of a lack of competition in labor markets. This implies that policies that support unions could boost workers' wages. More broadly, policies that enhance workers' bargaining power have

the potential to boost wages by counteracting the depressing effects of a lack of competition in the labor market.

Minimum wages and labor market competition

So far, we've seen that wages can be increased by strengthening competition using the antitrust toolbox and by boosting workers' bargaining power with unions. Yet the most obvious solution to raising wages may well be raising the federal minimum wage. Instead of promoting wage increases through indirect mechanisms, this policy directly increases wages by simply mandating wage increases for the lowest-paid workers.

One common concern when raising minimum wages is that this could decrease employment opportunities. When you make labor more expensive, employers want to buy less of it, the argument goes. This all makes sense in a perfectly competitive labor market, where workers are paid according to their productivity. If you impose a minimum wage in such a competitive market, this thinking goes, then you are asking employers to pay some workers more than their productivity. Employers theoretically respond by laying off workers who are now too expensive, which results in employment declines.

But U.S. labor markets are demonstratively not perfectly competitive. When labor market concentration is high and competition is low, employers are underpaying workers even though firms can afford to pay their workers more. As long as the minimum wage is at or below workers' productivity, employment should not decline. Instead, with a higher minimum wage, workers would get a raise and employment could even increase.

Ultimately, raising the minimum wage boosts wages directly by mandating a floor for low-wage workers while also generally offsetting employer monopsony power to undercut wages. My co-authors and I test this theory.[20] We use U.S. labor market concentration to measure the degree of competition in a labor market. In competitive markets with low labor market concentration, which includes areas in and around most major cities (shown in the green and yellow areas in Figure 1), raising the minimum wage did have a slightly negative impact on employment, consistent with the basic economic theory that predicts that higher wages reduce the demand for labor.

But in less-competitive labor markets with high labor market concentration, such as those in less-densely populated areas of the country (shown in red and orange areas in Figure 1), raising the minimum wage *increases* employment. In those

markets with high labor market concentration, employers could afford to pay more but faced little pressure to do so before a minimum wage increase. Because firms in these areas can underpay workers, employers could not attract as many of them, yet underpaying the workers they could get was more profitable than paying more and getting more workers. When the minimum wage increased, employers in high-concentration areas had to pay more and could afford to do so. This, in turn, allowed them to attract more workers and increase employment.

Overall, across all markets, my co-authors and I find that the effects of the minimum wage on employment is null because the employment increases in highly concentrated labor markets offset the employment decreases in less-concentrated labor markets.

Our finding can help explain why minimum wage increases often had no effect on employment, even though minimum wage increases sometimes decrease employment and sometimes increase it. The effect of raising the minimum wage depends on the state of competition in different labor markets—the less competition there is, the more likely it is that raising the minimum wage will actually increase employment and the less likely we are to see a negative employment effect.

These findings show that some opponents of raising the federal minimum wage are mistaken when they argue that more rural areas of the country would be harmed by a high wage floor. Our research shows that workers in more rural parts of the country are actually underpaid due to less-competitive labor markets. Raising the minimum wage in those areas may have no effect on employment or could even increase employment as more people are drawn into the labor market.

Nevertheless, policymakers need to exercise caution when increasing the minimum wage because setting it above workers' productivity would decrease employment even in the presence of employer power. Prudent policymaking would raise minimum wages moderately and keep them close to worker productivity. The increase in overall labor productivity, together with the stagnation of the federal minimum wage since 2009, constitute a strong case for an increase in the federal minimum wage. Evaluating the employment effects of minimum wage increases will allow policymakers to adjust the policy as needed going forward. Currently, there is likely a lot of room to increase the federal minimum wage before we see a negative effect on employment.

Conclusion

In perfectly competitive labor markets, workers are paid according to their productivity. The classic solution to boosting wages, then, is to increase the education of workers so they become more productive. But as this essay demonstrates, U.S. labor markets are far from being perfectly competitive. Understanding this opens new avenues to boost wages.

Wages can be increased by making labor markets more competitive using antitrust enforcement. This action is especially important today because the coronavirus pandemic and resulting recession leads to consolidation pressures. Many businesses are failing, and large businesses find it easier to survive and then buy up smaller ones. More generally, amid the coronavirus recession, large businesses may argue that mergers increase their financial stability. Antitrust authorities need to resist mergers that will significantly increase labor market concentration and suppress wages.

Wages also can be increased by boosting workers' bargaining power through strengthened unions. This will allow workers to better resist the downward wage pressures from reduced labor market competition among employers. Finally, when the labor market is not perfectly competitive, moderate minimum wage increases can be used to boost wages without worrying about a decrease in employment.

In sum, realizing that the labor market is monopsonistic rather than perfectly competitive allows policymakers to tap a broader set of policy tools to boost wages.

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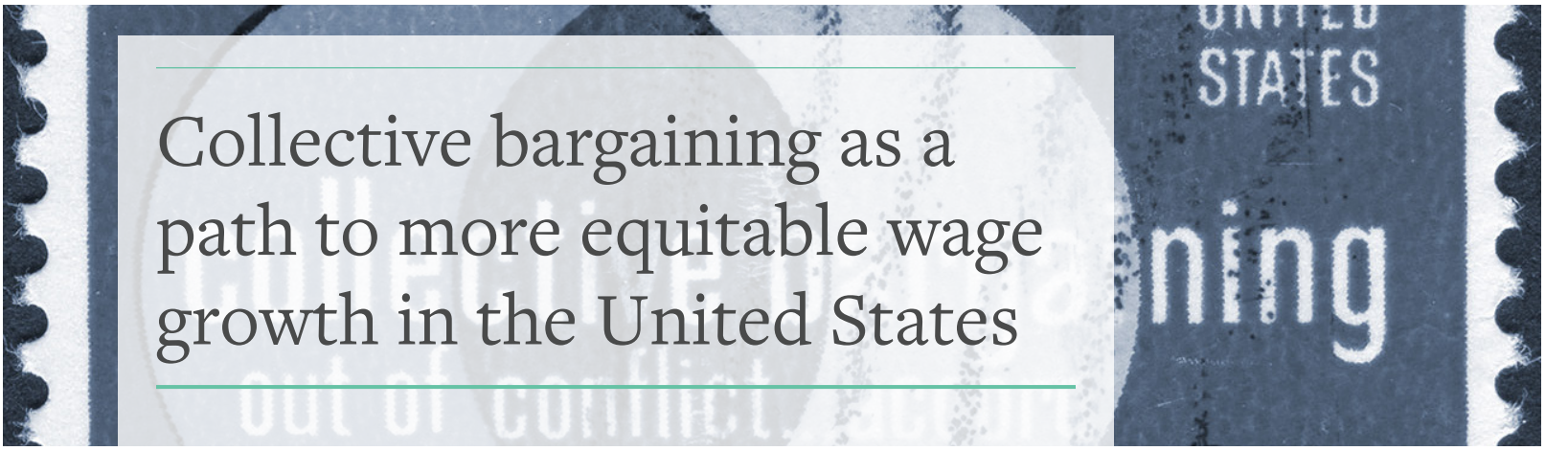

Collective bargaining as a path to more equitable wage growth in the United States

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Overview

Rising wage inequality in the United States means that the median wage has not kept pace with the mean wage in recent decades. Moreover, the United States has performed worse in this regard than many of its international peers. In this essay, I will first examine the decoupling of median wage growth from mean wage growth and, in turn, the decoupling from productivity growth, in the United States and in its peer countries in the Organisation for Economic Co-operation and Development.

I will then consider the role of collective bargaining institutions in these patterns. One plausible important factor underlying the greater divergence between mean and median wages in the United States, compared to other OECD countries, is the continued decentralization of wage-setting institutions such as labor unions that otherwise would empower the majority of workers to negotiate more effectively with employers for higher pay. Hence, policies that increase the scope of collective bargaining may be promising levers toward more equitable wage growth, albeit with some risk of reductions in economic performance.

Finally, I will review policies the United States could pursue that have the potential to foster more equitable wage growth. Specifically, U.S. policymakers can consider the introduction of industrywide and cross-industry wage boards to set minimum wages for workers in the middle rungs of the wage distribution, not just those on the lower rungs as happens under current federal and state minimum wage provisions. These wage-setting proposals are especially important today amid the coronavirus recession, which has led to a uniquely slack labor market among many segments of the economy and has hurt the bargaining position of many low-wage workers in particular. Without strong and sustained wage growth that is broadly

distributed across the U.S. labor force, the eventual economic recovery will almost certainly take longer to reach the vast majority of U.S. workers.

The decoupling of wage growth and productivity growth: Mean vs. median wages

Growth in mean wages (the average of all wages; taking the sum of all wages earned, from the lowest-paid to the highest, and dividing that sum by the number of workers) has remained tightly linked with productivity in the United States and most OECD countries. In contrast, growth in median wages (the midpoint of all wages; if one were to rank all workers by their wage and then pick the worker ranked in the middle) has decoupled from productivity growth, as well as mean wage growth.

This divergence between mean and median wage growth reflects greater wage inequality. Together, these facts demonstrate that the distribution of income among U.S. employees has become increasingly unequal, even though on average, wages have held up well with productivity growth.

The United States experienced a more dramatic decoupling of median wages from mean wages and productivity than most OECD countries. The perhaps most extreme reflection of this decoupling is the fact that the annual compensation of chief executive officers in the United States rose by more than 1,000 percent between 1978 and 2017, compared to 11 percent for private-sector workers, after accounting for inflation.[1]

As noted above, a striking fact about the U.S. labor market is the decoupling between median wage growth and productivity growth in recent decades. U.S. labor productivity (real output per hour worked) increased by 72 percent from 1973 to 2013, yet median real wages have barely increased—by only around 8.7 percent—over the same period.[2] (See Figure 1.)

At first glance, this divergence may suggest an increase in employer power and a decrease in workers' bargaining power as the culprit. However, there are three observations that caution against the growth of employer power or workers' declining bargaining power in general as the predominant culprit underlying the decoupling of overall wage growth from productivity growth.

First, a large share of the gap between wage and productivity growth is due to the different price indices used to deflate the productivity time series and the

The decoupling of wages from productivity in the United States

Cumulative percent change in productivity growth, real average compensation (consumer and producer), and real median compensation, 1973–2014

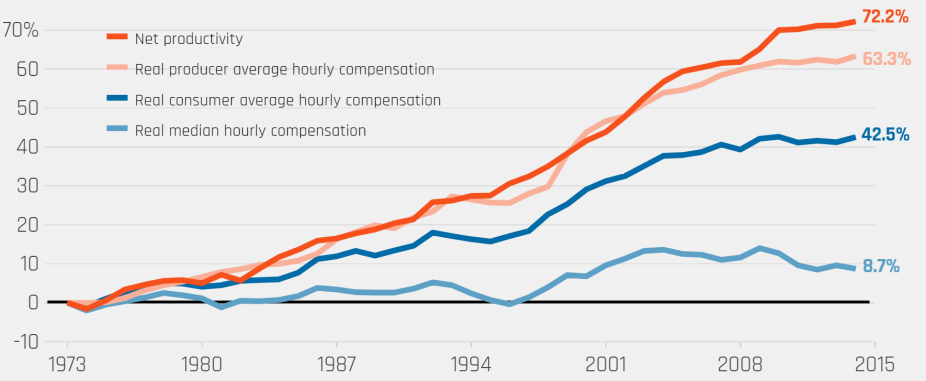

FIGURE 1

...a striking fact about the U.S. labor market is the decoupling between median wage growth and productivity growth in recent decades.

Note: Data are for all workers. Net productivity is the growth of output of goods and services minus depreciation, per hour worked.

Source: Economic Policy Institute analysis of data from the Bureau of Economic Analysis' National Income and Product Accounts, the Bureau of Labor Statistics' Consumer Price Indexes and Labor Productivity and Costs program, and Current Population Survey Outgoing Rotation Group microdata.

median wage. The difference between these two price indices is unrelated to wage-distribution issues.

Second, the mean wage—which reflects the wages received by all workers, rather than just the typical worker in the middle of the wage distribution—has held up quite tightly with productivity growth. The mean wage has increased by 42.5 percent, compared to only 8.7 percent for median wages. In other words, productivity increases have benefitted workers in general even as the median worker has lagged behind. This link is also evident in the tight correspondence between year-to-year growth in average labor productivity (real output per hour) and real average compensation per hour. (See Figure 2.)

Productivity growth and compensation growth per hour in the United States

Growth of real hourly compensation and output per hour in the nonfarm business sector, 1953–2008

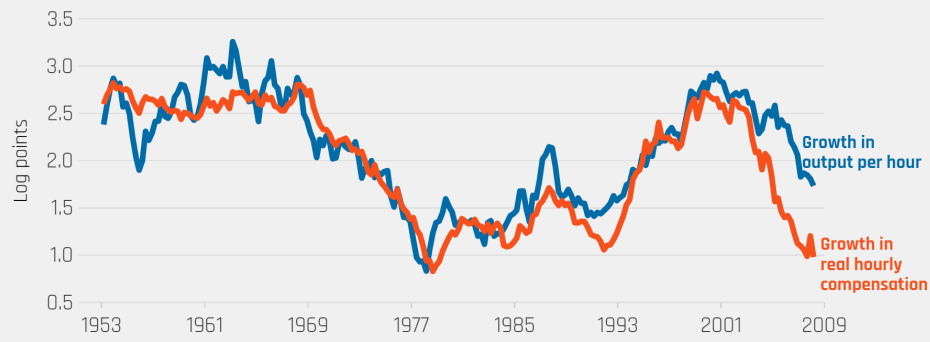

FIGURE 2

...productivity increases have benefitted workers in general even as the median worker has lagged behind.

Note: Values are 10-year centered moving averages of annualized rates. Real wages deflated using the Nonfarm Business sector output deflator.

Source: Michael WL Elsby, Bart Hobijn, and Aysegül, "The decline of the US Labor share," Brookings Papers on Economic Activity 2 (2013); 1–6, available at https://www.brookings.edu/bpea-articles/the-decline-of-the-u-s-labor-share/.

Finally, the overall share of national income paid out in the form of labor income has fallen only modestly over the past 50-plus years. While indeed this share has fallen over the past five decades, the wage gain from returning it to the levels of the 1970s, with no offsetting effect on Gross Domestic Product growth, would entail either a moderate one-time boost to wages of around 5.8 percent or, roughly, a boost to wage growth by 0.1 percent over 50 years if spread out between 1970 and today.[3] (See Figure 3.)

The labor share in the United States has declined

Share of labor compensation in Gross Domestic Product at current national prices for the United States, 1950–2017. Recessions are shaded.

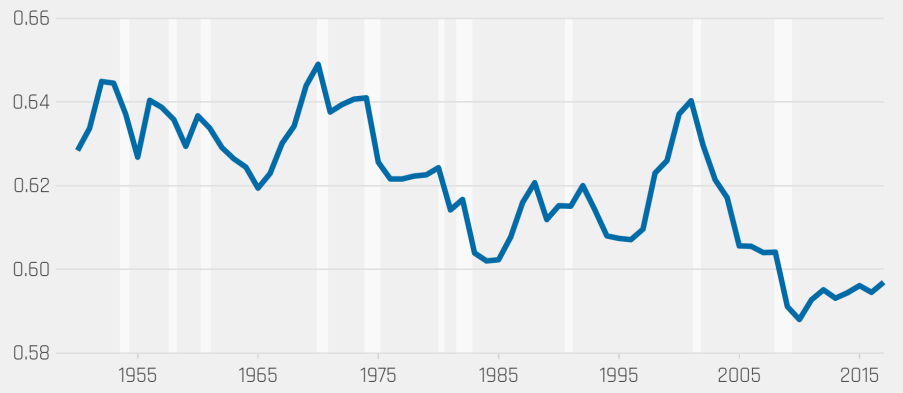

FIGURE 3

...the overall share of national income paid out in the form of labor income has fallen only modestly over the past 50-plus years.

Source: University of Groningen and University of California, Davis, "Share of Labour Compensation in GDP at Current National Prices for United States," retrieved from FRED, Federal Reserve Bank of St. Louis, available at https://fred.stlouisfed.org/series/LABSHPUSA156NRUG.

This is because until the 1970s, the U.S. labor share had been relatively stable, holding at around 65 percent of the national output. Over the past four decades or so, this labor share declined to just less than 60 percent. This small reduction in labor share corresponds to the small gap between productivity growth and mean wage growth at producer prices, as depicted in Figure 1.

Hence, these three observations on wage growth and productivity growth make clear that the first-order development in U.S. wages has been the decoupling between mean and median wages, reflecting a shift toward a more unequal distribution within labor—meaning between workers, rather than between labor overall and capital.

A international perspective on the decoupling of wage and productivity growth

Additional insight can be gained by taking an international perspective to gauge potential causes and mediating factors of the evolution of median and mean wages in the United States. Such an international comparison reveals that, in terms of median versus mean wage growth, the U.S. economy performed particularly unequally. (See Figure 4.)

The United States is the outlier in the growth over time in the ratio of median and mean wages among OECD economies

Change in the ratio of median and average wages in the economies of select member nations of the Organisation for Economic Co-operation and Development, 1995–2013

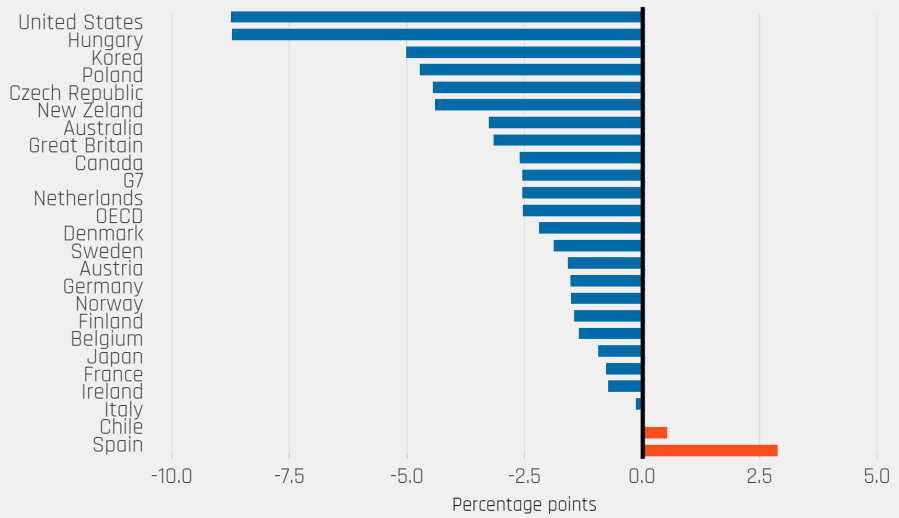

FIGURE 4

...an international comparison reveals that, in terms of median versus mean wage growth, the U.S. economy performed particularly unequally.

Note: Three-year averages starting and ending in indicated years. OECD and G7 refer to unweighted averages for the relevant countries included in the Figure. Sample years vary for some countries.

Source: Organisation for Economic Co-operation and Development, "Earnings Database" (n.d.), Cyrille Schwellnus, Andreas Kappeler, and Pierre-Alain Pionnier, "Decoupling of wages from productivity: Macro-level facts" (2017).s

Across most of the OECD economies, the median wage has not lagged behind productivity and average wages as much as in the United States. Quantifying the particularly unequal performance of labor income in the United States, Figure 4 shows that the median-to-mean ratio has widened four times as much in the United States than on average in the OECD, even as the gap between average wages and median wages has widened in many countries within the more limited time period between 1995 and 2013.

This insight is evident by plotting wage growth not just for the median wage but also for the lowest 10 percent of the wage distribution and the top 10 percent of

the wage distribution. The wage growth of these segments of the earnings distribution exhibits tremendous heterogeneity between OECD countries other than the United States.[4] (See Figure 5.)

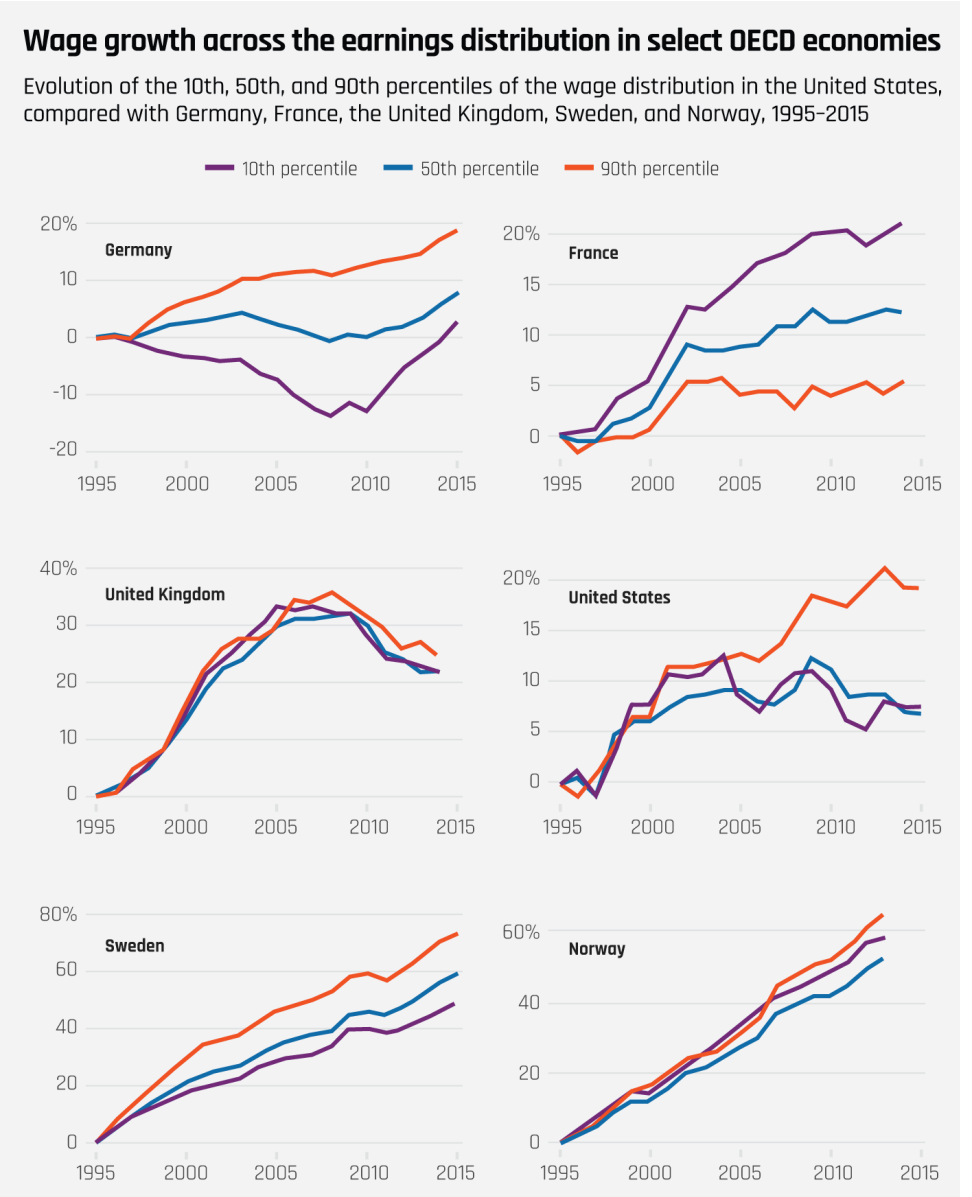

FIGURE 5

The wage growth of these segments of the earnings distribution exhibits tremendous heterogeneity between OECD countries other than the United States.

Source: Alice Kügler, Uta Schönberg, and Ragnhild Schreiner, "Productivity growth, wage growth and unions" (Frankfurt: European Central Bank, 2018).

Even though the United States experienced a very significant decoupling of top earners' wages from median wages in recent years (as seen in Figure 5) and the most dramatic drop in the median-to-mean wage ratio, there are several OECD countries that also performed unequally in their wage growth evolution. During the same period depicted in Figure 5, Germany's bottom percentile of wage

earners witnessed its greatest decline in rates, while France's bottom percentile actually outperformed its top-tier counterparts in wage growth.

These countries also experienced the decoupling of wages and productivity growth. While Figure 4 clarified that Germany had a more pronounced divergence of mean wage growth from median wage growth than France, that basic statistic actually masks the dramatic opposite relative evolution of wage growth at the bottom and top in these two countries. These are telling heterogeneous performances in equitable wage growth with differential evolutions of wage-setting institutions. (See Figure 6.)

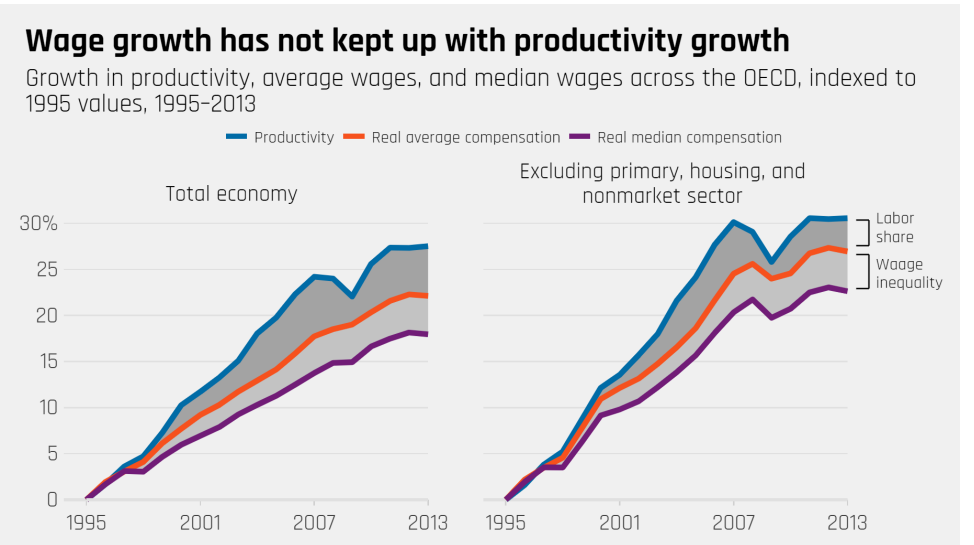

FIGURE 6

These countries also experienced the decoupling of wages and productivity growth.

Note: The trends reflect the declines in labor income shares increases in wage inequality. Macro-level decoupling between compensation growth of the typical worker and labor productivity growth can be decomposed into (1) the growth differential between average labor compensation and labor productivity, which is fully accounted for by evolutions in the labor income share, and (2) the growth differential between median and average wages, which is partial measure of wage inequality in the first panel. In Panel 1, all series are deflated by the total economy value added price index. In Panel 2, all series are deflated by the value added price index excluding the primary, housing and no-market sectors. "Wage inequality" refers to total ecomomy due to data limitations.

Source: Organisation for Economic Co-operation and Development, "National Accounts Database" (n.d.), Organisation for Economic Co-operation and Developemt, "Earnings Database" (n.d.), Cyrille Schwellnus, Andreas Kappeler, and Pierre-Alain Pionnier, "Decoupling of wages from productivity: Macro-level facts" (2017).

The upshot is that the U.S. economy is not the only one dealing with wage inequality. That said, some OECD nations display less wage inequality and more wage compression than others, giving U.S. policymakers some points of comparison for potential sources and policy remedies.

The role of collective bargaining in equitable wage growth

To better understand trends in wage inequality, it is useful to introduce the concept of wage compression. At the level of a single firm, wage compression describes a situation in which wages are compressed in a way that need not reflect

the distribution of workers' productivity or market wages. Firms that pay similar wages to differently productive workers exhibit wage compression. In contrast to standard economic theories of a worker's market wage reflecting her productivity, wage compression at the firm level is pervasive in real-world labor markets.[5]

Introspection makes this clear. About whom would your employer worry more: someone who is quitting and is among the highest-paid and most productive workers at your firm? Or, instead, someone who is quitting but is among the lowest-paid and least productive workers at your firm? Rather than being indifferent, as would be predicted if wages equaled one's productivity or if both workers' wages were higher than their respective productivity by the same amount, the answer is likely that your employer would worry more about the more productive type of worker quitting. This kind of wage compression—the deviation of wages from productivity—is usually relevant when examining microeconomic, firm-level wage-setting trends and decisions.

Wage compression can also exist at the macroeconomic level, however. In this case, wage compression does not solely reflect decisions of individual actors within specific firms, but additionally reflects broader labor market institutions, such as minimum wages or sectoral collective bargaining.

It remains an open question which factors explain the differences in the gap between the growth in mean wages and median wages across countries, and specifically which policy factors may have been mediating or causal factors. Still, formal institutional factors in wage setting have emerged in the research literature as a plausible key explanation of the heterogeneity of the evolution of this median-mean wage gap—specifically those institutional factors that lead to wage compression.

One piece of evidence for the important role of these institutions is the dramatic decoupling in Germany, which arguably reflects the contemporaneous decline in sectoral bargaining toward an environment with more decentralized wage setting.[6] In Germany, firms increasingly opted out of or did not opt into collective bargaining agreements. This argument is consistent with the increased dispersion in the wages that different firms pay to similar employees in Germany, which has accounted for a large share of the increase in pay inequality.[7]

In contrast is the French experience, where median wages have held up well, with average wages and productivity trends more tightly linked, arguably due to policy choices that have maintained sectoral collective bargaining.[8] Similarly, a recent OECD report substantiates these international insights, documenting that more centralized wage setting is associated with lower wage dispersion, and also documenting an association with the link between wage growth and productivity growth.[9]

Taking a broader view, the University of Massachusetts Amherst economist Arindrajit Dube reviews the Australian context, where collective bargaining covers around a third of the workforce. For around a quarter of the Australian workforce that is otherwise not covered by collective bargaining, wage floors are still set predominantly by industry, skill, and experience group, with some set by occupation. Dube presents a fascinating graph that shows that Australian mean and median wages grew strikingly similarly.[10] (See Figure 7.)

Australian median wages held up well with mean wages, unlike in the United States

The evolution of mean vs. median wages in Australia and the United States, 1985–2016

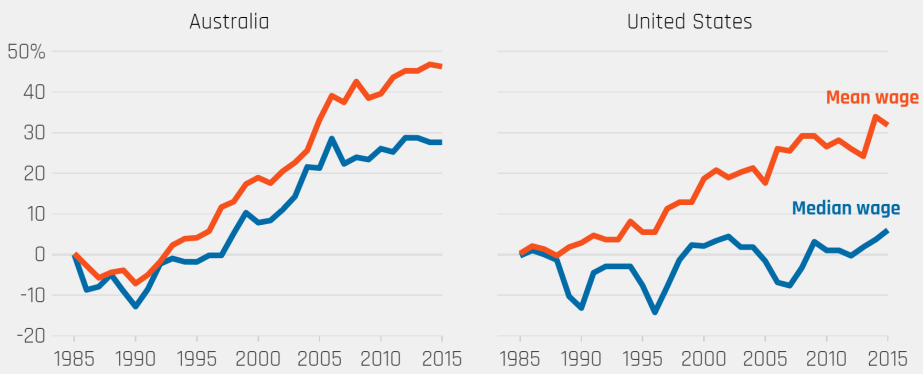

FIGURE 7

Taking a broader view, the University of Massachusetts Amherst economist Arindrajit Dube reviews the Australian context, where collective bargaining covers around a third of the workforce.

Note: Wages are PPP-adjusted real wages, indexed to 1985 values.

Source: Organisation for Economic Co-operation and Development statistics; Arindrajit Dube, "Using wage boards to raise pay," (Economists for Inclusive Prosperity; 2018), available at https://econfip.org/wp-content/uploads/2019/02/4.Using-Wage-Boards-to-Raise-Pay.pdf.

Given the rarity of macroeconomic experiments, empirical evidence at the macroeconomic level on its own must often remain tentative. Yet microeconomic empirical evidence at the level of individual firms or workers sheds light on how centralized wage setting affects wage setting across the broader economy and may specifically further wage compression, which could realign median wages with productivity and mean wages. Importantly, survey evidence and case studies indeed suggest that unions establish fairness norms and pursue wage compression.[11]

A fascinating puzzle piece to the role of collective wage setting in wage compression is the new study of a unique 2011 reform of public school teachers' collective bargaining agreements that decentralized wage setting in Michigan.[12] Focusing on the gender pay divide, economists Barbara Biasi of the Yale School of Management and Heather Sarsons of the Chicago Booth School of Business document a sharp increase in wage inequality on this gender dimension, reflecting an increase in bilateral, flexible bargaining that resulted in a greater pay gap between male and female teachers with the same credentials, especially among younger teachers.

Central bank economist Ernesto Villanueva at the Banca de España also reviews the evidence on extensions of collective bargaining agreements to otherwise

uncovered firms and highlights the effect on more equal wages.[13] He finds extending collective contracts reduces wage inequality and reduces gender wage gaps, as otherwise uncovered firms are mandated to raise their wages to the mandated minimum wages set by the collective bargaining agreement.

A cost of compressing wages through collective bargaining is the potential negative effect on employment. Researchers have attributed the time series of Germany's growing employment rate to the decline in collective bargaining (and the associated increase in wage inequality), compared to other European countries that traded low employment for more wage compression.[14] Pedro Martins at Queen Mary University of London has drawn on quasi-experimental evidence to document that extending collective bargaining agreements to more firms in Portugal came at the cost of lower employment.[15]

Other researchers link regional disparities in employment rates with nationally binding collective bargaining agreements, a geographical dimension of wage compression across regions in which productivity may be very different.[16] This finding indicates that rigid nationwide contracts contribute to regional imbalances and have greater aggregate costs to workers' earnings and employment levels, compared with systems that allow more local-level bargaining.

Banca de España's Villanueva also discusses the trade-off between wage compression from more centralized wage setting in the form of extended collective bargaining agreements.[17] He finds that while collective contract extensions benefit job quality and wages, they can lower overall employment, particularly in otherwise-uncovered, low-wage firms. Indeed, other research finds that extended collective bargaining agreements can be used as anticompetitive measures by dominant firms to drive out competitors.[18]

Potential policy routes for the United States

A U.S.-focused discussion of the role of collective bargaining to foster more equitable wage growth is difficult. Indeed, collective bargaining receives relatively little attention in recent labor economics research. One case in point is the Chicago Booth IGM Forum, which frequently polls prominent economists on a diverse and large set of economic policy debates and has not featured any instances of questions on collective bargaining, unions, and centralized wage setting.

Indeed, the reality of the U.S. context is the continued decentralization of wage

setting in the form of the decline of unionization.[19] This trend is accompanied by an increase in between-firm wage inequality.[20] These two factors broadly mirror the trends in countries where the decentralization of wage setting is believed to have played a crucial role in the growth of wage inequality, such as in Germany.

Moreover, the firm-specific effects on wages of firm-level unionization that characterize U.S. industrial relations suggests no, or no large, wage gains on average.[21] Indeed, there is little empirical evidence for any firm-specific form of worker organization to measurably raise firm-level wages, reduce wage inequality, or raise the share of profits going to workers at the firm level.[22]

Overall, then, rather than firm-level bargaining, pursuing progressive wage compression through above-the-firm-level collective bargaining—such as at the sector level or regional level—may be the most effective focus for labor policymakers in the United States who are interested in policies that achieve wage compression.

Unlike in many OECD countries, the U.S. labor relations system lacks a formal mechanism for sectoral collective bargaining or to mandate the extension of existing collective bargaining agreements to an entire labor market.[23] The main tool for wage-setting regulations are federal and local minimum wage legislation. Yet by their very nature, minimum wages are unsuitable to tackle wage stagnation among the majority of U.S. workers because they affect, at most, the bottom fifth of wage earners.

In contrast, consider the "30,000 minimum wages"—the title of the aforementioned paper by Queen Mary University of London's Martin—for those workers even in the middle of the wage distribution that are provided by sectoral collective bargaining agreements, such as in Portugal.[24]

In an intriguing essay, U-Mass Amherst's Dube sketches the economics of a wage-setting institution for the United States resembling the Australian setup of wage "awards," discussed above.[25] Dube's proposal would extend granular wage floors by industry, skill, and experience level to workers otherwise not covered by collective bargaining agreements. In a 2020 essay for the Washington Center for Equitable Growth, Dube further details why "wage boards" are a U.S. institution that may mimic these functions, with five states—Arizona, Colorado, California, New Jersey, and New York—already featuring the legislative basis for such occupation/industry-specific wage floors, though with little use so far.[26]

Dube estimates how this policy would affect the U.S. wage distribution. He simulates the scenario in which occupation-industry-region cells' wages were to be raised to the 35th percentile of that cell's median wage, which Dube shows would

bind for 31 percent of workers. He finds a sizable, 10 percent to 20 percent wage boost of workers in the middle percentiles of wages, which would close a significant portion of the median-mean wage gap.

Still, even this intervention would leave a significant gap between productivity and mean and median wages, albeit much larger than the boost to wages that would result from increasing the labor share of GDP, as described above. The overarching point, however, is that the growing wage inequality experienced by workers in the United States leading to ever-growing income inequality cannot be easily remedied without policy experiments in the ways that other nations have tackled this problem. Perhaps those five U.S. states with some rudiments of wage boards on the books can form the basis for a federal policy debate on wage compression.

—***Benjamin Schoefer*** *is an assistant professor of economics at the University of California, Berkeley.*

Endnotes

1 Dean Baker, Josh Bivens, and Jessica Schieder, "Reining in CEO compensation and curbing the rise of inequality" (Washington: Economic Policy Institute, 2019), available at https://www.epi.org/publication/reining-in-ceo-compensation-and-curbing-the-rise-of-inequality/.

2 For prominent use of this striking graph, see Josh Bivens and others, "Raising America's pay." Briefing Paper 378 (Economic Policy Institute, 2014), available at https://www.epi.org/publication/raising-americas-pay/.

3 A progressive distribution of the labor share may lead to a higher wage boost for low earners and median wages. I do not know of research that has linked the labor share decline with wage reductions in specific pockets of the labor income distribution.

4 Alice Kügler, Uta Schönberg, and Ragnhild Schreiner, "Productivity growth, wage growth and unions" (Frankfurt: European Central Bank, 2018), pp. 215–247.

5 For a recent study of wage compression guiding firm-level wages, see Emmanuel Saez, Benjamin Schoefer, and David Seim, "Payroll taxes, firm behavior, and rent sharing: Evidence from a young workers' tax cut in Sweden," *American Economic Review* 109 (5) (2019): 1717–63.

6 Ibid.

7 David Card, Jörg Heining, and Patrick Kline, "Workplace heterogeneity and the rise of West German wage inequality," *The Quarterly Journal of Economics* 128 (3) (2013): 967–1015.

8 Kügler, Schoenberg, and Schreiner, "Productivity growth, wage growth and unions."

9 Organisation for Economic Co-operation and Development, *Negotiating Our Way Up: Collective Bargaining in a Changing World of Work* (Paris: OECD Publishing, 2019), available at https://doi.org/10.1787/1fd2da34-en.

10 Arindrajit Dube, "Using Wage Boards to Raise Pay," *Economics for Inclusive Prosperity* 4 (2019), available at https://econfip.org/policy-brief/using-wage-boards-to-raise-pay/.

11 Richard Freeman and James L. Medoff, "What do unions do," *Industrial & Labor Relations Review* 38 (1984): 244; Bruce Western and Jake Rosenfeld, "Unions, norms, and the rise in US wage inequality," *American Sociological Review* 76 (4) (2011): 513–537.

12 Barbara Biasi and Heather Sarsons, "Flexible Wages, Bargaining, and the Gender Gap." Working Paper w27894 (National Bureau of Economic Research, 2020), available at https://www.nber.org/papers/w27894.

13 Ernesto Villanueva, "Employment and wage effects of extending collective bargaining agreements," *IZA World of Labor* (2015), available at https://wol.iza.org/articles/employment-and-wage-effects-of-extending-collective-bargaining-agreements/long.

14 Christian Dustmann and others, "From sick man of Europe to economic superstar: Germany's resurgent economy," *Journal of Economic Perspectives* 28 (1) (2014): 167–88.

15 Pedro Martins, "30,000 Minimum Wages: The Economic Effects of Collective Bargaining Extensions," *British Journal of Industrial Relations* (forthcoming).

16 Tito Boeri and others, "Wage equalization and regional misallocation: evidence from Italian and German Provinces." Working Paper w25612 (National Bureau of Economic Research, 2019), available at https://www.nber.org/papers/w25612.

17 Villanueva, "Employment and wage effects of extending collective bargaining agreements."

18 Justus Haucap, Uwe Pauly, and Christian Wey, "Collective wage setting when wages are generally binding: An antitrust perspective," *International Review of Law and Economics* 21 (3) (2001): 287–307.

19 Henry Farber and others, "Unions and inequality over the twentieth century: New evidence from survey data." Working Paper (National Bureau of Economic Research, 2018), available at https://www.nber.org/papers/w24587.

20 Jae Song and others, "Firming up inequality," The *Quarterly Journal of Economics* 134 (1) (2019): 1–50, available at https://doi.org/10.1093/qje/qjy025.

21 John DiNardo and David S. Lee, "Economic impacts of new unionization on private sector employers: 1984–2001," *The Quarterly Journal of Economics* 119 (4) (2004): 1383–1441. Cross-sectional evidence continues to suggest a relatively large union wage premium at the worker level of around 10–20 log points (Farber and others, "Unions and inequality over the twentieth century: New evidence from survey data"), which does not cover equilibrium spillovers on the wage structure, including uncovered firms and workers, but also captures positive worker selection.

22 For example, Jäger and co-authors review a large series of existing empirical estimates of firm-level rent sharing elasticities, finding a small elasticity of around 10 percent no matter the country or time period. See Simon Jäger and others, "Wages and the Value of Nonemployment," *The Quarterly Journal of Economics* 135 (4) (2020): 1905–1963. I do not know of estimates of whether U.S. firm-level unionization may boost rent sharing elasticities. Moreover, recent proposals of shared governance in the United States (giving workers the right to elect their own board representatives to participate in company-level decision-making), as proposed in the Accountable Capitalism Act, may have little effect on wages, as suggested by studies in the context of Germany and Finland. See Simon Jäger, Benjamin Schoefer, and Jörg Heining, "Labor in the Boardroom," *The Quarterly Journal of Economics* (forthcoming); Jarkko Harju, Simon Jäger, and Benjamin Schoefer, "Voice at Work." (Working paper, 2021).

23 Villanueva, "Employment and wage effects of extending collective bargaining agreements."

24 Martins, "30,000 Minimum Wages: The Economic Effects of Collective Bargaining Extensions."

25 Dube, "Using Wage Boards to Raise Pay."

26 Arindrajit Dube, "Rebuilding U.S. labor market wage standards" (Washington: Washington Center for Equitable Growth, 2020), available at https://equitablegrowth.org/rebuilding-u-s-labor-market-wage-standards/. For a thorough review of the legal aspects of this potential institution, see Kate Andrias, "The New Labor Law," *The Yale Law Journal* 126 (1) (2016): 76, available at https://www.yalelawjournal.org/article/the-new-labor-law. For a more policy-focused report discussion, see David Madland, "Wage Boards for American Workers: Industry-Level Collective Bargaining for All Workers" (Washington: Center for American Progress, 2018), available at https://www.americanprogress.org/issues/economy/reports/2018/04/09/448515/wage-boards-american-workers/.

Worker well-being

New investments and reforms to the U.S. education system from pre-Kindergarten through to graduate school alongside robust social insurance and child care programs can improve worker well being, as can tax policies that influence corporate investment so that the gains of productivity growth improve the well-being of their employees and their families.

U.S. labor markets require a new approach to higher education

By Andria Smythe, Howard University

Overview

In February 2020, the longest economic expansion on record since 1854 ended. During the expansion, a concerning trend that began in the 1970s continued—the proliferation of low-wage, low-quality jobs and the decline of middle-wage jobs. The rise of these low-wage, low-quality jobs is only one signal of a struggling U.S. economy. New economic arrangements driven by supply-side economic policies, globalization, and technological change led to greater divide along dimensions of income and wealth, race, and geography over the past five decades.

As the third decade of the 21st century begins, concerted efforts are needed to transform the U.S. economy into one that provides all Americans with opportunities for social and economic advancement, stems the tide of growing inequality, supplies the labor market with skillful, agile, and knowledgeable workers, and broadens the scale and scope of jobs being created. Government policies that shape the underlying structures of our economy to foster these outcomes will address one of the most common concerns of all Americans—boosting wage growth so people are able to share in the rewards of a vibrant economy and build the wealth they and their families need to secure future prosperity for themselves and the nation.

No other services industry occupies a more strategic position than higher education to achieve these goals. This essay provides evidence-backed analysis for targeted higher education policies aimed at boosting wages and jobs growth across the nation.

Higher education plays a key role in both the cyclical and structural aspects of the U.S. labor market. Institutions of higher learning shape and supply skilled labor to the economy. They absorb excess workers in low-income jobs from the labor

market by providing a productive alternative to work and by providing opportunities for future advancement. They contribute to the research, development, and dissemination of productivity-enhancing knowledge, which expands the scope of jobs created in the economy, and they are direct sources of good jobs in many localities. By ensuring that workers up and down the income ladder have options in the labor market and opportunities for advancement, a democratic higher education system increases bargaining power of workers while providing among the highest returns on investment in a public policymaker's toolkit.[1]

Higher education is a good with unquantifiable positive externalities that accrue to large swaths of society, even those who do not participate directly. At the same time, the quantifiable fiscal rate of return for investment in higher education is positive and large. Total government spending per college degree over a college graduate's lifetime is actually negative, meaning that the government receives more in tax revenue minus benefits from a college graduate. The average real fiscal rate of return on government investment in college students is conservatively estimated to be more than 25 percent.[2] And this doesn't include the many social returns to college attainment such as extra productivity, greater job creation, lower likelihood of crime and incarceration, higher civic participation, and the spillover effects of all these factors to the next generation of American workers.

This essay makes the case for a renewed public investment in higher education. First, I examine the socioeconomic problems confronting higher education in the United States today and the free-market, supply-side ideological reasons for these problems. I then highlight the historic higher education reforms of the 19th and 20th centuries—most famously, government investments in land grant colleges and universities to boost more equitable regional economic growth and the landmark GI Bill that still provides tuition and income support for veterans who seek higher education opportunities.

The essay concludes with a set of reform proposals for higher education based on a new round of robust investment and complementary policies that would:

- Set economic signals and incentives for higher education that broaden job opportunities and boost broad-based wage growth in the U.S. economy
- Boost public investments in regional research and development to ensure these public investments result in nationwide prosperity for all students, especially low-income students and students of color
- Expand postsecondary school admissions, learning, and attainment of degrees to create educational pathways that generate new jobs and new services and industries needed in a productive U.S. economy in the 21st century

The socioeconomic problems confronting U.S. higher education

The most recognizable role of higher education in the debate over sluggish wage growth in the United States is that investments in higher education deliver high labor market returns far into the future for most graduates. Yet the returns to higher education are not equitably distributed, and policy choices within higher education have intersected with other structural inequalities in the U.S. labor market to further entrench income and wealth inequality.

The globalization of the labor market and technological change are understood to be reasons for the steady disappearance of good middle-wage employment opportunities and the rise of low-wage, low-quality jobs. The economic argument was that the winners who gained from the new economic arrangements would compensate the losers through public investment in education and training. The idea was that individuals who were displaced would retrain and join expanding, new, and more productive sectors of the economy, and everyone would share in the gains from technology and globalization.

But instead of bolstering higher education, funding sources for higher education declined on a per-capita basis, and the federal government offered loans instead of grants to college students. Record increases in tuition fees beginning in the 1980s gradually but inexorably shifted the heavier burden of paying for college from the government to individuals and their families, who carry a fast-growing $1.7 trillion student loan balance.

Today, many public universities that perform the best in terms of moving individuals up the economic ladder are increasingly out of reach for average low-income students and students of color.[3] Just 30 percent of children born to families in the bottom quarter of the income distribution are expected to enroll in college today, compared to 80 percent from the top quarter, and high-income individuals are six times more likely to complete a college degree.[4]

The failed potential of higher education is also reflected across race and ethnicity. Attaining a bachelor's degree varies from a high of 54 percent for Asian American college students to a low of 28 percent for American Indian and Native Alaskan students. The average for all students over the age of 25 is just 32 percent, showing there is much room for improvement. The lower educational attainment among workers of color may be able to explain some of the increasing dominance of low-wage jobs for this group.[5] Indeed, the prevalence of the "some college, no degree" category suggests that many students are interested in a college degree but are having trouble completing college. (See Figure 1.)

Race and ethnicity are key factors determining levels of educational attainment

Educational attainment in the United States by race and ethnicity, among those over the age of 25

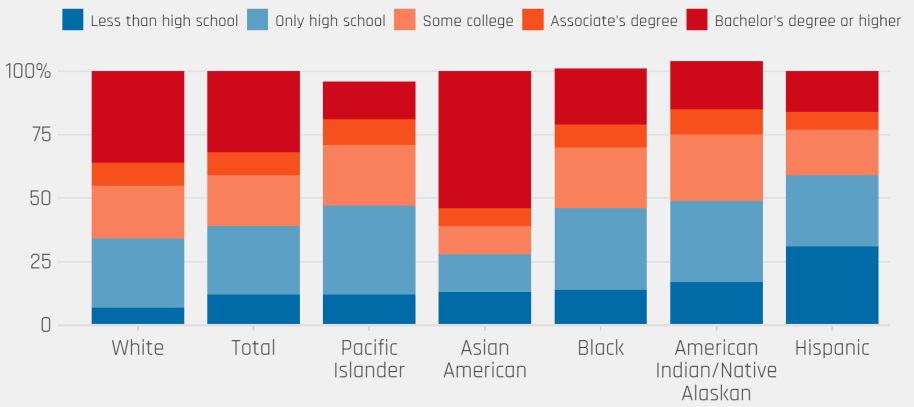

FIGURE 1

The failed potential of higher education is also reflected across race and ethnicity.

Note: High school completers include diploma recipients and those completing high school through alternative credentials, such as a GED. Race categories exclude persons of Hispanic ethnicity. Although rounded numbers are displayed, the figures are based on unrounded estimates. Detail may not sum to totals because of rounding.

Source: National Center for Education Statistics, "Indicator 27: Educational Attainment" (2019), available at https://nces.ed.gov/programs/raceindicators/indicator_RFA.asp.

But a college degree by itself is not enough. The racial wage divide persists at higher levels of educational attainment, with Black and Latinx workers with college degrees earning lower wages than White workers with college degrees.[6] In addition to inequitable access to the best universities, the failure of the economy to produce a broad scope of jobs that college graduates can fill and the currently weak state of worker power in the United States mean that many workers who already have college degrees are not fully seeing the returns to that investment.

There are a number of other reasons why the once-prevailing idea that investments in higher education were a ticket up the economic ladder did not endure. Specifically:

- Returns to investment in research, development, and experimentation are not fully realized.
- Local area economic benefits of universities are not fully pursued.
- The immediate effects of university enrollment on labor market outcomes are not fully pursued.

Let's examine each of these reasons in turn.

Returns to investment in research, development, and experimentation are not fully realized

There is considerable evidence of the economic benefits of public research and development activities, which are crucial for the innovative capacity of the economy.[7] Exploration and experimentation are integral to the discovery process. But with students bearing the high cost of college, exploration and experimentation in learning becomes riskier. Students are understandably choosing majors that have immediate market payoffs. Universities are responding to "market demand" and a decline in funding by reducing course offerings and eliminating different majors and minors.[8] This limits the range of options for study for students, limiting them to careers that are already available instead of encouraging creation of new industries.

Indeed, there is evidence that technological advancement tends to complement the skills of workers.[9] A lower proportion of skilled workers and a smaller range in the skills of workers implies a small market size and a more limited scope for skill-complementary technologies. This, in turn, reduces the dynamism and innovative capacity of the economy and decreases the scope of jobs that the economy can create. This skill-complementarity in technological change also leads to inequality in income for skilled versus "unskilled" workers.

Then, there are the race, gender, and socioeconomic divides in the science, technology, engineering, and math, or STEM, fields. STEM degrees are plagued by the lack of representation that places even more limitations on the range of job options available to poor students, women, and students of color.[10] Additionally, the focus on STEM fields must be combined with renewed investment in the humanities, social sciences, and other disciplines. With the fast pace of technological change, students need a broad-based education that prepares them to counter some of the social challenges created by technology, while also preparing them to be agile workers who can adjust to a fast-changing world.

Local area economic benefits of universities are not fully pursued

Universities and university-affiliated medical centers are among the largest employers in many cities. In the United States, higher education institutions employed approximately 4 million workers in 2018 as faculty, staff, and administrators.[11] That is more than 78,000 jobs per state, on average. The shrinking of the higher education sector and increased focus on cost efficiencies such as employing qualified instructors in precarious, low-paid, contract-based appointments are eliminating decent jobs at the same time that states and localities are looking for ways to

increase the number of good jobs. There are concerns about the impact of the coronavirus pandemic and COVID-19, the disease caused by the virus, on these employment numbers. As of October 2020, employment at public higher education institutions was down by close to 14 percent.[12]

Studies consistently show the positive spillovers from universities into the local and regional economy. Proximity to a university is often associated with recent growth of high-tech industries and local economic and job growth in the same county as the university, as well as nearby areas.[13] Yet funding for research and development in the United States is very unequal geographically. Given the localized nature of these returns to investment in higher education, localities without a research facility may be disadvantaged.

The immediate effects of university enrollment on U.S. labor market outcomes are not fully appreciated

Higher education plays an important role in reducing surplus labor in low-wage sectors of the U.S. economy, especially among young adults. Labor force participation is low among young adults, yet their underutilization in the labor market is very high. Many of these young people are often unable to find a job, so postsecondary enrollment is integral to their human capital preservation and accumulation.

Without this labor-absorbing role, there also is a higher likelihood that young people will have greater involvement with the race-biased U.S. criminal justice system, which further leads to poorer employment outcomes in the future, particularly for young people of color.[14] This is not only true for young adults. About 16 percent of full-time students and 40 percent of part-time students at undergraduate institutions were over 25 years old.[15]

It is likely that the high price of higher education puts downward pressure on wages by keeping many who would be in college in an already-saturated low-wage labor force. The premise of this hypothesis is predicated on the high prevalence of work among college-goers. Approximately 80 percent of part-time students and 50 percent of full-time college students are employed while completing their undergraduate education.[16] This places work and education in competition for these workers' time.

The slow rate of wage growth combined with high-tuition growth means the amount of work required to fund college is rising. In the 1970s, the typical student would need to work approximately 400 hours in order to

pay a year's worth of tuition at a public 4-year college. This is equivalent to 10 weeks of full-time, 40-hours-a-week employment, something that could be done during the summer months. Today, a typical low-wage worker would need to work close to 1,000 hours to afford the cost of tuition. That is equivalent to 25 weeks of full-time, 40-hours-a-week employment, almost half a year of work with little time to study.

Working while paying for college is increasingly untenable in the United States

The number of hours of work required to pay year's worth of in-state tuition, room and board at a public 4-year university, 1972–2019

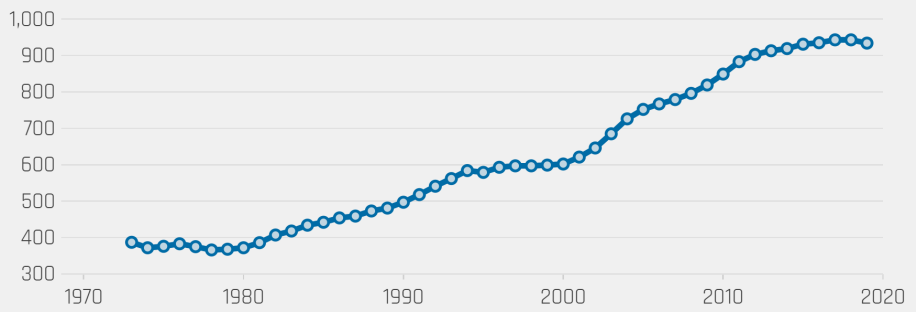

FIGURE 2

Today, a typical low-wage worker would need to work close to 1,000 hours to afford the cost of tuition.

Note: Tuition is in-state charges for public 4-year institutions. Wages used are average hourly earnings of private production and nonsupervisory employees.

Source: U.S. Bureau of Labor Statistics, "Employment, House, and Earnings from the Current Employment Statistics survey (National)" (2020), available at https://data.bls.gov/timeseries/CES0500000008; National Center for Education Statistics, "Table 330.10. Average undergraduate tuition and fees and room and board rates charged for full-time students in degree-granting postsecondary institutions, by level and control of institution: Selected years, 1963–63 through 2018–19" (n.d.), available at https://nces.ed.gov/programs/digest/d19/tables/dt19_330.10.asp.

Many low-income students receive substantial tuition discounts. But low-income students also generally possess less information and make enrollment decisions based on sticker prices. That's why lower sticker-price tuitions could encourage more investments in college education among low-wage workers, while also boosting wage growth at the low end of the labor market by decreasing the labor supply of student-workers while in college.

To illustrate this point, consider that in 2018, there were about 17 million undergraduate students, with close to 60 percent of them working at some point while studying. Assume tuition rates declined to zero. Many of these working students would choose to study instead, decreasing the supply of labor in low-wage jobs. Then, assume 50 percent of currently working students would choose to study full time or increase their study hours. That would mean close to 7 million students reducing their supply of labor.

Consider then that there are about 53 million workers classified as low-wage workers.[17] This translates into a 13.6 percent decline in the supply of labor in low-wage jobs. This would have a positive effect on wages, directly benefiting workers who remain in these heretofore low-wage sectors of the economy.

To test this hypothesis, I model the relationship between the rate of tuition growth at public institutions and wage growth at the national level between 1972 and 2019 and across states and the District of Columbia since 2004 using a combination of data from the U.S. Bureau of Labor Statistics, the U.S. Bureau of Economic Analysis, and the National Center for Education Statistics. I also look at other relationships among higher education and the labor market, including the effects of tuition growth on labor force participation, weekly hours worked and employment rates, and the relationship between enrollment rates and wage growth.

After controlling for variables that affect both tuition and wage growth, such as the unemployment rate, I find a negative and statistically significant relationship between tuition at public institutions and wage growth. I find that a 1 percentage point increase in public 4-year tuition growth is associated with a 0.485 percentage point reduction in wage growth for private nonsupervisory workers, a 0.46 percentage point reduction for retail workers, and 0.58 percentage point reduction for hospitality workers.

Hours of work per week is also related to tuition growth. In this case, I find that a 1 percentage point increase in 4-year tuition is associated with a 0.06 percentage point increase in hours worked per week. The relationship between tuition growth and labor force participation is also mostly positive, but not statistically significant. Since higher tuition and lower wages occur together, it is possible that some people leave the labor force altogether (due to low wages) while others enter the labor force (to pay for higher tuition costs), and these two effects offset each other.

I also estimate the relationship between changes in the college enrollment rate over time and changes in the wage rate. I find that increases in the college enrollment rate are associated with a 0.39 percentage point increase in hourly earnings for private workers, a 0.28 percentage point increase for retail workers, and a 0.44 percentage point increase for leisure and hospitality workers. All of these patterns hold with slight differences in the magnitude of the effects when looking at the state level over time and with a lag of 2–3 years.

While causal effects can never be claimed with certainty, the patterns of these relationships support the hypothesis that lower sticker-price tuition and higher college enrollment rates would reduce the labor supply in low-wage sectors of the U.S. economy and thus place upward pressure on wages. Other research supports this labor-supply, wage-growth hypothesis, finding that a percentage point increase in the supply of college graduates raises wages for high school drop-outs by 1.9 percent and for high school graduates by 1.6 percent, although some of this effect is due to positive spillovers.[18]

Additionally, the negative relationship between real tuition and real wage growth means periods of high tuition growth, when students most need higher wages to offset the increase in tuition, are precisely when wage growth is at its lowest. And since low-wage jobs usually bear negative qualities such as unpredictable scheduling and fewer accommodations such as time off with pay, it is even more likely that students will drop out of school. The lowest-income individuals are stuck in a low-wage, high-tuition trap, where they need higher wages in order to afford college and they need a college degree to attain higher wages. This makes it harder for these individuals to move up the income ladder.

Policy proposals to reform higher education

The problems outlined above suggest a role for policy to reform higher education in the United States. The proposed policy reforms could increase the educational attainment of the labor force. Policies could boost investment in higher education by placing emphasis on outcomes based on family income, race, and geography. Policies could encourage exploration and experimentation in research and areas of study to expand the scope of these endeavors. And polices could increase options for low-wage workers who would also like to study. A focus on all of these measures aligned with the broader goals of improved welfare for all could form the basis of a new higher education focus that creates a more equitable U.S. labor market and equitable economic growth and prosperity.

These higher education policy reforms would cascade across a number of policy domains and include an array of potential policy instruments. And they would require a different level of decision-making and action to effectively target the problems outlined. Specifically, policymakers would need to:

- Set economic signals and incentives
- Boost research and development across geographic regions and underserved groups
- Expand postsecondary school admissions, learning, and attainment of degrees

I'll examine each of these steps in turn.

Set economic signals and incentives

The cost of higher education is usually one of the first things families consider when deciding whether a student should apply to college and where to go. A tuition-free model signals a public commitment to higher education and relieves other constraints on students, such as the need to rely on debt or to spend large amounts of time working in order to afford school. Evidence from promise programs around the country shows a host of positive outcomes for students when the cost of attendance is removed, including greater likelihood of completing the degree and better performance at lower levels in the education pipeline.[19]

A study from researchers at University of Michigan, for example, shows that even a sticker price of listed tuition for students who would qualify for financial aid that reduces their balance to zero still discouraged those students from applying.[20] Tuition-free for all is also important to get public support and buy-in. Other economic incentives that could encourage individual investments in postsecondary education include subsidies for going to college. This would allow public support to cover the opportunity cost of college, which includes lost income from not working. This again would signify that human capital investments are important labor market activities, especially to low-income youths who tend to have low labor force participation.

Cancelling current student debt is another policy option. This action would not only encourage some of the large number of individuals in the labor market with "no college, some degree" to finish their college educations but also ease the disproportionate burden of student debt on low-income students and students of color. A debt- and a tuition-free model would remove some of the economic distortions such as debt-fueled increases in tuition, predatory for-profit institutions that use students to tap into student loan funds, a shifting away from public-service careers by college graduates, and informational barriers for low-income students.

There are many lessons that can be learned from the administration of the Servicemen's Readjustment Act of 1944, better known as the GI Bill, that can be extended here. Lessons including handling the distribution of tuition benefits, encouraging advancement toward degrees, covering the cost of training for specific careers, industries, or trades, co-op training or work-study, correspondence training, and distance learning. A crucial lesson from the GI Bill is that policies must center equity in their designs. The GI Bill fostered economic mobility for recipients, but increased the racial attainment gap because it was administered by the states, which systemically shut out Black veterans.[21]

Boost research and development across geographic regions and underserved groups

The Morrill Act of 1862 that established land-grant institutions successfully demonstrated that higher education was not just for the children of elites, but that students from poor families also can do well if given the opportunity. But this first act did not provide the same opportunities for Black Americans. The second Morrill Act in 1890 attempted to rectify this inequity with the establishment of institutions for Black Americans.

The United States currently spends a substantial amount of money on research and development. But this spending is extremely skewed by geographic region and by institution. Like the second Morrill Act, a new act is needed in the area of research and development in higher education that increases research incentives to currently underfunded areas, such as historically Black colleges and universities, other institutions serving people of color, technical postsecondary institutes, and underserved geographic locations. This proposal is one way to direct productive funds to struggling HBCUs, improving racial equity and access in the higher education sector and bringing left-behind geographic regions into the knowledge-based economy.

One way of potentially enhancing local economic conditions is to establish research centers housed at colleges and universities around the country in locations that have low research activity. These localized research centers should help localities and institutions serving people of color to identify or create new comparative advantages and identify the most binding constraints to job creation, human flourishing, and other factors relevant to those region and constituents.

This localized research hub proposal is similar to one put forth recently by economists Jonathan Gruber at the Massachusetts Institute of Technology and Simon Johnson at the MIT Sloan School of Management.[22] Another similar example is the creation of manufacturing hubs by former President Barack Obama in Youngstown, Ohio and 11 other localities left behind by globalization.[23] This time, however, the focus would be on research hubs. These research hubs would be staffed by the expected increase in enrolled students and postsecondary educators should policymakers move toward free college tuition and student-debt reform.

There are other, more distant but historically successful programs to boost regional research and development institutions that policymakers could look to for inspiration. One is implementation of the Hatch Act of 1887, which, among other things, allocated funds to public land grant colleges and universities to further develop agricultural and experimental research centers. Another is the Smith-Lever Act of 1914, which established programs designed to apply laboratory research findings to the farms, households, and businesses within local communities.[24]

These types of location-based efforts could work in tandem with other types of cluster policies such as enterprise zones. Private industry could also partner with institutions to share advice, provide technical training, supply trained students, and apply research findings to business practices. In this way, local governments, local firms, and local universities (including students) would work together to make decisions about these initiatives.

Expand postsecondary school admissions, learning, and the attainment of degrees

Decision-making in this domain of higher education mainly operates at the student and university level, but state and federal policies affect these outcomes. Public education institutions, for example, generally respond to declines in appropriations and funding by increasing tuition and by increasing admissions of wealthier students, out-of-state students, and international students, who pay higher prices at the expense of poorer students in a state. As a result, access to the best public universities are increasingly based on ability-to-pay, which goes against the belief of Sen. Justin Smith Morrill of Vermont (of the Morrill Act of 1862 or the Land-grant Act) that higher education should "be accessible to all, but especially to the sons of toil."[25]

These tuition decisions also usually result in less college access for students of color, many of whom are more likely to be poor. That's why affirmative admissions policies that foster more equitable access for all students should be pursued. In addition to more equitable admissions policy at every institution of higher learning, funding for the expansion of educational capacity at HBCUs and institutions serving people of color are integral. HBCUs, which make up just 3 percent of colleges and universities, produce 27 percent of African American students with bachelor's degrees in STEM fields and confer one-fourth of the bachelor's degrees in education awarded to African Americans. One HBCU, Xavier University, awards more undergraduate degrees in the biological and physical sciences to Black students than any other university in the nation.[26]

The new funding model of free or reduced costs of college tuition would relieve students and universities from viewing areas of study simply as job training with immediate payoffs. And it would encourage more exploration among college students of the factors in their education they think play best to their talents, interests, and potential future payoffs. Students at all types of postsecondary institutions also would be able to engage in other foresight exercises during their training, such as identifying research priorities for local, regional, and national economic development.

This would allow students to help design the future economy that they will inhabit, for example, by choosing majors and research activities geared toward sustainabil-

ity, climate, and energy conservation, equity, and human flourishing. This creates a richer student experience that includes paid research activities so students are engaged in relevant job experience while they study.

Universities will need to be flexible in offering subject areas, independent studies, and time commitments to accommodate student exploration. There should also be an emphasis on college attainment through incentives and student support services. The disinvestment in the higher education faculty workforce that led to reliance on contingent faculty, unpaid administrative positions, and adjunctification would need to be reversed. This would not only increase the needed manpower to meet expected growing demand for college attainment, but also will restore a direct source of good jobs in the economy.

Conclusion

The higher education policy reforms proposed in this essay should not be isolated from other policy priorities to boost wage growth and job opportunities in the U.S. economy. Rather, these higher education policy proposals should be merged with ongoing innovation policy and policies targeting green industries and clean technologies, from research and development in the student's curriculum to job training in those industries.

This new educational focus could be built up and supported by education policies for primary and secondary schools, as well as at the pre-Kindergarten and Kindergarten school levels. Mapping new and innovative education policies across the next generational arc would serve our nation well in the 21st century.

Similarly, higher education reforms also could be combined with job guarantee proposals, where graduates of higher education could be placed in social services or public-good industries around the country. And these policies could be combined with ones that bolster labor standards and strengthen worker power. A focus on human capability, worker power, and broad scope of innovation are policies that will move the economy in the right direction, and higher education has an important role in this new trajectory.

All of these proposed reforms build on the historic successes of higher education investments in boosting regional economic development, job creation, and national innovation. The Morrill Act of 1862 established land grant colleges and universities. The second Morrill Act of 1890 established 17 historically black colleges and universities.[27] The Hatch Act of 1887 and the Smith-Lever Act of 1914 explicitly

expanded the role of these schools in local and regional economic development and job training. And then, there's the GI Bill, which provided veterans with college tuition and room and board benefits, and the Higher Education Act of 1965, which provided aid to students around the country.

Many promising programs around the country and tuition-free models demonstrate the transformative role of broad access to higher education for individuals and society. These and other higher education policies and programs are the bedrock upon which to build the future role of higher education in our nation's economy in the 21st century. Crucially, all of these historically successful higher education reforms and the ones proposed in this essay share a common strategy—public investment in pursuit of the common good.

In contrast, the lessons learned about the failures of higher education policies to boost wage growth and jobs growth—policies based almost solely on free-market, supply-side economic theories—are now clearly evident. The historic economic expansion post-2008 failed to deliver broad-based improvements in our nation's standard of living for those who need it the most. And after historic records of inequality due to supply-side policies pursued since the 1970s, continuing the same approach to deliver the social and economic outcomes we value as a society would be misguided.

The new policies proposed in this essay would deliver positive returns on government investment. They would align the federal government and state and local governments with public institutions of higher learning and their students to not only break the stagnation of wages for low-income Americans but to also reap the other large potentials of the higher education system.

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Public investments in social insurance, education, and child care can overcome market failures to promote family and economic well-being

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Overview

Families in the United States are, to a large extent, left to fend for themselves. They must provide for their children's early child care and college education. They must also save for, or purchase, private insurance against a range of risks, including job loss, old age, and care needs—that is, if they can afford to do so. Economic theory, plenty of evidence, and the long experiences of many families all show that the lack of protection against these risks burdens families, which greatly need social insurance protection in these areas. This is combined with rising costs of healthcare, child care, higher education, and long-term care, and the rise of fissured work that has eroded workplace benefits, leaving families' economic positions even more precarious. A greater public role would enhance both economic efficiency and family well-being.

We argue for a larger public role in protecting families through the public provision of care and social insurance. Government needs to play a larger role in insuring against certain types of risks that individuals and families face, including greater Unemployment Insurance protections alongside old age insurance, health insurance, and long-term care insurance. Government also needs to do more to support families in the raising and educating of children during their early childhood years and when they go to college.

The high costs that families bear in financing these economic necessities are not necessary but arise from market failures. Addressing these market failures through greater public investments would be cost effective and boost family well-being. The federal government can provide social insurance protections at a much lower overall cost, and by removing major risks from families' own balance sheets, enable families to stretch their market earnings further, enhancing their economic security. In effect, the government provision of these social protections would increase the real value of wages, allowing for better and more secure living standards at any given market wage.

In this essay, we first present the evidence for why expanded public social insurance programs would improve families' living standards and the broader U.S. economy, and then turn to the reasons why increased public support for early childhood care and college education would deliver greater family well-being. While disparate, all of the policy proposals presented in this essay share a unifying feature: They all would dramatically improve family well-being, much more than the amount that these public investments would cost to provide.

Expand public social insurance programs to improve families' living standards

The private purchase of homeowners or renters insurance, car insurance, and life insurance is rightly seen as an essential part of a middle-class family's budget, and there are well-developed markets for these risks. However, families also face many risks that are not easily insured against in private marketplaces. They cannot buy fairly priced insurance against the possibilities of losing their jobs in recessions, of outliving their savings, or of contracting a serious illness.

Most families also cannot afford to buy insurance against the enormous potential expense of long-term care in old age. While families might want to purchase these types of insurance, it is highly unlikely that private insurance markets can be made to function well in any of these areas, even with aggressive regulation, suggesting a natural role for public provision.

The absence of insurance leads to large uncovered risks and, often, to costly responses. Families are forced to juggle the competing imperatives of saving for retirement and saving for health emergencies and long-term care in old age. Many forego needed medical care and, when they encounter serious illnesses, declare bankruptcy due to an inability to pay the bills.

These uncovered risks also distort other aspects of families' lives. Health insurance considerations become an important part of job choices, overriding other concerns. The resulting "job lock" depresses wage growth. Inadequate Unemployment Insurance means that a recession risks pushing families into financial ruin, quickly wiping out savings and standards of living. Later in life, many find themselves intentionally spending down their savings in order to qualify for Medicaid coverage for long-term care.

There has long been a recognized role for the public sector in the provision of social insurance where private insurance markets do not function well. An example is disability insurance. Those who become disabled often lose their livelihoods, but information asymmetries make it very difficult to purchase disability insurance on private markets. Where insurance is available, underwriters often require extensive medical exams and refuse to write insurance for those with preexisting conditions. Through the Social Security Disability Insurance, or SSDI, and Supplemental Security Insurance, or SSI, programs, the government provides insurance to all, supplying monthly income to the disabled through (in the case of SSDI) premiums levied on the healthy.

Unfortunately, our existing social insurance system, while important, does not adequately cover many of the risks described above, with major consequences for families' financial health and well-being. Without insurance, even prosperous families lack economic security. Publicly provided social insurance can protect them from these risks and thereby promote security. Specifically, we advocate expansions of public social insurance to better cover the risks of:

- Unemployment
- Longevity
- Adverse health events
- Long-term care

We detail the importance of each of these investments in turn. In each area, an expansion of our traditional understanding of social insurance would dramatically improve the well-being of the typical family. In many cases, it would enable them to pursue higher wages through smoother operation of the labor market. It would allow them to live more comfortably and securely for any given market wage. And it would provide the growth in living standards that wages themselves have not been able to achieve in recent decades. In each case, there is a straightforward program that would provide the support that families need.

Unemployment Insurance

Workers who lose their jobs need to finance consumption—food and clothing, heating and air conditioning, housing and transportation—until they find new jobs, generally with very limited ability to borrow against future income. An 85-year-old joint federal-state program provides Unemployment Insurance to workers, financed by payroll taxes. To limit coverage to those who are truly involuntarily unemployed and to avoid moral hazard, Unemployment Insurance benefits are limited to those laid off from their jobs through no fault of their own. Those who quit or are fired for cause are generally not eligible.

Another measure taken to restrict moral hazard is the limit of time placed on benefits. These time limits typically run for 26 weeks, on the theory that anyone actively looking for work should be able to find a new job before their benefits run out. The idea here is to balance moral hazard against the need for insurance.[1] The program also includes job search requirements for those receiving benefits.

This insurance is quite valuable to workers, as the alternative is that all workers would need to maintain substantial savings against the possibility of losing their jobs. But many workers with irregular employment histories do not qualify for Unemployment Insurance benefits when they lose their jobs, nor do workers classified by their employers as independent contractors. The result is that a large share of workers who lose their jobs do not receive unemployment benefits.

Moreover, the uniform program described above does not address systematic differences in the availability of jobs. The chance that a worker will be able to find a job within 26 weeks, even with diligent search, varies enormously over the business cycle. As a consequence, Unemployment Insurance recipients in weak labor markets are much more likely to exhaust their benefits. This indicates that the moral hazard-insurance trade-off needs to be recalibrated during these times, allowing for longer benefit durations and more generous benefits when jobs are scarcer. This should be automatic and should last as long as the economy remains weak.[2]

Such a policy offers benefits beyond basic risk protection. First, unemployment benefits stabilize demand in the broader economy by boosting consumption among those with high propensities to spend. Automatic extensions would ensure that public insurance spending arrives when the economy needs the additional demand, not afterward. Second, the moral hazard argument for encouraging unemployed workers to actively search for jobs by limiting the duration of benefits is much attenuated in recessions because there are "congestion effects" in job search—one worker's more diligent search just makes it harder for the next to find

a job.[3] Third, benefit extensions mean that unemployed workers are not forced to desperately accept any job offer that comes along. They can take the time to search for a position that is a good fit. This increases workers' bargaining power and improves job matching, allowing workers to find the roles where they can be most productive and can earn the highest pay.[4]

A package of modernized eligibility requirements that ensures that much larger shares of displaced workers are eligible for benefits, combined with automatic triggers that extend benefits and increase generosity in poor economic conditions, would help the already-successful program do more to support our modern economy.

Old age insurance

It is hard for most families to save enough during their careers to support adequate consumption during retirement. This is made harder because it is impossible to predict just how much savings people will need—the unpredictability of lifespans and of investment returns creates substantial risk. The only way people can protect themselves is by saving much more than they will likely need, to avoid running out of money at the ends of their lives. This precautionary saving reduces families' economic well-being across generations.[5]

People would be much better off with insurance that guaranteed them a stable income for as long as they live. There is no real moral hazard problem here, and such insurance products exist: Annuities are financial products offered in private marketplaces that provide guaranteed income for the remainder of one's life. Annuity markets generally function poorly, however, for reasons that are not entirely understood but include adverse selection (the tendency for those who know they will live longer to buy more insurance, raising the price insurers must charge), shortcomings of insurer regulation, and the substantial complexity of the products on offer.[6] As a consequence, annuities are generally priced well above their actuarial value, and few people buy them.[7]

The resulting market failure creates a clear and long-recognized public need. Since 1935, Social Security Retirement Insurance provides a mandatory retirement annuity to all American workers, with some modest redistribution from high-earning workers to low-earning ones and from later to earlier cohorts. But Social Security was designed to be just one part of what was intended as a three-legged stool, with private pensions and individual savings providing the other legs.

Over the past six decades, one of these legs has nearly disappeared as these days, only one-fifth of full-time, private-sector workers are covered by a defined-benefit

pension.[8] The third leg—individual savings—has never functioned well. Less than 60 percent of those approaching retirement have any retirement savings, and more than half of those have saved less than $100,000, not nearly enough to last through a long retirement. Moreover, those who do save still face uncovered risks from financial market volatility, as well as the risk of outliving their savings.

Social Security is the crown jewel of our current social insurance system. But precisely because private pensions and individual savings have proven unsuccessful as complements, we propose expanding the Social Security annuity to cover a much larger share of expected retirement consumption. Social Security should be seen as it functions for many households: as the basis for retirement consumption, not merely as one equal part among three.

Even an expanded universal retirement benefit, however, would not meet all retirement needs. We propose to combine an expansion of the base benefit with an optional public annuity, structured as an option to top up one's Social Security benefits through voluntary additional contributions. Those who make these contributions would receive higher guaranteed benefits, administered through the existing Social Security system. This would, of course, benefit only those who could afford to make such contributions, but for them, it would be a far superior way to save than existing defined-contribution vehicles such as 401(k)s, insulating them from market and longevity risks that they are poorly suited to bear.

Health insurance

Medical care absorbs an ever-growing share of national expenditures. Progress in medical science makes it possible to treat a wide range of ailments that were previously untreatable, though often at a high cost. Given these high costs, health insurance is essential to economic security. Yet private health insurance markets rarely work well.

One problem is that people are often unable to purchase insurance for the most serious risks that they face. Before they were banned by the Affordable Care Act, preexisting conditions exclusions meant that many people, even those with insurance, were uncovered for major potential expenses. Even with the ACA's protections—which may be invalidated by a pending Supreme Court decision—there are other ways for insurers to shift risk. Employers may negotiate for less-comprehensive insurance to save costs, or insurers may charge high premiums to employers with workers at risk of high expenses.

A second problem is that the correct care is not easily observable and often depends on doctor discretion. This creates what economists call a principal-agent

problem, in which the interests of medical providers (who earn more when more care is provided) do not always align either with those of patients or those who are paying the bills. This leads to extensive controls on care usage, frequent denial of coverage for legitimate claims, and enormous hassles for policyholders.

The end result is that, absent very strict regulation, many workers go without insurance altogether, and those who have insurance still face large risks of being bankrupted by charges that insurance companies deny.[9] This can create what is known as an adverse selection spiral, where only those with the highest prospective costs buy insurance and, as a result, insurers must raise prices, further discouraging those with below-average costs.

Third, the decision to forego insurance is not a purely private one. Health insurance and healthcare generate "positive externalities" to society. Healthier citizens are more productive, and those without health insurance may ultimately depend on safety net programs when they get sick.[10] This means that we all have a stake in ensuring that all households have access to adequate, affordable care.

All of this argues for a larger public role in providing health insurance coverage. This would have additional benefits, beyond purely reducing risk to workers. First, it would create opportunities to control costs, which, under our current system, continue to spiral upward. As these costs are largely borne by employers today, this would allow wages to rise without increasing total compensation costs. Second, under our current employer-based health insurance system, many workers, particularly those with preexisting conditions, feel unable to move to new jobs lest they risk their health insurance coverage.[11] This "job lock" impedes career progression and wage growth.

To improve our public health insurance system, we need to build on our existing successful social insurance system, anchored by Medicare, via the public provision of health insurance to a much wider swath of workers and their families. This would dramatically reduce the private-sector bureaucratic and transactional costs of private healthcare while ensuring universal coverage. It would remove one of the major financial risks that families face, enable more people to get the care that they need, and allow for a more flexible and dynamic labor market.

Long-term care insurance

A related risk that families face is the potential need for long-term care. Many people need labor-intensive personal care following major illnesses, as well as at the end of their lives. This is a major expense that arrives when people are least able to accommodate it. In principle, healthy people could save against possible future

long-term care needs, but the range of possible outcomes is so enormous, and the variability so high, that few do this.

Private insurance markets exist but are complex, hard to understand, and badly undersubscribed. Adverse selection seems to combine with individual optimization failures—people prefer to wait until they are sick to purchase long-term care insurance, but by that point, it is unaffordable.[12] They are then forced to rely upon Medicaid coverage, which provides low-quality care for those who are eligible but requires spending down one's assets to qualify.[13] The net effect is that people's well-being in old age is at great risk, and the government still winds up bearing much of the cost.

To overcome all of these problems, policymakers should combine public health insurance with a long-term care benefit, not means tested, as Medicaid is, but available to all. Providing higher-quality, universal public coverage without requiring recipients to exhaust all savings and assets before using it would be expensive, but would much improve the well-being of those in need and those who care for those in need.[14]

Investing in public early child care and preschool education, and higher education

The social insurance programs detailed above would remove major risks from families. Other important, fast-growing expenses that families face are child care and education. Substantial new public investments in these areas would not only prepare the next generation of workers and their future families to be more productive members of the U.S. economy and society, but also would reduce the drag on families' budgets, enabling families to contribute more to our economy and to enjoy higher standards of living. In this section of the essay, we'll look first at early child care and education, and then at higher education.

Early child care and preschool education

Children are very expensive, particularly in their early years. Families must provide round-the-clock care, either purchasing it at high cost on the private market or relying on a family member, who is then unable to work in the market. Moreover, while research has shown large benefits from high-quality early childhood education, this is very expensive, too. Parents must bear these costs, though most of the benefits accrue to the children, and must do so at a time in their lifecycle when they have few resources to draw upon.

The decision whether to purchase early child care and early childhood education, along with the burden of paying for it all, rests on parents today, while it is the children's futures that are at stake. In theoretical models, families should collateralize their children's future earnings as security for loans to finance these investments. In these models, parents may invest less in children's education than the children themselves would, as they may not value the benefits as much.

More importantly, however, the loans needed to support this arrangement do not exist in the real world.[15] Even when the government can create a market for them, as it has done for college student loans, borrowers face substantial risks and the loans can be quite burdensome to pay. More direct public financing for early childhood care and education will lead to more investment in childrens' development and thus more productive workers when the children are grown, while substantially easing families' budgets in their early years of formation. A better-educated child also benefits the rest of society through reduced reliance on public support, productivity spillovers, and reduced criminal activity.

There is substantial precedent for extensive public involvement in this area. Most obviously, we provide free public education from age 5 onward. But those public investments are heavily tilted toward older children. President Barack Obama's Council of Economic Advisers estimated that, in 2015, combined annual local, state, and federal expenditure per child was 63 percent higher for those kids between the ages of 6 and 11 than for those between 3 and 5.[16] This is despite the fact that evidence increasingly shows that high-quality early child care and childhood education, prior to entering Kindergarten, is a key investment with important implications for children's long-run outcomes.[17]

There are a range of existing programs to help parents when children are very young. The Head Start preschool program is one example.[18] But these programs are relatively small and tightly targeted to the very poor. The high expenses of early childhood are a burden not just for poor families but also for middle-class families, which are at similar risk of underinvesting in their young children. Another consequence of the high cost of early childhood care and education in private markets is that many families do not use it. This keeps parents, mostly mothers, out of the workforce, reducing family earnings and mothers' career progression. Other families rely upon low-quality programs that do not adequately prepare children for school.

It is time to recognize that early child care and education is a public good and will be underprovided until it is treated as a public responsibility. We need greatly expanded public provision of child care and early childhood education, with public funding and careful, thoughtful regulation to ensure quality.[19]

Higher education

Higher education presents its own set of challenges. Extensive evidence demonstrates that high-quality higher education leads to enormous earnings increases and also delivers spillovers for more than just the students involved: Each young adult who is sent to college makes his or her neighbors and co-workers more productive as well.[20] This type of externality, along with the same types of credit market failures discussed above that make it hard for children to borrow against their future earnings, leads to underinvestment by too many young adults and their families.

The United States currently supports higher education in three ways. We directly support public institutions of higher education through direct federal and state allocations; we provide grants to very low-income students; and we support public student loans. Yet all three of these policies are increasingly failing to keep up with changes in our economy.

There are not enough public colleges and universities to accommodate growing demand, even as higher education has become a near requirement for decent adult earnings. Scholarships for low-income students also are not keeping up with rising tuition and offer essentially no help with nontuition costs of higher education. And student loans are subject to abuse by low-quality institutions that take loans on students' behalf without providing education of commensurate quality.[21] This, of course, is risky for students who do not know if their education will pay off in terms of career success. Indeed, much of the growing student loan crisis is concentrated among students who never finished their degrees.[22]

This is why policymakers need to take public action to reduce the private cost of higher education. This could take many forms, including increased spending on tuition subsidies, such as by expanding the existing Pell Grant program, and investing in a growing public higher education sector, with restrained or eliminated tuition made up through additional investment of tax revenue. The essential goal is to ensure that more affordable, high-quality spots are available for students wanting to pursue higher education, and that the cost burden on families of this pursuit is reduced.

Conclusion

Each of the above proposals—the social insurance programs we discussed first, as well as the early childhood care, preschool, and higher education recommendations we presented second—would remove large costs and risks from families' budgets. Together, they would allow earnings to go much further.

With these programs in place, families would not need to set aside substantial savings against the possibility of job losses, unexpected medical costs, an unanticipated long retirement, or a child who needs day care or college tuition. They could instead spend their earnings on meeting current consumption needs. Moreover, by removing social insurance benefits from employment relationships, these programs would free up constraints on the U.S. labor market, enabling better worker-job matching, higher female labor force participation, and thus higher productivity and wages.

We recognize that our proposals would require substantial additional federal budgetary commitments. It is important to recognize, however, that these are not new costs. They are merely transfers from families' budgets to the government's accounts. Because these types of public social insurance programs are much more efficiently provided at scale than at the individual level, the cost in increased taxes needed to finance them would be less than families are currently paying, allowing for increased consumption even after the higher tax bills are paid.

Moreover, the use of tax financing would enable more progressive funding structures that take account of the enormous increase in economic inequality that U.S. society and the economy have experienced in recent decades. This growing inequality means that even middle-class families increasingly need support to afford their obligations, and it makes sense for policymakers to draw on the extremely wealthy for disproportionate shares of the costs.

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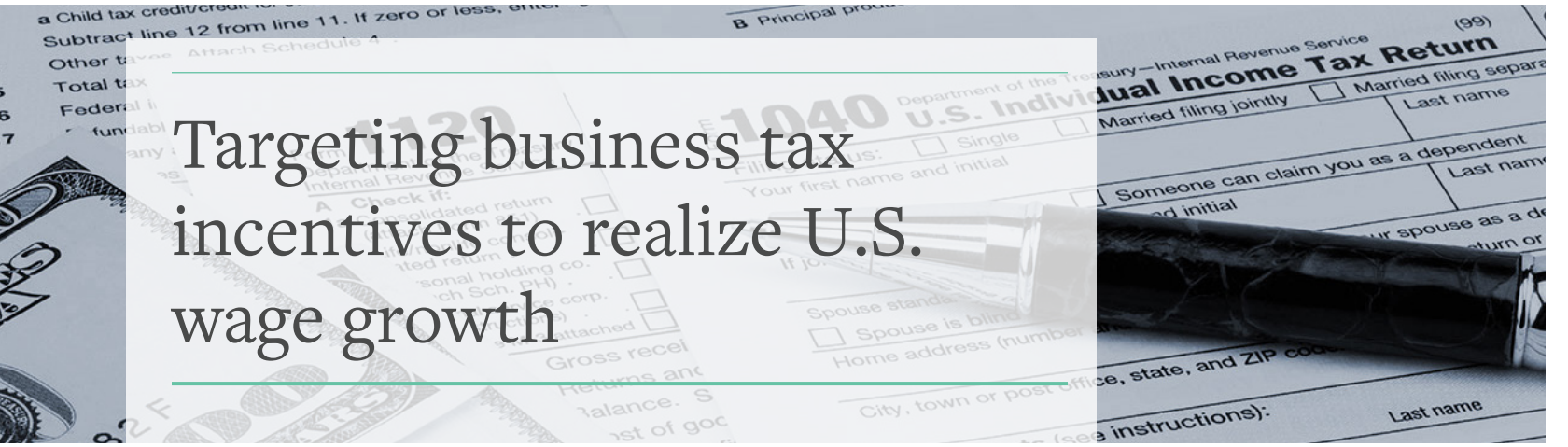


Targeting business tax incentives to realize U.S. wage growth

By Juan Carlos Suárez Serrato, Duke University

Overview

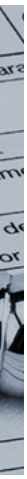
Policymakers in the United States place significant faith in the belief that business tax incentives can boost wage growth for workers. Underlying this belief is a complicated set of chain reactions that connect tax policy to worker wages. In theory, tax cuts stimulate investment, lead to an investment-driven increase in employment, and, under the right labor market conditions, deliver wage gains to workers.

The latest academic research uses state-of-the-art methods and new U.S. administrative data to improve our understanding of the many links that connect tax policy to wage growth. Across a variety of policies, the empirical evidence does not support the belief that broad-based tax cuts consistently deliver wage gains to workers.

Instead, researchers find mixed results across different settings. For instance, some tax cuts failed to ignite an investment or employment response. Other tax incentives did stimulate investment and employment, but not wage growth. In some other cases, researchers find that tax cuts delivered regional or firm-level wage gains to workers. Yet even in the cases where tax cuts led to wage gains, the overall impact of these policies was an increase in income inequality.

Based on this evidence, policymakers who are focused on stimulating wage growth through tax policy should consider alternatives to broad-based tax cuts. This essay proposes one such alternative: tax cuts that are directly tied to the realized average wage growth of a firm's workforce.

An obvious benefit of this proposal is that, by design, it ensures workers benefit from business tax incentives. But recent experiences from local economic development programs and from targeted tax incentives also demonstrate that policies



designed with weak accountability mechanisms may not deliver the promised gains to workers. Developing compliance and monitoring systems is therefore key to ensuring that workers benefit from targeted tax cuts.

In this essay, I first discuss the potential for basing targeted tax cuts on realized wage growth. I then discuss recent studies from the academic literature on the effectiveness of different tax policies for stimulating investment, employment, and wage growth. I find that the empirical evidence does not support the belief that broad-based tax cuts consistently deliver on the promise of wage growth. Based on this evidence, I propose that linking business tax cuts to realized wage growth is a better approach, and that requiring strong compliance mechanisms, in which firms deploy their tax incentives toward forms of production that develop worker skills, is key to boosting wage growth.

The role for targeted tax cuts

As I discuss in the next section, recently enacted tax policies have not been able to effectively deliver economic gains for workers. This is why it's worth considering whether targeted tax cuts can be directly designed to ensure wage growth. To see why targeted tax cuts may be desirable, it is useful to think about the effects of broad-based tax cuts on three different types of firms:

- The first firm is one with established production processes. Investment or employment at this firm will not be stimulated by a lower tax rate.
- The second firm is one that would invest in new modes of production if it faced a lower tax rate. Facing a lower tax rate, however, this firm would opt to replace existing workers through automation.
- The third firm is one that also would invest in new modes of production, but instead of replacing workers with machines, it would invest in technologies that would enhance worker productivity.

A broad-based tax cut would be a boon for the owners of the first firm, but the tax cut would fail to stimulate new economic activity. While the tax cut would spur investment in the second firm, the policy could unnecessarily reward automation, incentivize the replacement of workers with machines, and potentially lower the wages of the remaining employees.[1] As long as wages reflect the rise in productivity, the workers in the third firm have the best chance of benefiting from a broad-based tax cut.

While policymakers may want to help workers in the third firm, this example shows that a broad-based tax cut is an imperfect way to boost the wages of most workers. Indeed, the policy may lead to an overall increase in inequality, especially if the lower taxes paid by all firm owners and the losses to workers in the second firm exceed the wage gains of the workers in the third firm.

Consider, then, the effects of a tax cut that is indexed to wage growth. Specifically, suppose firms get a reduction in their income tax rate—for instance, of 5 percentage points—only if the average wage growth across all of their employees exceeds some threshold—for instance, 4 percent. Investments by the first two firms would not be affected by this policy. In contrast, if investment by the third firm increased worker productivity by more than the wage increase, the firm would respond to the tax incentive by both increasing investment and raising wages. To promote continued wage growth, the policy could award tax cuts to firms based on the average wage growth of the past, say, 3 years.

This feature would incentivize firms to design their medium-term investment plans with a view toward increasing the productivity of their workforce. The promise of targeted tax cuts is to stimulate these kinds of firms to invest in technologies or worker training that will lead to sustained wage growth.

In the example above, the targeted tax incentive took the form of a lower corporate tax rate. One drawback of this proposal is that only workers in firms with current profits may benefit from the policy. An alternative formulation would be to award firms with sufficient wage growth a refundable tax credit for new investment.[2] The size of the tax credit could also be capped at some multiple of the wage increase to ensure that the majority of the gains accrue to workers.

An additional variation would be to set a target for wage growth for employees below a certain income cap.[3] This would ensure that increases in average wage rates are not driven by increases in the compensation of top earners, so that low- and medium-wage workers benefit from the tax incentive. These features follow the insight of the "inequality insurance" policy proposed by Yale University economist Robert Shiller—a proposal that links tax policies to realized levels of inequality.[4]

Tying tax credits to outcomes at firms is not new. Research and development tax credits, for example, have long defined the creditable tax base, relative to previous levels of R&D. Local development agencies also condition eligibility for investment incentives on meeting employment targets. More recently, fiscal support in response to the coronavirus pandemic also tied the generosity of government assistance to whether firms retained existing employees. All of these examples show that policymakers often tie fiscal incentives to outcomes, and highlight the importance of strong compliance mechanisms.

A potential problem with tying tax cuts to realized wage gains is that firms may find ways to maximize the tax benefit while minimizing the gains to workers. A particularly undesirable effect could be that firms increase average wages by laying off lower-wage workers or replacing them by outsourcing their services to third-party firms. To avoid this potential problem, firms that participate in such a program would have to commit to employment plans and wage increases for existing employees. Firms that participate in the program would have to be monitored by an agency, such as the IRS, that is able to compute average wage increases for a firms' workforce, which could be accomplished by relying on data from W-2 forms.

I and my co-authors Zhao Chen and Zhikuo Liu of Fudan University and Daniel Yi Xu of Duke University examine these types of tax incentives in a program designed to increase R&D investment in China.[5] The program provides tax cuts to firms that certify as part of a special program and that comply with innovation plans that include, among other things, the employment of scientists and researchers. Even in a setting where compliance is far from perfect, we show that such programs can be effective at stimulating R&D activities that may benefit other firms through knowledge spillovers.

One potential risk of awarding tax breaks to specific firms is that the government may not be able to identify valuable opportunities or that government officials may offer tax cuts to politically connected firms. These concerns are justified by the track records of local economic development incentives,[6] and by failures in the design of the Opportunity Zones program[7] and the Paycheck Protection Program.[8]

These problems could be mitigated by relying on a competitive selection process. Sabrina Howell of New York University's Stern School of Business, in a recent study, highlights an example of an effective use of competitive project selection.[9] She shows that R&D grants awarded by the U.S. Department of Energy successfully identified projects at start-up firms that were more likely to receive later-stage venture capital funding and result in successful innovations. There are several other successful examples of such policies that subsidize businesses in particular geographic areas and result in increased investment, employment, and wage gains.[10]

Competitive selection processes can prioritize projects that directly address market failures, that prioritize investment in worker training, or that may provide relief to areas where wage stagnation has led to particularly dire social outcomes. The process of firm selection also could be used to target preexisting economic disparities—such as underemployment of Black or Hispanic workers, or racial wage differentials—and to ensure that participation in the program is not limited to few privileged firms.

By designing tax cuts to directly influence wage growth, the proposed targeted tax cuts would be a significant departure from the usual dynamic of cutting business

taxes first and measuring the incidence later. Moreover, targeted tax cuts follow on a long tradition in public finance that shows targeting can lower the cost of fiscal incentives while focusing on specific benefits.

At the same time, any incentive system is only as effective as its implementation in the real world. While some of the features above build on the failures of previous policies, lessons from the local economic development literature can aid in designing effective policies.[11] It is also possible that policymakers may shy away from the provisions above, which may limit their own influence or be unpopular with key constituencies, especially business groups.

Designing effective policies that are politically feasible is therefore a key area for further policy innovation. While effective design and political feasibility are key concerns, the suggestion to tie wage growth to tax cuts is a first step in reconsidering how business tax policies can boost wage growth.

The effects of U.S. business tax policies on wage growth

U.S. business tax cuts can potentially have several impacts on the U.S. labor market. Assuming a given tax incentive stimulates business investment, firms may pair capital investments with workforce expansions. Wages can potentially increase through a couple of mechanisms. If the labor market is well-approximated by a competitive equilibrium, then additional labor demand can boost wages. Alternatively, when wages are set through collective bargaining, productivity gains from capital investment may benefit workers as bargaining agreements are revised. However, while it is possible for business tax cuts to spur wage growth, it is not a fait accompli that tax incentives will stimulate investment, let alone wage growth. Indeed, it is even possible that tax incentives may stimulate transitions to more automated forms of production that replace workers with machines.

Recent advances in academic research shed light on the many possible links between tax incentives, investment, employment, and wage growth. Disentangling these effects empirically is difficult for two reasons. First, researchers must separate spurious correlations from causal effects of tax policies. In practice, this requires making careful comparisons between firms that face different tax incentives, and where it is plausible to assume that this is the only difference between these firms that could affect investment, employment, or workers' wages. Second, measuring the impact of tax policies at both the firm and worker levels is complicated by a lack of widespread access to the necessary data.

In recent years, researchers have made progress on both fronts by either using modern research methods developed in other areas of economics and/or using administrative tax data to measure outcomes among firms and workers. Let's now turn to four ways in which tax incentives designed to boost wage growth may or may not produce the desired results.

A tax cut that did not stimulate investment or employment

Consider, as a starting point, the case of the 2003 dividend tax cut. This federal tax cut lowered the top tax rate on dividend income from 38.6 percent to 15 percent, and was meant to boost investment and employment growth. Danny Yagan, an economist at the University of California, Berkeley, studies the impact of the 2003 dividend tax cut.[12] He uses administrative tax data to compare S-corporations (firms organized to pay income taxes through their owners) and C-corporations (those firms that pay corporate income taxes directly) that are otherwise similar but that differ in their exposure to the 2003 dividend tax cut. Yagan finds that this large tax cut had no effect either on investments or payroll.[13] These results are a cautionary tale, showing that tax incentives can fail at stimulating investment and employment, let alone wage growth.

A tax incentive that stimulated investment and employment, but not wage growth

A second set of papers studies policies that stimulate investment by reducing the cost of investment. One such policy—bonus depreciation—reduces the cost of investment by allowing firms to claim depreciation deductions earlier, which increases the present value of this deduction. For example, consider the case of a business that buys a truck for $100,000. Under standard depreciation rules and practices, the business deducts $100,000 from its taxable income over a period of 6 years. Bonus depreciation allows firms to deduct a fraction, say 50 percent, of the $100,000 in the year the truck is purchased, with the remaining fraction spread over the full 6 years. By speeding up the depreciation schedule, the policy lowers the total cost of investment.

Eric Zwick of the University of Chicago Booth School of Business and James Mahon at the accounting firm Deloitte LLP use industry-level differences in the lifespan of capital investments to identify firms that benefit more from bonus depreciation.[14] Using administrative tax data, they show that the policy stimulated investment in firms that had more to gain from the policy, relative to those that benefited less. Zwick and Mahon document considerable heterogeneity in the effects of the policy, with smaller firms and those facing financial frictions having

the largest responses to the tax policy.[15] In a related study, economist Eric Ohrn of Grinnell College studies a state-level version of bonus depreciation and also finds that these policies lead to increases in business investment.[16]

Understanding the effects of bonus depreciation on the labor market is central to recent policy changes in the Tax Cuts and Jobs Act of 2017, which allows firms to fully depreciate—or expense—capital investments. Studying firm-level payroll data, Zwick and Mahon find positive effects of bonus depreciation.[17] I and my co-authors, Grinnell's Ohrn and Daniel Garrett of the University of Pennsylvania's Wharton School, further study the labor market effects of bonus depreciation by identifying the local labor markets that had more to gain from bonus depreciation.[18] Specifically, we find that employment and payroll increased in places that were more heavily exposed to industries that could benefit from the policy. Studying the effects on average earnings, however, we find null or negative impacts of the policy.

This research highlights one of the empirical challenges of estimating the effects of tax policy on wage growth: separating worker-level effects on wage rates from changes in the composition of the workforce. Specifically, if the tax policy leads firms to hire lower-wage workers, then we might be tempted to conclude that the policy reduced wages, while it mostly expanded employment opportunities for lower-wage workers.

Studies of tax incentives that impacted firm-level wage growth

A third set of papers shows that some tax policies did impact firm-level wages. Consider, for instance, the role of business tax incentives in the noncorporate sector, which has been growing in importance over time. Max Risch of Carnegie Mellon University studies how the 2012 increase in personal income tax rates affected wages of workers in S-corporations.[19] These firms differ from standard corporations in that firm profits are taxed at the personal income level and are not subject to the corporate income tax. Using administrative tax data linking firm owners and workers, Risch shows that workers' wages were affected by whether firm owners were subject to the tax increase. Risch finds that workers' wages only decreased by 15 cents to 18 cents of every dollar of additional tax liability for the firm owner. One benefit of using employer-employee linked data in this study is the ability to show that wage increases are driven by wage changes of individual workers and not by changes in the types of workers hired by the firm.

Along with the noncorporate sector, it is important to consider the effects of reforms that impact multinational firms. I study the impact of an international tax

provision—the 1996 repeal of Section 936 as part of the Small Business and Job Protection Act—that limited profit shifting through Puerto Rico.[20] I show firms that were previously able to shift profits to Puerto Rico responded to the rise in tax liabilities resulting from the repeal of Section 936 by reducing investment and employment in the United States. These firm-level effects also had regional implications. Regions of the United States that were more exposed to the establishment networks of these firms saw persistent declines in employment, income, and wage growth among their workers, who also were more likely to rely on income transfers from the government, such as Unemployment Insurance and supplemental nutrition assistance.

Grinnell College's Ohrn examines the effects of a different tax incentive—the Domestic Production Activities Deduction created as part of the American Jobs Creation Act of 2004—on corporate investment.[21] He finds that the resulting reduction in corporate tax rates has a similar impact on investment as bonus depreciation, per dollar of tax revenue. Then, there's the study by three economists working for the U.S. Congress' Joint Economic Committee and the Federal Reserve—Christine Dobridge, Paul Landefeld, and Jacob Mortenson—on how this policy impacts wages using administrative tax data.[22] They find that lowering corporate tax rates led to increased average wages in firms that claimed this deduction. But they also document significant effects on the within-firm distribution of wages, finding that the majority of wage gains are concentrated among workers in the top 5 percentiles of the firm's wage distribution, and that there was zero impact on the wages of the median worker at these firms. These findings are consistent with further research by Ohrn, showing that tax savings from this policy led to an increase in executive compensation.[23]

Studies of tax incentives that impacted regional wage growth

A final set of papers relies on regional variation in tax rates to identify the effects of business tax cuts on wage growth. I and my co-author Owen Zidar of Princeton University study the effects of cuts to state corporate tax rates.[24] We find that the number of establishments in a location increases following a tax cut. This effect is followed by an increase in job growth and—over a 10-year period—an increase in hourly wage rates. These findings belie the notion that tax cuts are fully absorbed by capital owners.

The positive effects of business tax cuts on wage growth are echoed by studies in Europe. One study leverages regional variation in corporate taxes across German municipalities.[25] Another study investigates the direct effect of tax changes in a sample of European companies.[26] Both studies focus on within-firm wage changes and find that tax cuts also increase wages. In these studies, about half of the incidence of a tax cut is borne by workers.

While these results are consistent with those that Zidar and I find, the estimated wage gains arise from different underlying mechanisms.[27] We find that wage increases are the result of competitive market forces at the regional level. In the two European studies, the authors find that wage increases are driven by within-firm changes in compensation, which depend on labor market institutions such as bargaining agreements.

This distinction matters for the timing of benefits to firm owners and workers. In the market mechanism, after-tax profits rise immediately, while wages rise over time as firms respond to the prospect of higher profits by expanding or starting new operations. Zidar and I find that the process of wage gains evolves gradually over a decade.[28] But in the German study, the largest gains arise in firms subject to collective bargaining, in which wage gains materialize over 1 year to 3 years.[29]

A similarity across these studies in the United States and Europe is that, while workers gain through wage increases, business tax cuts may lead to an overall increase in income inequality. The German study estimates that corporate taxes in that country are overall progressive.[30] The results that Zidar and I find imply that while workers gain through employment and wage increases, U.S. business tax cuts are overall regressive.[31]

These results are further confirmed by me and my co-authors, Suresh Nallareddy of Duke University's Fuqua School of Business and Ethan Rouen at Harvard Business School. We use state corporate tax changes in the United States to directly estimate that state corporate tax cuts increase top-income inequality.[32]

Conclusion

Recent research considerably improves our understanding of how tax policy can impact investment and employment. It is possible that some policies may be justified by their effects on investment and employment, especially when new jobs benefit low-wage workers. At the same time, the findings do not paint an optimistic picture for the specific goal of using broad business tax cuts to spur wage growth. Some tax cuts fail to stimulate investment. Other tax incentives stimulate investment and employment, but have no impact on wage growth. And business tax cuts can sometimes stimulate investment, employment, and wage growth, but these gains are often concentrated at the top end of the income distribution and are accompanied by overall increases in top-income inequality.

The empirical evidence, in the end, does not support the belief that broad-based tax cuts consistently deliver on the promise of wage growth. Based on this evi-

dence, this essay proposes tying business tax cuts to realized wage growth. While this tax incentive would require strong compliance mechanisms, one important benefit of this system is to help shape the future of the U.S. workforce. Specifically, by directing firm investment toward forms of production that develop worker skills, such a program could avoid unnecessarily speeding up the disruption of workers' careers through excessive automation.

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Endnotes

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Equitable Wages

Reducing wage disparities to create more equitable wage structures across the U.S. labor market for all U.S. workers requires a labor market in which workers from historically marginalized backgrounds are able to access equitable opportunities. This is a labor market that works for everyone.

Addressing gender and racial disparities in the U.S. labor market to boost wages and power innovation

By Lisa D. Cook, Michigan State University

Overview

Allowing people to pursue their talents and interests is essential to individual well-being, but it also is a crucial part of any market economy. U.S. laws and society too often limit people from developing their potential, harming those individuals and the overall economy in the process. Policies that encourage more equal participation for women and African Americans could boost economic growth, reduce inequality, and power innovation.

The costs of misallocating talent in the U.S. economy are increasingly being identified in the economics literature. Four scholars at the University of Chicago's Booth School of Business and Stanford University recently analyzed the gender and racial distribution of workers in highly skilled occupations over the past 50 years.[1] They show that the change in the occupational distribution since 1960 suggests that a substantial pool of innately talented women and African Americans in 1960 were not pursuing their comparative advantage, and that this misallocation of talent affects aggregate productivity in the economy. They find that one-quarter of growth in aggregate output from 1960 to 2010 can be explained by an improved allocation of talent.

Other recent research finds that women's underrepresentation in engineering and in jobs involving development and design explains much of the patent gap between men and women.[2] Closing this divide could increase per capita U.S. Gross Domestic Product by 2.7 percent.[3] And using data from the National Science Foundation's Survey of Earned Doctorates, I and my co-author Yanyan Yang, now an economist at the University of Massachusetts Boston, estimate that GDP per capita could rise

by 0.6 percent to 4.4 percent if more women and African Americans were included in the initial stages of the innovation process.[4]

Whatever their source, gender and racial disparities exist at each stage of the innovation process. From education and training to the practice of invention, and then onto the commercialization of invention, these disparities are costly to the U.S. economy. These disparities also can lead to increased income and wealth inequalities at each stage of the innovation process for those who are unable to participate fully. Reducing barriers to participation in the innovation process could affect productivity, as well as both the level and the distribution of income.

In this essay, I demonstrate why innovation and the commercialization of invention are both desirable and necessary in modern economies and why the benefits of doing so are not evenly distributed among those who are powering innovation today.[5] Despite numerous initiatives to train and cultivate innovators, women and African Americans continue to participate at each stage of the innovation process at lower rates than their counterparts. I then propose four policies to close these race and gender innovation divides, particularly at the education and practice-of-invention stages:

- Improve mentoring programs with additional government policymaking and fiscal support
- Facilitate early education exposure to invention opportunities
- Engage in blind patent reviews by patent examiners
- Address the climate in high-tech workplaces to attract and retain women and African Americans in the places where invention and innovation happen

Women and African Americans have not enjoyed their proportionate share of innovation's ample economic benefits.[6] Fundamentally, innovation is critical for economic growth, wealth generation, and higher living standards. Innovation can substantially affect each component of economic growth—labor, capital, and total factor productivity.

Why the innovation process is important to U.S. economic growth and well-being

From a number of perspectives, innovation is a good thing. Economists have long recognized that the generation and implementation of ideas drives economic growth.[7] Historians also have demonstrated the positive relationship between innovation, industrialization, and economic activity in studies of early U.S. inventors and entrepreneurs and in the creation of the patent system.[8] Statisticians provide additional evidence of the importance of innovation to the U.S. economy: From 1960 to 2013, the number of workers in innovation jobs grew 3 percent annually, compared to 2 percent growth for the broader workforce.[9]

Economists measure innovation's contribution to the economy with increasing precision, and it is clear that innovation's importance is growing.[10] In 2017, the National Science Foundation calculated that there were roughly 7 million to 25 million workers engaged in jobs related to the innovation process.[11] These workers earn substantially more than the median income for all workers. In 2017, the median worker in innovation-related jobs earned $85,390, compared to $37,690 for all workers.

Innovation jobs also are growing faster than jobs in other sectors, and unemployment rates are lower in the sector, too. In 2017, the unemployment rate for scientists and engineers was 2.7 percent, compared to 3.1 percent for all college graduates and 4.9 percent for the United States overall.[12] During the Great Recession of 2007–2009, moreover, when the U.S. workforce contracted, the innovation workforce was less affected by the overall economic contraction.[13] Amid that recession, the income gap between innovation workers and the general labor force also widened. In 2012, median innovation economy earnings were double those of other workers. By 2014 the median innovation worker was earning 2.3 times more than the general labor force.[14]

Thus, across a number of measures, the science-based innovation workforce provides a tremendous boost to the overall economy, with better pay and job security going to those who work in the innovation sector.

Measuring the race and gender participation divide in U.S. innovation

Since the 1960s, both women and African Americans have obtained an increasing (though still not equal) share of bachelor's degrees and advanced degrees in fields

most associated with invention—the so-called STEM fields of science, technology, engineering, and mathematics. Despite this progress, I and my co-author Chaleampong Kongchareon at Michigan State University in a recent paper do not observe a similar increase in patenting activity among these groups.[15]

In general, women and African Americans remain underrepresented in the workplaces and boardrooms of high-tech firms in the United States. Today, both the lack of diversity in the venture capital industry and the paucity of women and African Americans who serve as executives and board members at high-tech companies receive regular attention.[16] This innovation divide represents a lost opportunity and is a discriminatory drag on the U.S. economy. These distributional issues provide further evidence of the wide income and wealth gaps in the United States.

Economists draw on a wide range of metrics to define and measure participation in the innovation process. The National Science Foundation defines the science and engineering, or S&E, workforce in one of three ways:

- By the parts of the U.S. economy measured by workers in S&E occupations
- By the number of holders of S&E degrees
- By the use of technical expertise on the job[17]

The National Science Foundation collects data on science and engineering students, graduates, and workers using a variety of surveys and sources, including its Survey of Earned Doctorates and the National Center for Education Statistics' Integrated Postsecondary Education Data System Completions Survey. Demographic data, such as gender, race, and ethnicity, are among the data collected. In addition to collecting data on fields of study, I have assembled NSF data on S&E doctoral degrees earned by women from 1966 to 2018 and African Americans from 1968 to 2019.

Another way to measure what I call the "pink and black" innovation divide between women and men and between Black Americans and White Americans is via patent data. Data on patents, recorded and disseminated by the U.S. Patent and Trademark Office, are available from 1790 to the present and thus provide a relatively consistent historical metric.[18] Demographic data, such as gender, race, and ethnicity, are not explicitly recorded in patent data. To address this issue, my co-authors and I have developed sophisticated methods for inferring which historical and contemporary patents were granted to women and African Americans.[19] I turn to this in the next section.

Understanding the reasons for these race and gender divides in innovation

Within the innovation process in the U.S. economy, both participation and salaries vary greatly by gender, race, and ethnicity. Importantly, these racial and gender gaps are manifested throughout different stages of the innovation process. In this section of my essay, I provide longitudinal, quantitative evidence to outline the nature and scope of these gaps over time.

I then complement this aggregate, statistical picture with historical and contemporary examples from individual women and African American innovators who were impacted by racial and gender discrimination during the innovation process. This analysis across different scales illuminates both the aggregate, macroeconomic impact and the intimate lived experience of the innovation gap in pink and black. And, consistent with the time frame of available NSF education data, I focus on patent data from 1966 to 2014.

An individual participates in the innovation economy by passing through three stages of the innovation process. First, innovation typically begins with formal education or training, such as an apprenticeship, in a chosen technical field, often but not exclusively in a STEM field. Second, workers in the innovation economy participate in actual invention in university or federal laboratories, corporate research facilities, government agencies, or less formal workspaces.

Finally, innovation, or the commercialization of invention, occurs when inventors sell or license their patents or launch a new start-up or business unit to profit directly from the development of the invention. Let's now examine more closely these first two stages—the preparation and education divide and the invention divide—which lay the foundation for bridging the race and gender income divides in science and engineering jobs and the race and gender patent divides.

The preparation and education divides

Women and African Americans have enjoyed significantly improved access to technical training over the past few decades, but lingering education gaps remain. Women and African Americans have increasingly been involved at the beginning of the innovation process—for example, by getting doctorates in the sciences and doing basic research that undergirds changes in the stock, flow, and direction of knowledge.

In 1970, only 9 percent of all doctorates in the science and engineering fields were

awarded to women. By 2014, the share going to women was nearly 42 percent. In 1970, only 1 percent of all S&E doctorates went to African Americans. By 2014, the share going to African Americans was roughly 4 percent. For context, African Americans represent just more than 13 percent of the population.[20] The trends are similar for master's and bachelor's degrees, and are comparable through 2014.[21] (See Figures 1 and 2.)

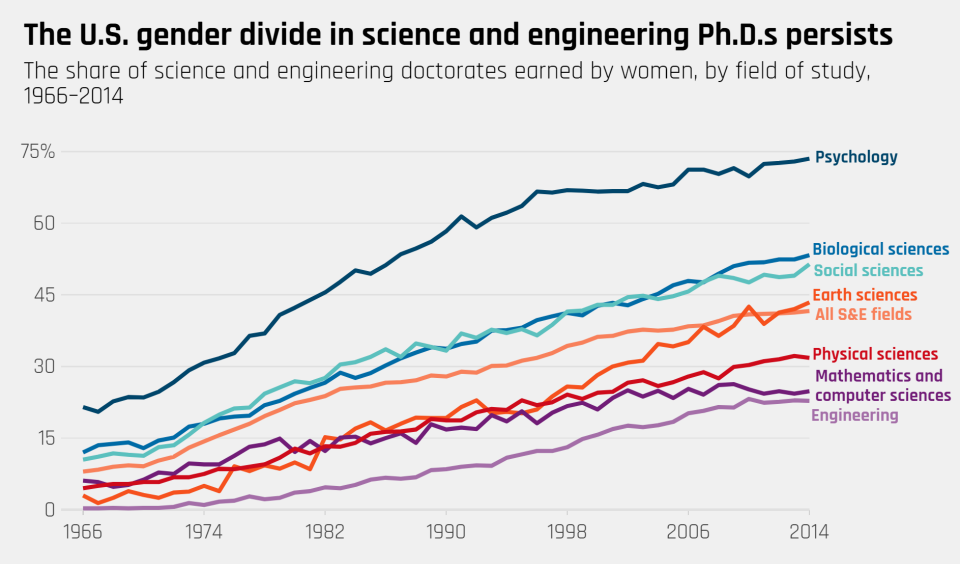

FIGURE 1

In 1970, only 9 percent of all doctorates in the science and engineering fields were awarded to women. By 2014, the share going to women was nearly 42 percent.

Note: Earth sciences include atmospheric and ocean sciences; biological sciences include agricultural sciences.

Source: National Science Foundation, National Center for Science and Engineering Statistics (NCSES), "Survery of Earned Doctorates" (2017); author's analysis using National Center for Education Statistics data.

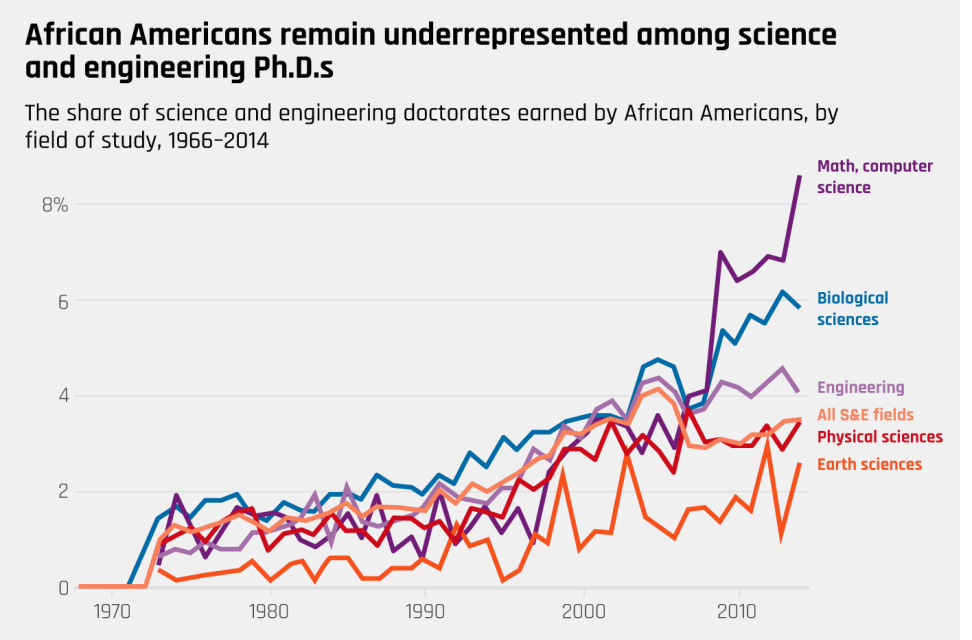

FIGURE 2

In 1970, only 1 percent of all S&E doctorates went to African Americans. By 2014, the share going to African Americans was roughly 4 percent.

Source: National Science Foundation, National Center for Science and Engineering Statistics (NCSES), "Survery of Earned Doctorates" (2017).

Increases among women and African Americans, however, have not been uniform across collegiate fields of study. Psychology starts off with the largest share of female science and engineering doctorate recipients in 1966 at 22 percent, and finishes with the largest share in 2016 at 75 percent, according to the most recent NSF data.[22] Apart from the field of psychology, women have traditionally received the highest share of doctoral degrees in the life sciences (more than half of all degrees in biological sciences in 2016) and one of the lowest shares in engineering (24 percent in 2016).

This is important because engineering is the field most closely associated with patenting. There is a large literature that examines why few women enter the field of engineering, and how and why those few leave.[23] Similarly, among STEM fields, the highest share of African American doctorates was in psychology (8 percent in 2014) and the lowest was in engineering (2 percent in 2014). African Americans also traditionally earned the highest share of doctorates in the life sciences and the lowest share in the physical sciences. In the 2000s, apart from psychology and the social sciences, the share of doctoral degrees going to African Americans has hovered between 2 percent and 3 percent.

With respect to education and training, women and African Americans are participating in increasing numbers over time. For both groups, a divide remains, however, and there is considerable heterogeneity of representation across fields. Examples of persistent barriers to women and African Americans pursuing degrees in STEM fields abound. Jennifer Selvidge, a former honors student in materials engineering at the Massachusetts Institute of Technology, captured the experiences of many women and African Americans. In her 2014 article, she reports that she was told "hundreds of times" that, as a woman, she did not deserve to be there, and that metallurgy was a "man's field."[24]

She also witnessed male professors attempting to publicly humiliate the small number of female professors, and sexual harassment by teaching assistants. In addition to observing people of color being actively advised to change majors and leave the department, she also was subject to a teaching assistant arguing that "Black Americans are genetically inferior due to slavery-era breeding practices."[25]

The invention divides

The second stage in participating in the innovation process requires being involved in actual invention. Women and African Americans also have faced pervasive barriers to invention. For centuries, individual women and African Americans have had to battle the perception that they were mentally inferior and technically incom-

petent. Consequently, women and African Americans were not welcome in the White, male culture of corporate research and development labs. They were also barred from joining professional scientific and engineering societies until the mid-20th century, thus depriving them of the social capital and connections required to advance their careers and develop their inventions.[26]

Contemporary measures of invention activity among women and African Americans simultaneously reveal evidence of stifled dynamism in the U.S. labor market for inventors, despite their increased participation, due to lingering barriers to access and inclusion. Women's participation in this invention stage is definitely on the rise. Between 1993 and 2010, the share of women working in a science and engineering field rose from 31 percent to 37 percent. Over the same period, women in science and engineering occupations rose from 23 percent to 28 percent.[27] By 2017, women made up 29 percent of these workers, and the percent of African Americans working in these fields had increased to 13 percent.[28]

Yet both female and African American scientists and engineers are more likely to work in nonscience and engineering occupations than directly in these occupations. More than two-thirds of psychologists were women in 2015, and women are less concentrated in the computer and mathematical sciences and engineering, compared to men. In 2010, 25 percent of the workforce in computer and mathematical sciences were women, and in engineering, 13 percent were women; in 2017, these shares were 27 percent and 16 percent, respectively.[29] Similar patterns are evident among African American scientists and engineers, though with several marked differences. (See Figure 3 and Figure 4.)

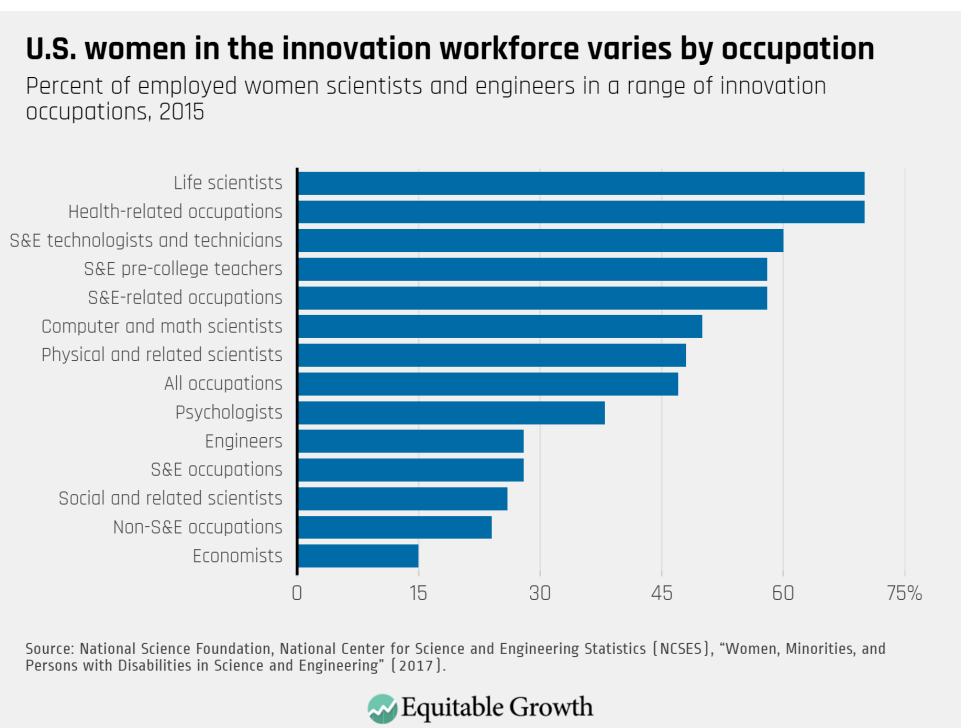

FIGURE 3

In 2010, 25 percent of the workforce in computer and mathematical sciences were women, and in engineering, 13 percent were women; in 2017, these shares were 27 percent and 16 percent, respectively.

Source: National Science Foundation, National Center for Science and Engineering Statistics (NCSES), "Women, Minorities, and Persons with Disabilities in Science and Engineering" (2017).

African Americans are severely underrepresented in the innovation workforce

Percent of employed African American scientists and engineers in a range of innovation occupations, 2015

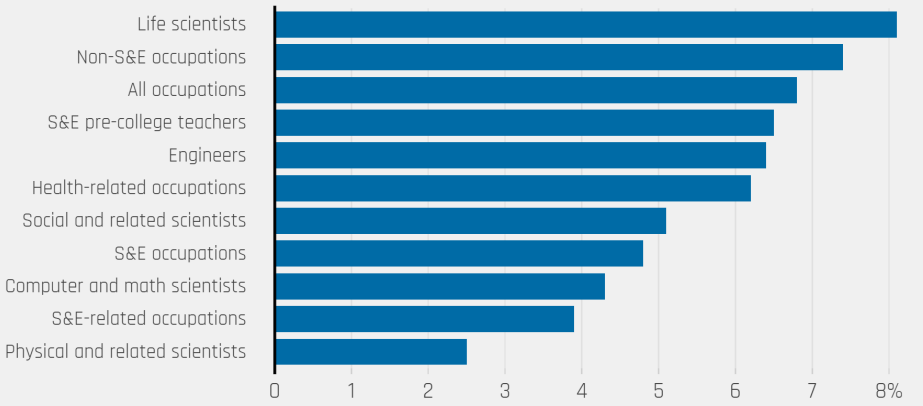

FIGURE 4

Similar patterns are evident among African American scientists and engineers...

Source: National Science Foundation, National Center for Science and Engineering Statistics (NCES), "Women, Minorities, and Persons with Disabilities in Science and Engineering" (2017).

Concretely examining specific occupations within a field reveals even more telling data on these race and gender divides. More than half the people in S&E-related occupations are women. Among them, women constitute 71 percent of workers in health-related occupations, more than half of S&E precollege teachers, more than half of technologists and technicians in the life sciences, but just one-fifth of S&E technologists and technicians.

Female scientists and engineers constitute half of scientists and engineers in non-S&E occupations. Women often start their careers working in occupations that are part of the innovation process but then leave for various reasons, including the need to provide child care due to the lack of family-leave policies and because of intolerable workplace environments.[30] Such departures have implications for the earnings of these scientists and engineers. For one thing, women's wages will, on average, be lower in noninnovation occupations relative to wages within them. Furthermore, those lower wages will exacerbate inequality that exists between the innovation and noninnovation economies.

African American scientists and engineers make up just 4.8 percent of workers employed in S&E occupations. Among S&E occupations, African American scientists and engineers are more concentrated among social science-related occupations and among computer and math scientists and analysts than they are in other S&E occupations. Among S&E-related occupations, African American scientists and engineers, similar to the female scientists and engineers discussed above, are more concentrated in health-related occupations and in precollege teaching than in other S&E occupations. Almost twice as many African American scientists and engineers are in non-S&E occupations as are in S&E occupations.

Unemployment rates among scientists and engineers reveal discrimination in the innovation jobs in the U.S. labor market, too. Unemployment for African American and Hispanic men, at just more than 4 percent, is higher than for White and Asian men, and higher than the average for all scientists and engineers.[31] (See Figure 5.)

Unemployment rates for African American and Hispanic scientists and engineers is higher than the average

Unemployment rates among scientists and engineers, 2015

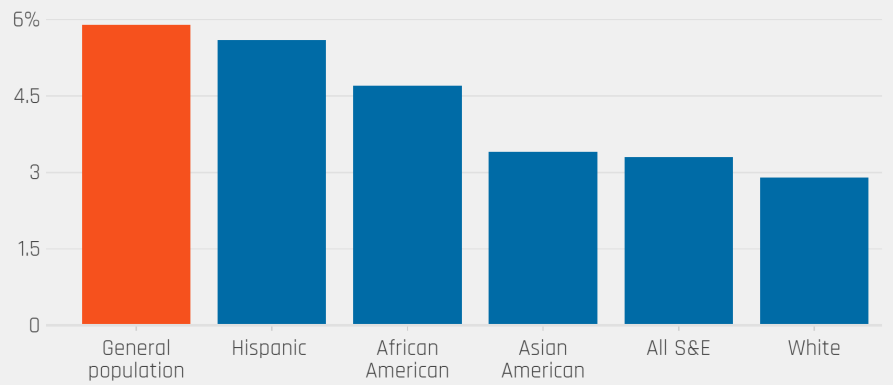

FIGURE 5

Unemployment for African American and Hispanic men, at just more than 4 percent, is higher than for White and Asian men, and higher than the average for all scientists and engineers.

Note: The general population consists of the U.S. civilian noninstitutional population 16 years and over. Unemployment rates based on individuals actively seeking employment.

Source: National Science Foundation, National Center for Science and Engineering Statistics (NCES), "Women, Minorities, and Persons with Disabilities in Science and Engineering" (2017).

Although not illustrated above, the unemployment rate for African American women in science and engineering occupations is higher than the unemployment rate overall—nearly double that of all scientists and engineers, and more than double that of White female scientists and engineers. Similar to the data on occupations, the data on enemployment indicate that the consequences of discrimination within science and engineering occupations are higher income inequality within these sectors of the economy. Unemployed scientists and engineers will likely be poorer and less able to accumulate wealth, compared to their employed counterparts.

Digging deeper into the data on sectors of employment among scientists and engineers by race and ethnicity reveals further divides in participation in the innovation process. Most scientists and engineers are employed in business or industry. For African Americans and Hispanics, the second and third sectors of employment are education and government. On average, government and education salaries are lower than those in business or industry, further deepening the income inequality among S&E workers. (See Figure 6 on next page.)

Just as incomes vary between occupations in the innovation process and jobs in the rest of the economy, incomes also vary among those within innovation occupations themselves. Among other things, they differ by gender and race. The median salary for men in the innovation economy in 2010 was $80,000, but it was only

African American and Hispanic scientists and engineers are disproportionately employed in education and government sectors

Share of employment by sector among scientists and engineers, by race and ethnicity, 2015

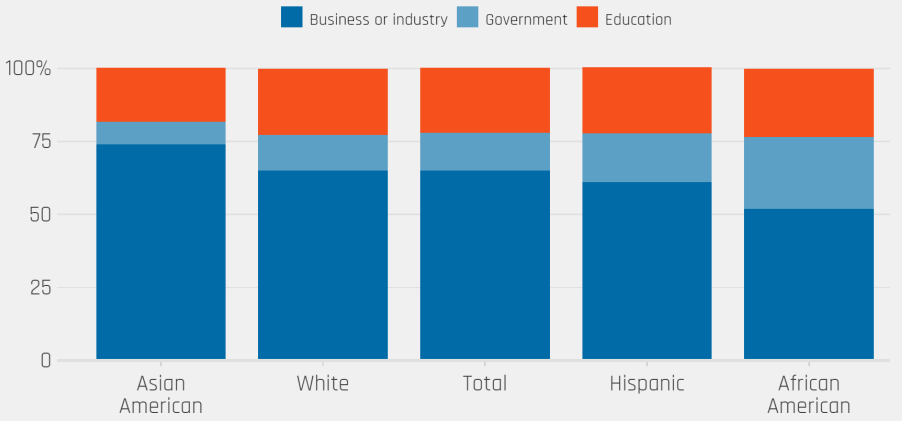

FIGURE 6

On average, government and education salaries are lower than those in business or industry, further deepening the income inequality among S&E workers.

Source: National Science Foundation, National Center for Science and Engineering Statistics (NCES), "Women, Minorities, and Persons with Disabilities in Science and Engineering" (2017).

$53,000 for women, or 66 percent of the median male salary.[32] In 2017, the median salary for scientists and engineers was $90,000 for men, yet it was only $66,000 for women, or 73 percent of the median male salary.[33]

Some of this wage divide is attributable to the different occupations people perform across race and gender lines, with more White men in S&E occupations, which tend to be higher-paid. If considering only S&E occupations, the share of female-to-male median salary narrows to 81 percent and ranges from 77 percent for ages 29 and younger to 85 percent for ages 50 to 75. The share of female-to-male median salary is slightly higher in S&E-related occupations, 73 percent, and slightly lower for non-S&E occupations, 69 percent. "Mathematical scientist" is the only occupation in which the median female salary exceeds the median male salary, and the ratio of female-to-male median salary is 1.13.[34]

Indeed, the earnings or income divide between workers engaged in the innovation process and those employed across the overall economy is substantial. Innovation workers earned 63 percent more than the average U.S. worker in 2014, the most recent year for which complete data are available.[35] Yet the gender and racial earnings divides among innovation workers and the overall economy is telling. The salaries of African American female scientists and engineers, for example, are 87 percent of what White women earn in all occupations, yet there is salary parity in science and engineering occupations for African American and White women.

Similarly, the median salary for African American women in S&E-related occupations also is at parity with White women, yet the median salary for African American women in non-S&E occupations is 83 percent of the median salary for White

women. The largest gaps within S&E occupations are among psychologists (83 percent) and computer scientists (87 percent). Among mathematical scientists, the ratio of the median salary of African American women-to-White women is 1.21.[36]

The gap between the median salary for African American and White workers is not as large as it is between men and women. In 2010, the median salary for White full-time workers with the highest degree in an S&E field was $72,000, and for their African Americans counterparts, it was $56,000, or 78 percent of the median salary for White workers.[37] In 2015, this share had moved only slightly, to 79 percent. For S&E occupations, this share narrows to 92 percent. Among S&E occupations, the gap is widest among psychologists (65 percent) and physical scientists (67 percent). There is parity in engineering, and, like women, mathematical scientists' median salary for African Americans is higher than the median salary for White workers, with a ratio of 1.13.[38]

In 2015, the share of median African American salary-to-White salary for S&E-related occupations is also 92 percent. As is the case for women, this share is lowest in non-S&E occupations, at 70 percent.[39] With respect to employment and salary data, the gaps in participation that existed even 7 years ago are closing. Yet gaps remain with respect to gender and race.

The patent divides

Legal access to the U.S. patent system offered greater, but still limited, opportunities for women and African Americans. There was no language in the original Patent Act of 1790 limiting patentees based on gender, race, age, or religion. Consequently, in the decades before emancipation and universal suffrage, women and (free) African Americans could—and did—invent and earn U.S. patents.[40]

Still, women and African Americans did not have equal protection under the patent laws. While free African Americans were allowed to obtain patents, the U.S. Patent and Trademark Office refused to grant patents to enslaved African Americans. Moreover, laws in many states assigned all marital property rights to husbands, which effectively prohibited married women from owning or controlling patents in their own names. These draconian social norms and policies deterred many women and African Americans from even becoming inventors.[41]

Patent data provide another, albeit imperfect, means of measuring invention activity.[42] In earlier research, my colleagues and I demonstrated that women and African Americans lag far behind other U.S. inventors with respect to patent activity. Using USPTO data from 1970 to 2006, we calculated that patent output for all U.S.

inventors is 235 patents per million. But for women, the number is 40 patents per million. And for African Americans, it is 6 patents per million.[43]

Moreover, researchers find that a propensity to patent is correlated with prior exposure to invention activity, and multigenerational income and wealth disparities. Children from high-income families who grow up around other inventors are more likely to patent, while children from low-income families with limited exposure to emerging technology are less likely to patent.[44]

Taken together, these findings and others suggest a misallocation of resources that could lead to suboptimal levels and rates of economic growth that could persist across generations. For example, patent teams made up of both men and women are more productive than single-sex teams with respect to the most valuable patents. Patent teams, firms, and the economy will continue to perform at suboptimal levels without diverse teams and inclusion more generally.[45]

The potential for discrimination to contribute to the invention divides was on public display in the summer and fall of 2017. A Google engineer, James Damore, wrote a memo that leaked and went viral. This memo, directed at diversity initiatives at the company, argued that women were underrepresented in technology careers because of "inherent psychological differences" between the genders.[46] Google dismissed Damore for "perpetuating gender stereotypes."[47]

A few weeks later, a former Google software engineer, Kelly Ellis, and two other women sued Google, alleging discrimination in both the pay and promotion of women. Coincidentally, the U.S. Department of Labor, in an ongoing investigation of Google's gender gap in salaries, reported its finding of systemic discrimination of women at Google in the spring of 2017.[48]

There is a large literature that suggests that unequal salaries and promotions could depress women's interest in pursuing S&E degrees and careers, resulting in underrepresentation of women. The number of complaints and lawsuits against tech firms related to discrimination related to pay and promotions based on gender and race is increasing, which suggests both of these issues are being taken more seriously—why incur the costs associated with filing a complaint or lawsuit otherwise?—and that there is a role for policymaking in addressing these race and gender hurdles to stronger economic growth.

Policies to increase participation and wages in the innovation economy

The U.S. economy and society will never fully realize its scientific potential and ever-higher economic growth and living standards without including more women, African Americans, and others who are still actively or passively discouraged from earning degrees in STEM fields and training for STEM careers. There are four areas in which policymakers can make changes to resolve this problem in our society and our economy:

- Mentoring
- Early education about inventing
- Blind patent reviews
- High-tech workplace climates

Lets examine each policy idea in turn.

Mentoring

Mentoring is one broadly suggested tool to address the gender and race divides in STEM careers.

As detailed in the analysis above, the income, race, and gender gaps in invention are primarily due to barriers in acquiring human capital—the lack of mentoring and exposure to careers in science and innovation in childhood—and not due to differences in ability.[49] What's more, the effectiveness of mentoring is recognized beyond academic papers and university programs, with programs designed to make a difference.

One such program is the Makers + Mentors Network (formerly US2020), an organization focused on programming that supports underserved and underrepresented students. Its mission is to change the trajectory of STEM education in the United States by dramatically scaling the number of STEM professionals engaged in high-quality STEM mentoring with youth. The Makers + Mentors Network is building a community of companies, organizations, schools, government agencies, and cities to participate in mentoring. It seeks to encourage 1 million science, technology, engineering, and math professionals to mentor students in Kindergarten through graduate school.[50]

The Makers + Mentors Network currently operates in 21 communities across the country, serving more than 150,000 students and 20,000 mentors annually.[51] The

program also places AmeriCorps VISTA members within the organization and with its local community efforts, and is launching a Maker Fellows program in partnership with local community colleges and historically black colleges and universities. The Makers + Mentors Network connects students with STEM professionals within their communities through official mentorship programs, hands-on learning experiences, and afterschool and summer programs. More public investment and partnerships with these and other mentorship efforts can further strengthen the foundation of innovation and design for students at key moments in their education and career choices.

Early education about invention

Exposing children to invention and innovation is becoming a more recognized method of increasing participation. Doing so could foster more representation for women and African Americans early in the education pipeline and eventually at high levels in STEM fields.

An example of this kind of public-private engagement in early eduation and invention is the Spark Lab at the Lemelson Center for Invention and Innovation at the Smithsonian Institution. This is an activity space that allows children to create an invention and to help them think about making the invention useful. We recommend targeting low-income children, children of color from underrepresented groups, and female children for such activities, with more fiscal resources deployed to take this kind of program national to science museums around the nation.

Blind patent reviews

As detailed above, inequality in patent applications is a legacy of historic racial and gender discrimination that persists to this day. A recent paper in *Nature* finds that, all else being equal, patent applications with women as lead inventors are rejected more often than those with men as lead inventors.[52]

An easy fix would be for the U.S. Patent and Trademark Office to engage in the blind review of patent applications by patent examiners, so that names of patent applicants are not visible to reviewers, as this allows for the possibility of discrimination by race and gender.

High-tech workplace climates

Workplace issues for women and African Americans go beyond the opportunity to participate in invention and innovation. Other issues now stand in stark relief due

to recent events related to workplace climate, such as recent activities, protests, and discussions at Google and Microsoft. Among the issues identified are ones that have been reported on about the climate in similar workplaces, such as lack of transparency (including forced arbitration for sexual harassment claims), workplace culture, and pay and opportunity inequality.

Most patented inventions occur at firms. Therefore, at public companies, shareholders need to hold CEOs more accountable for workplace climate, and, for private companies, boards and CEOs should do the same. Congress also could play a role in bolstering the U.S. Equal Employment Opportunity Commission to investigate such complaints and help to minimize the frequency and intensity of hostile workplaces for women and African Americans.

As is the case for the rest of the U.S. economy, greater representation for workers in the innovation process seems warranted to effectively and sustainably address workplace-related issues. The recent unionization of Google workers is a promising step in helping address discrimination, harassment, and other workplace climate issues, as well as creating more inclusive organizations more broadly.

Conclusion

In a recent paper, I outline proposals to address the commercialization phase of the innovation process, including collecting demographic data on inventors, enhancing the Small Business Administration's programs related to innovation to promote diversity and inclusion, and improving the climate in the fields and workspaces where these innovations take place.[53] Creating a more inclusive innovation ecosystem will increase the participation of women, African Americans, and other underrepresented demographic groups at every stage of the innovation and commercialization process, from early education and training to the practice of invention and the later economic gains from those breakthroughs.

Taken together, these proposals could augment the participation of women and African Americans in the innovation process and boost wages for them across the innovation sector. Doing so would boost innovation and thus the productivity of the U.S. economy, and ensure the fruits of economic growth are more broadly shared—thus reinforcing more sustainable economic growth.

—***Lisa Cook*** is a professor of economics and international relations at Michigan State University.

Endnotes

1 Chang-Tai Hsieh and others, "The Allocation of Talent and U.S. Economic Growth," *Econometrica* 87 (5) (2019): 1439–74, available at https://doi.org/10.3982/ECTA11427.

2 Development includes "using knowledge gained from research for the production of materials, devices," and design includes "design of equipment, processes, structures, and models." Jennifer Hunt and others, "Why Don't Women Patent?" Working Paper No. 17888 (National Bureau of Economic Research, 2012), available at https://www.nber.org/papers/w17888.

3 Ibid.

4 Lisa D. Cook and Yanyan Yang, "The Commercialization Gap in Pink and Black" (Michigan State University, 2017).

5 This section of the essay draws heavily on Lisa D. Cook, "Unequal Opportunity: The Innovation Gap in Pink and Black." In Eric Hintz, Marie Stettler Kleine, and Matthew Wisnioski, eds., *Does America Need More Innovators?* (Cambridge, MA: MIT Press, 2019); Lisa D. Cook, "Policies to Broaden Participation in the Innovation Process" (Washington: The Hamilton Project, 2020), available at https://www.hamiltonproject.org/papers/policies_to_broaden_participation_in_the_innovation_process.

6 To be sure, other forms of discrimination in the U.S. innovation economy exist, including discrimination against various racial and ethnic groups, religious groups, and sexual orientations. This essay focuses exclusively on the underrepresentation of women and African Americans.

7 Paul M. Romer, "Increasing Returns and Long-Run Growth," *Journal of Political Economy* 94 (5) (1986): 1002–1037, available at https://www.journals.uchicago.edu/doi/10.1086/261420. Prior to Romer, economists largely thought of innovation as an exogenous phenomenon that was generated outside of economic models. For example, see Robert M. Solow, "Technical Change and the Aggregate Production Function," *The Review of Economics and Statistics* 39 (3) (1957): 312–320; Zvi Griliches, "Hybrid Corn: An Exploration in the Economics of Technological Change," *Econometrica* 25 (1957): 501–522.

8 Zorina B. Khan and Kenneth L. Sokoloff, "Schemes of Practical Utility: Entrepreneurship and Innovation among 'Great Inventors' in the United States, 1790–1865," *Journal of Economic History* 53 (2) (1993): 289–307, available at https://www.cambridge.org/core/journals/journal-of-economic-history/article/schemes-of-practical-utility-entrepreneurship-and-innovation-among-great-inventors-in-the-united-states-17901865/4AA08392C755E038FE042E64893DF563; Joel Mokyr, "Long-Term Economic Growth and the History of Technology." In Philippe Aghion and Steven Durlauf, eds., *Handbook of Economic Growth, Vol. 1, Part B* (Amsterdam: Elsevier, 2005): pp. 1113–1180, available at https://www.sciencedirect.com/handbook/handbook-of-economic-growth/vol/1/part/PB; Ross Thomson, *Structures of Change in the Mechanical Age: Technological Innovation in the United States, 1790-1865* (Baltimore, MD: Johns Hopkins University Press, 2009).

9 This essay uses the terms "innovation economy," "innovation sector," "science and engineering (S&E) economy," and "S&E workforce" interchangeably; as well as the terms "innovation jobs" and "S&E occupations" interchangeably.

10 Erik Brynjolfsson and Andrew McAfee, *Race Against the Machine: How the Digital Revolution Is Accelerating Innovation, Driving Productivity, and Irreversibly Transforming Employment and the Economy* (Lexington, MA: Digital Frontier Press, 2011); Stephen D. Oliner and Daniel E. Sichel, "The Resurgence of Growth in the Late 1990s: Is Information Technology the Story?" *The Journal of Economic Perspectives* 14 (4) (2000): 3–22, available at https://www.aeaweb.org/articles?id=10.1257/jep.14.4.3; Stephen D. Oliner, Daniel E. Sichel, and Kevin J. Stiroh, "Explaining a Productive Decade." Working Paper No. 2007-63 (Finance and Economics Discussion Series, 2007).

11 The definition varies based on the three ways the NSF measures the S&E workforce: workers in S&E occupations, holders of S&E degrees, and use of S&E technical expertise on the job. In the United States, in 2013, roughly 7 million college graduates were employed in S&E occupations, and roughly 25 million college graduates had a bachelor's or higher-level degree in an S&E field. National Science Foundation, "Science & Engineering Indicators 2020, Science and Engineering Labor Force" (2020), available at https://ncses.nsf.gov/pubs/nsb20198/downloads.

12 Ibid.

13 National Science Foundation, "Science & Engineering Indicators 2016, Chapter 3" (2016), available at https://www.nsf.gov/statistics/2016/nsb20161/uploads/1/6/chapter-3.pdf.

14 National Science Foundation, "Science & Engineering Indicators 2016"; National Science Foundation, "Science & Engineering Indicators 2014, Chapter 3" (2014), available at https://www.nsf.gov/statistics/seind14/index.cfm/chapter-3/c3h.htm.

15 For a rich discussion of divergence in educational outcomes and patenting and commercialization activity by women and African American

inventors, see Lisa D. Cook and Chaleampong Kongchareon, "The Idea Gap in Pink and Black." Working Paper No. 16331 (National Bureau of Economic Research, 2010), available at https://www.nber.org/papers/w16331.

16 U.S. Equal Employment Opportunity Commission, "Diversity in High Tech" (2016), available at https://www.eeoc.gov/special-report/diversity-high-tech; Anna Wiener, "Why Can't Silicon Valley Solve Its Diversity Problem?" *The New Yorker*, November 26, 2016, availale at http://www.newyorker.com/business/currency/why-cant-silicon-valley-solve-its-diversity-problem.

17 These are the three measures the NSF uses to define the S&E workforce.

18 This proposal focuses on utility (as opposed to design) patents, which constitute the largest category of issued patents. A utility patent is issued for any new and useful process, machine, manufacture, composition of matter, or any new and useful improvement thereof.

19 Lisa D. Cook, "The African American and Women Inventors and Patents Data Set" (Palo Alto, CA: Stanford University, 2003–09); Cook and Kongchareon, "The Idea Gap in Pink and Black."

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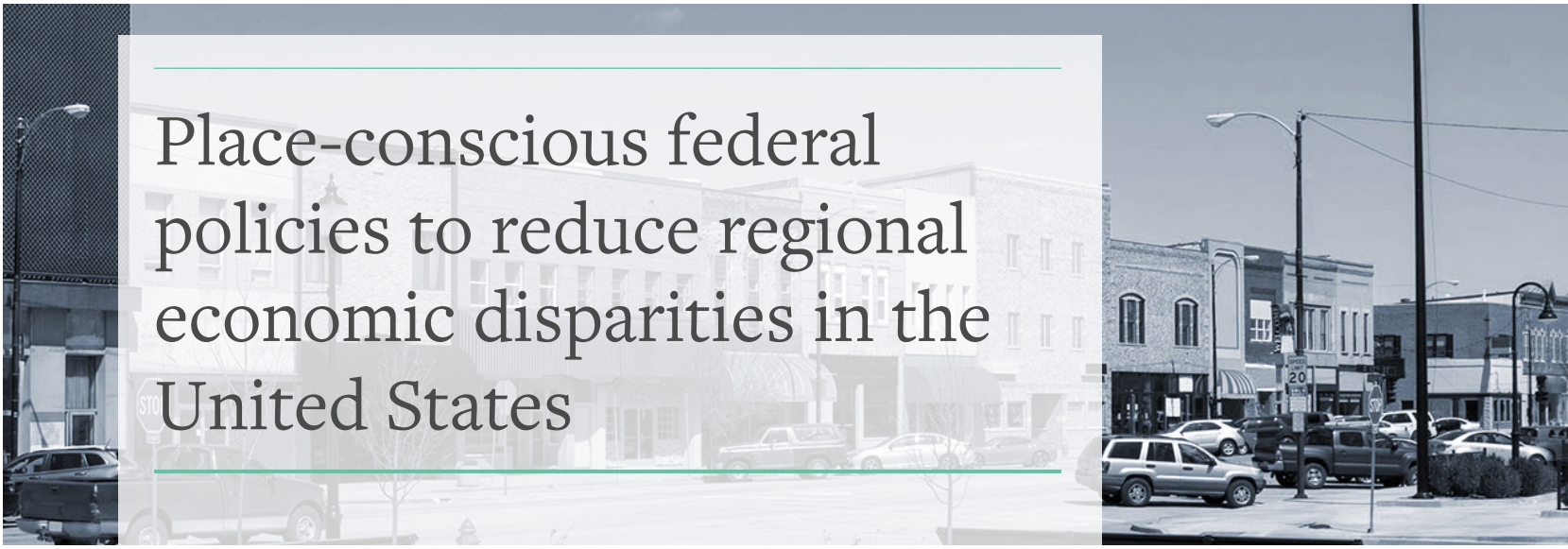

Place-conscious federal policies to reduce regional economic disparities in the United States

By Robert Manduca, University of Michigan

Overview

Over the past four decades, geographic inequality between regions of the United States has grown dramatically. A handful of metropolitan areas, largely along the coasts, have become some of the richest economic regions—cohesive groups of counties linked by strong economic ties, such as those between a city and its suburbs—in world history. At the same time, large swaths of the country have been trapped in economic decline, struggling with deindustrialization, stagnant incomes, and rising unemployment.

These economic challenges have contributed to a host of social and political problems, among them public health crises,[1] declining social mobility,[2] racial inequality,[3] and political polarization.[4] They also reduce national economic growth by reducing investment in local public goods, limiting aggregate demand, and lessening the effectiveness of federal economic policy. Absent an innovative and muscular policy response, the coronavirus pandemic and its accompanying economic collapse are likely to only worsen the outlook for struggling economic regions.[5]

After decades in which regional economic challenges were largely considered a problem for state and local civic leaders alone, today, there is an increasing appetite for federal policy action to reduce this form of geographic inequality—distinct from the different challenge of economic inequality *within* regions. Most recent proposals for reducing interregional inequality have tended to take the form of "place-based policies" that target government investment or subsidies to economically struggling cities or neighborhoods.[6]

This essay argues that to successfully boost wages and employment levels in struggling areas, policymakers must instead adopt a "place-conscious" approach that treats reducing interregional inequality as a priority throughout federal policymaking rather than something to be remedied after the fact. Recent research shows that the growth in geographic inequality since 1980 stems in large part from changes made to federal policy that seem, at first glance, to be geographically neutral, such as the relaxation of antitrust enforcement,[7] the lowering of trade barriers,[8] and the deregulation of the transportation and communications industries.[9] Although these policies were the same everywhere, they interacted with the existing spatial patterns in the economy in ways that systematically advantaged some places while harming others.[10]

Meaningful and sustained reductions to interregional inequality will require structural changes to the U.S. economy made through federal action. Almost every domain of federal policy, from food policy to military spending to public finance, has a spatial footprint. Policies that take the geographic consequences of federal action seriously—that seek to alter the economic structures that create disparities to begin with—are much more likely to succeed than policies that seek to ameliorate geographic income disparities after the fact while leaving the underlying structures that generate them intact.

To illustrate how place-conscious federal policies can reduce interregional inequality, I consider four examples of such policies:

- Universal anti-poverty programs
- Restored regulation of key sectors, notably transportation and communications
- State and local finance reform
- Direct investment to meet national priorities, such as climate resilience

Each of these policies would have the effect of reducing interregional inequality, without explicitly targeting struggling regions for subsidies or investment. Taken together, they represent a revival of the federal government as a proactive force for uniting disparate regions into one national economy—a role it has repeatedly played throughout U.S. history, from the development of the U.S. Postal Service to the building of the interstate highway system.

The problem: Rising interregional inequality and its consequences

Over the past four decades, regions of the United States have diverged economically from one another. In 1980, most U.S. commuting zones had mean family incomes roughly in line with the national average.[11] While there was certainly inequality within these areas, *average* incomes were roughly the same across most of the country—with important exceptions in the rural South, the Rio Grande Valley, and other long-identified areas of persistent rural poverty.[12] By 2013, there were far more places with mean incomes that were either much higher or much lower than the nation as a whole.

Overall, the income gap between the richest 10 percent of U.S. commuting zones and the poorest 10 percent grew by almost 50 percent during this period. The fraction of the U.S. population living in areas more than 20 percent richer or poorer than the national mean almost tripled, from 12 percent to 31 percent.[13] (See Figure 1 on next page.)

Growing interregional economic inequality, and the local economic dislocations that contribute to it, are major contributors to many of the most pressing social, economic, and political challenges facing the United States today. Public health crises—from the opioid epidemic[14] to exposure to environmental toxins[15]—are disproportionately concentrated in economically struggling areas. Deindustrialization has contributed to a host of other social problems, from family instability to declining upward mobility.[16] Regional divergence also contributes to political dysfunction, both by altering the material conditions in different places such that their material interests diverge, making compromise more difficult, and by contributing to growing anger, political extremism, and polarization.[17]

Regional disparities are both a driver and a consequence of racial inequality. Black Americans in particular disproportionately live in the large, multistate regions—especially the Midwest and the South—that have higher-than-average poverty rates and that were hit hardest by the economic shocks of the past several decades.[18] The effects of these economic dislocations were felt earliest and most strongly in communities of color, although they have now spread to many White communities as well.[19]

That said, some regional economic challenges can be traced directly to racist policies at all levels of government. Local and state governments in parts of the country with large Black populations—historically in the South, but also in Northern cities that received large numbers of Black migrants during the Great Migration of the 20th century—historically spent less on public goods such as education and infrastructure

Interregional economic inequality is evident in the geographic disparities in U.S. mean family incomes

Mean family incomes relative to the nation, by U.S. commuting zones, 1980 and 2013

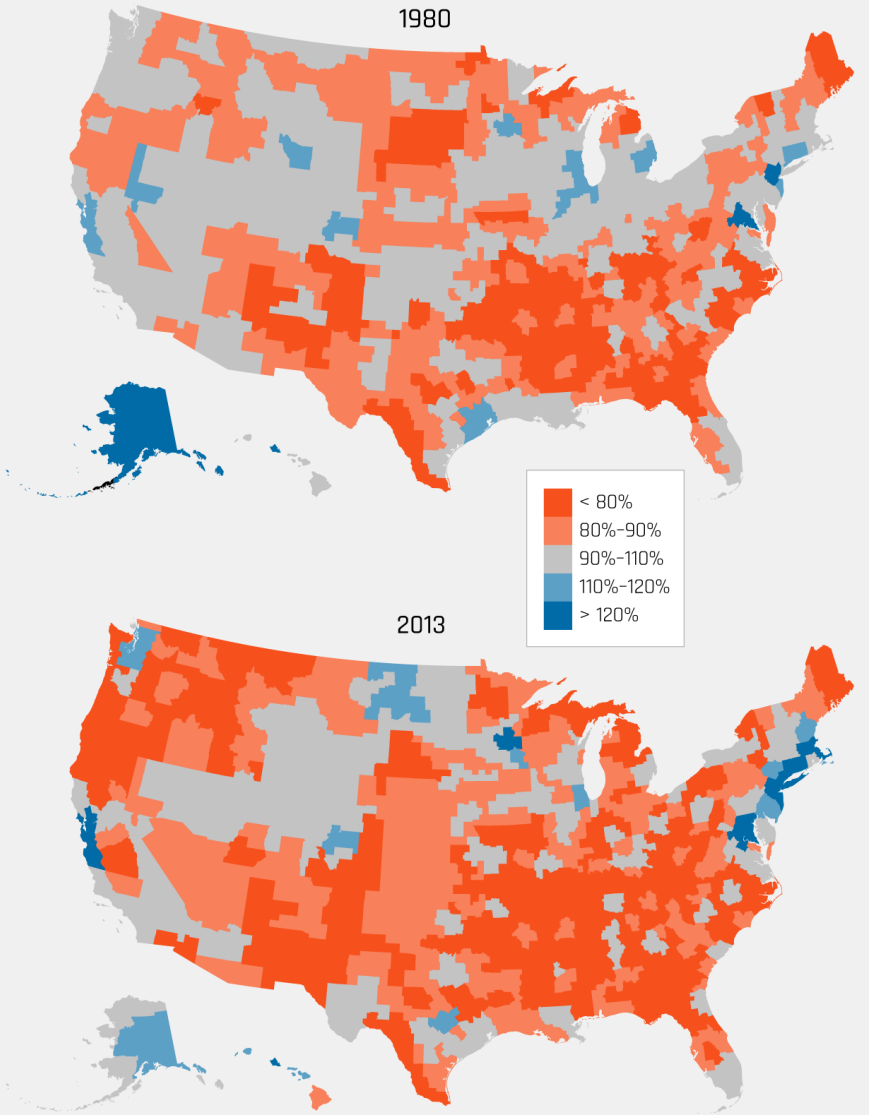

FIGURE 1

The fraction of the U.S. population living in areas more than 20 percent richer or poorer than the national mean almost tripled, from 12 percent to 31 percent.

Source: Robert Manduca, "The Contribution of National Income Inequality to Regional Economic Divergence," Social Forces 98 (2) (2019): 578–621, available at https://doi.org/10.1093/sf/soz013.

that contribute to regional prosperity.[20] After the passage of the Voting Rights Act of 1965, state and local governments in the South began making such investments at greater rates in response to electoral pressure from African American voters, which had the effect of boosting the economy of the entire region.[21]

At the federal level, early examples of place-conscious policies, such as the Social Security Act of 1935 and the Fair Labor Standards Act of 1938, were originally designed to exclude African Americans, reducing their impact on regional disparities while entrenching racial inequality.[22]

Regional economic struggles undercut national economic performance

The economic consequences of interregional inequality are not limited to struggling regions, but are felt nationally through slower overall growth and greater macroeconomic volatility. Within regions, local economic multipliers mean that when workers lose their jobs, those job losses build on themselves: Each job lost in an initial shock from, say, a tariff reduction or a factory closing reduces demand for local services, creating further job losses that can persist for decades.[23]

These shocks are exacerbated by our current system of fiscal federalism, which precludes deficit spending by state and local governments and thus requires them to implement pro-cyclical fiscal policy—strengthening booms and worsening recessions.[24] During the first few months of the coronavirus recession, for instance, state and local governments collectively laid off or furloughed 1.5 million workers, and layoffs are expected to continue in the absence of new federal fiscal aid.[25] Cutting government spending in the middle of a recession is the definition of macroeconomic malpractice, yet it is consistently done in the United States because of how our cities and states are funded.

At the federal level, geographic inequality makes macroeconomic policymaking more challenging because the same set of federal policies must meet the needs of regions with very different economic circumstances. Interest rates have strong regional economic impacts, for example,[26] and the interest rate that best serves high-cost areas such as San Francisco and New York is likely to be very different from that which meets the needs of areas struggling with unemployment. But because our country is a monetary union, we must set just one interest rate for our shared currency. [27]

Current place-based policies are welcome, but are limited and fragile

For decades, regional economic challenges were largely considered a problem for local civic leaders alone. But today, there is an increasing appetite for federal policy action to reduce geographic inequality. Initial proposals have largely taken the form of "place-based policies" that target struggling neighborhoods, cities, or regions for investment or subsidies with the goal of increasing incomes and employment.[28] Recent proposals for place-based policies include geographically targeted tax breaks tied to job creation[29] and direct federal investment in research and development located in struggling regions.[30]

Place-based policies have historically been the subject of skepticism on several grounds. First of all, deciding which places deserve to be targeted with extra

subsidies is both technically challenging and politically fraught. Secondly, there is no guarantee that residents of a targeted place will be the final beneficiaries of these investments, since newly created jobs are often filled by in-migrants rather than current residents. Finally, such policies often appear to have the effect of simply moving economic activity from one place to another rather than increasing the total amount.[31]

Recent interest in place-based policies is welcome because it indicates support for federal action to reduce interregional inequality. But long-identified weaknesses remain major challenges. On the technical front, effective place-based policies require constantly identifying and judging which places are truly in need and merit federal investment. This is genuinely difficult and can lead to perceptions of corruption or that the government is "picking winners." Any missteps cast doubt on the entire project.

This concern is prominent in critiques of the Opportunity Zones tax credit program, created in the 2017 tax bill, which has come under fire from both the left and the right for directing federal subsidies to people and areas argued not to need the help.[32] Further, given the sheer magnitude of geographic inequality, the amount of subsidies required to meaningfully reduce interregional income disparities—as opposed to merely offering some relief to struggling regions—is likely to be enormous.

The solution: Universal, place-conscious policies

The key fact about regional economic divergence is that while it appears to be the result of many different local trends, it is fundamentally a national process driven in large part by national economic trends and federal policies. As recent research shows, much of the increase in interregional inequality since the 1970s is attributable to federal policy changes that seem geographically neutral at first glance.[33] These include:

- Lowering of trade barriers[34]
- Relaxation of antitrust enforcement[35]
- Deregulation of the transportation and communications industries[36]

Though implemented nationally, these policies interacted with existing spatial patterns in the economy in ways that systematically helped some places while disadvantaging others.[37]

Addressing interregional inequality, then, will be most effectively accomplished at the federal level through what might be termed "place-conscious policies." Unlike place-based policies, place-conscious policies are implemented everywhere but are designed in such a way that their benefits disproportionately fall on those places that need the most help. In this, they are the spatial analogue of the "targeting within universalism" that has long been one of the most successful ways to sustain support for programs that benefit disadvantaged individuals.[38]

Rather than attempting to identify and compensate regions that are "losing" the economic competition after the fact, as place-based policies do, place-conscious policies seek to even the economic playing field and lower the stakes of interregional competition to begin with. This will make them easier to administer, less susceptible to critiques for being unfair or corrupt, and ultimately more effective.

A place-conscious approach can be applied in almost every area of federal policy, from trade to taxes to military spending. Here, I briefly consider four types of place-conscious policy:

- Universal anti-poverty programs
- Re-regulation of key industries
- State and municipal finance reform
- Direct investment

Let's look at each of them in turn.

Universal anti-poverty programs

The growing economic disparities between regions of the United States are fundamentally intertwined with the growth of economic inequality more generally. In fact, more than 50 percent of the cross-regional divergence in mean family incomes since 1980 is strictly attributable to rising overall economic inequality rather than any spatial reallocation in who lives where.[39]

Any federal program that benefits lower-income Americans, then, will have the effect—without explicit spatial targeting—of reducing interregional income disparities. This applies to existing transfer programs such as Social Security, disability insurance,[40] and the Earned Income Tax Credit; but it would also apply to new or expanded programs such as child allowances or an expanded Child Tax Credit—proposals that have received bipartisan support[41]—or even a full-fledged Universal Basic Income.[42]

The geographic impacts of such universal antipoverty programs can be substantial. One recent study found that in Brazil, the Bolsa Família and Benefícios de Prestação Continuada programs of conditional cash transfers to families in poverty were responsible for a full 24 percent of the reduction in cross-state inequality from 1995 to 2006, despite comprising just 1.7 percent of disposable household income.[43] An earlier study in the Netherlands found that social insurance programs, taken together, reduced regional inequality by 40 percent.[44]

Antitrust and regulated industries

Governments set the rules and determine the playing field in which markets operate. Through much of U.S. history, the federal government used its power to create a playing field that would disperse economic activity and integrate geographically isolated regions into the national economy. These efforts began with the creation of the U.S. Postal System in 1775,[45] and continued through the regulation of railroads with the Interstate Commerce Commission in the late 19th century,[46] rural electrification in the 1930s,[47] and the first 70 years of air travel.[48]

Proximity to natural resources, trade routes, and other economic advantages has always mattered for regional economic performance, but these federal efforts had the aim and consequence of making geography less determinative of economic success, reducing the advantages that large urban centers or centrally located towns would otherwise receive due to their location alone.[49] The strong American tradition of antitrust enforcement and skepticism of "bigness" similarly sought to reduce economic concentration in general, often with the effect of spatially distributing economic activity.[50]

Since the 1970s, deregulation—particularly of the transportation and communications industries—and weakening antitrust enforcement have shifted the economic playing field in favor of large corporations and large, well-connected urban centers. That is, *market* concentration has contributed to the *geographic* concentration of prosperity and, conversely, disadvantage. The airline industry offers a useful illustration. Under the old regulatory regime, price and firm entry regulations created a system in which profits from well-traveled routes cross-subsidized service on

less-profitable routes, consistent with the policy goal of providing similar levels of service to similarly sized cities.[51] Following deregulation in the 1970s, airlines shifted their focus to the cities and routes with the highest traffic, cutting service to small and mid-size cities.[52]

With lax antitrust enforcement, airlines also consolidated, reducing competition and the number of hub airports that offer large numbers of direct flights.[53] This change to transportation geography, driven primarily by changes to federal regulation, triggered a reshuffling of corporate headquarters. Companies have moved from cities that lost service, such as Cincinnati or St. Louis, to cities currently blessed with extensive air connections, such as Charlotte or Atlanta.[54]

A place-conscious approach to regulation would return the federal government to its historic goal of binding the disparate parts of the country into one national economy and society.[55] This would primarily involve once again requiring that the key industries that connect people and places—telecommunications and transportation in particular—do so on an equal footing. Reinvigorated antitrust enforcement, meanwhile, would also reduce the stakes of geographic competition: When more firms exist in an industry, small cities have more opportunities to land a headquarters or foster a successful entrant.

State and municipal finance reform

The current U.S. system of fiscal federalism is inefficient, unequitable, and almost unique among high-income countries.[56] In the United States, states and localities are the primary providers of many standard government services, yet they are denied access to many of the most important tools of governance—running deficits, controlling the entry and exit of capital and labor, and printing money.[57] This harms individuals, economically struggling regions, and the country as a whole.

For individuals, it makes access to basic government services contingent on the wealth of one's community, entrenching inequality.[58] It also creates economic distortions by artificially bundling choices about fiscal policy with the decision of where to live.[59] For regions, it advantages already-wealthy areas by allowing them to provide more public services at lower tax rates.[60] This, in turn, encourages race-to-the-bottom tax and incentive competitions.[61]

For the country as a whole, the current system of fiscal federalism makes recessions worse, because most state and local governments are legally prohibited from deficit spending.[62] This frequently requires that cities and states, which employed about 20 million Americans prior to the coronavirus pandemic,[63] cut spending and lay off

workers in the middle of recessions—a highly costly emergency measure that creates further job losses through multiplier effects, worsening economic volatility.

There are ways to fix the problems baked into fiscal federalism. As recently as the 1980s, municipal governments in the United States received more than 15 percent of their revenue from federal grants. Today, that share has fallen to less than 5 percent.[64] New proposals to increase federal grants to state and local governments—especially ones that disproportionately help lower-income parts of the country—enjoy support across the ideological spectrum and would provide a large and immediate boost to national economic activity—one that is greatly needed to combat the coronavirus recession.[65]

Direct investments and employment

A final example of federal policy to reduce interregional economic inequality is straightforward public investment. When the federal government makes investments around the country to meet national policy priorities, it contributes employment and spending to local economies. Unless these investments deliberately target only prosperous areas, the net effect will be to reduce interregional inequality.

Historically, the largest such investment has been military spending, which dramatically reshaped the economic geography of the postwar United States and continues to provide the economic base for many communities around the country.[66] Federal infrastructure investments in the 1940s and 1950s were likewise a key driver of regional convergence in that era, particularly the growth of the South.[67] In the future, investments in climate resilience and clean energy offer a similar opportunity to reboot lagging regional economies while meeting an overriding national goal. More broadly, federal agencies can consider spatial implications whenever they make investment or staffing decisions.[68]

Conclusion: National action for a national problem

Place-conscious structural fixes along the lines of what I have described—from reinvigorated antitrust, transportation, and communications regulation to fiscal federalism reform to universal anti-poverty programs—are likely to be both more effective at reducing interregional inequality and more durable than explicitly targeted place-based policies. Because they are implemented everywhere simulta-

neously, place-conscious policies do not require politically fraught decisions about which places qualify for help.

This universality also makes them more agile, able to respond instantly to future changes in economic geography. And because place-conscious policies would produce clear benefits to residents of all parts of the country, they offer the potential for broad-based political coalitions.

A common concern about universal programs is that they are too costly. This concern is misguided when it comes to place-conscious policies for regional development. First of all, several of the programs I outline involve changes to regulation, which would entail minimal costs to the federal government. More importantly, though, the ongoing economic and budgetary costs of local economic struggles around the country are enormous. Each person who is unemployed against their will represents tens of thousands of dollars of lost economic output each year. Investments in reviving the economies of struggling areas, then, offer an enormous economic upside for the national economy and the federal budget.

The four policy areas I explore in this essay are only the beginning of what is possible. A place-conscious approach to policymaking can and should be adopted throughout the federal government. Every policy has a spatial footprint, and while spatial considerations will rarely be the primary or sole consideration in policymaking, they deserve to be articulated and considered.

There have been multiple recent proposals to formalize this consideration of spatial equity in federal policymaking. One such proposal would implement an executive order requiring that agencies consider the geographic impact of the regulatory choices they make, much as they are currently required to consider the impact on federalism.[69] Another recent proposal would subject major federal discretionary spending decisions to a place-conscious equity review,[70] building on past efforts to consider geographic equity throughout the federal budget.[71]

At the broadest level, addressing interregional inequality requires embracing two fundamental truths. First, the United States is one country and will ultimately prosper or perish as a unit. Second, very little in economics is inevitable, and Americans have the collective power, through the federal government, to make the economy serve the needs of all parts of the country.

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Sovereignty and improved economic outcomes for American Indians: Building on the gains made since 1990

By Randall Akee, University of California, Los Angeles

Overview

The exercise of American Indian tribal sovereignty over the past 30 years resulted in more economic growth and improved well-being for American Indians than during any other point in the more than 500-year history post-contact with European colonists and settlers. Increased self-governance over tribal lands and resources created new economic and employment opportunities for American Indians and for non-American-Indians on or near tribal lands and resources as well.[1]

These advances are the foundation upon which policymakers can build to develop policies to address persistent earnings and income inequality faced by American Indian workers and their families. Even though American Indians are a relatively small proportion of the United States as a whole, in certain jurisdictions, they comprise a relatively large proportion of the population. In states such as Oklahoma, New Mexico, South Dakota, Montana, North Dakota, and Arizona, the American Indian population ranges from 5 percent to 13 percent of these states' populations. Some tribal governments control (relatively) large amounts of land areas in these states, which should result in meaningful influence over the demand and supply of labor and job creation in these states.

But, as this essay details, large hurdles remain before American Indian tribal governments can fully realize their economic and political opportunities to provide full employment (through public or private enterprises) for their citizens. Significant reductions in family poverty rates and unemployment rates almost doubled real per capita income between 1990 and 2015, yet still-significant income gaps remain,

largely because American Indians residing on reservations are less likely to be employed full time than their White counterparts. After detailing these findings—presented against the backdrop of the recent gains in tribal self-governance—I conclude with a look at three areas that hold the most promise for improving earnings and employment for the American Indian population on reservation lands:

- Support tribal sovereignty and industry innovation
- Reduce barriers to economic development
- Improve data collection for American Indians

While not all of these recommendations detailed below focus directly on individual American Indian workers, their families, or their employers, they are important in stimulating economic development and eliminating existing obstacles in and around tribal lands. This economic development and the well-being of American Indians are not only important in their own right but are also key to greater economic growth in these mostly rural and underdeveloped regions of the United States.

The problem: Economic and labor conditions of American Indian workers and their families

There is surprisingly very little research on the determinants of earnings and wage growth for Indigenous peoples in the United States. The vast majority of existing research focuses on the American Indian reservation-based population, which is what I focus on in this essay, excluding the urban American Indian population in my analysis.[2] Nonetheless, systematic analysis and evaluation of policies intending to improve the earnings and employment opportunities of American Indians are few and far between.[3] Existing longitudinal datasets often do not have a sufficient number of American Indians in order to conduct the standard analyses employed for other races or ethnic groups around the nation.

As a result, researchers do not have the rigorous set of studies over time for these populations. Therefore, there are many opportunities for future researchers to expand upon this report and investigate determinants of earnings growth and employment growth for the American Indian population. Identifying policy solutions to improve the earnings and employment of American Indians is not a trivial task.

First of all, there is little rigorous evaluation of labor force training programs or policies available, compared to other race and ethnic groups in the United States.

Additionally, data for this group are notoriously difficult to come by due to the small proportion of American Indians in the overall U.S. population. Still, there are some broad datasets that enable researchers to present a broad picture of the economic conditions of American Indian individuals and their families.

Economic conditions for American Indians residing on tribal reservations are often depicted as dire. In fact, conditions are quite variable, depending upon the tribe and the time period examined. There are 324 reservations or joint-use areas—areas where multiple American Indian reservation governments share legal and political jurisdictions—in the lower 48 states, with wide geographic, regional, and economic variations. Yet despite improvements, family poverty rates, unemployment rates, and labor force participation rates for American Indians are substantially higher, compared to the United States as a whole.

The average poverty rate for American Indians (including Alaska Natives and American Indians living outside of tribal reservations) in 2015, the most recent year for which complete data are available, was 28.8 percent; the unemployment rate in 2015 was 11.6 percent; and the labor force participation rate was 55 percent. All of these rates are generally worse than the United States as a whole, even though economic conditions have improved for American Indians since 1990. (See Table 1.)

Snapshot of the economic conditions of American Indian families

Real per capital income, poverty rate, unemployment rate, and labor force participation rate of American Indians and Alaska Natives, compared to overall U.S. rates, 1990–2015

	AIAN				U.S.
	1990	2000	2010	2015	2015
Real per capita income	9,624	12,828	14,307	17,869	32,112
Family poverty rate	47.7	35.7	32.2	28.8	11.3
Unemployment rate	25.7	21.9	18.9	11.6	8.3
Labor force participation rate	50.9	51.5	52.4	55	63.7

TABLE 1

The average poverty rate for American Indians...in 2015...was 28.8 percent; the unemployment rate in 2015 was 11.6 percent; and the labor force participation rate was 55 percent.

Source: Randall KQ Akee, Katherine A. Spilde, and Jonathan B. Taylor, "The Indian Gaming Regulatory Act and its effects on American Indian economic development," Journal of Ecomomic Perspective 29 (3) (2015): 185–208; American Community Survey, "2006-2010 5-Year ACS Data" (n.d.); American Community Survey, "2011–2015 5-year ACS Data" (n.d.) Dollar values are inflated to 2020 amounts.

Recent research shows that income inequality also increased in recent decades for American Indians, as is the case for the United States as a whole.[4] Measures such as income mobility, or the ability to move up and down the income distribution, stagnated in recent years for American Indians.[5]

American Indian families also possess little wealth, though relatively little is known about asset ownership across the American Indian population as a whole. One perhaps indicative study of two tribes in Tulsa, Oklahoma, however, finds that the total net worth of American Indian families enrolled in the Cherokee and Muscogee Creek tribes stood at 85 percent and 25 percent, respectively, of the net worth of

White families in areas nearby their reservations.[6] Examining only home ownership, Richard Todd and Federico Burlon at the Federal Reserve Bank of Minneapolis find that home ownership rates for American Indian families overall stood at 56 percent, compared to 71 percent for White families, in 2006, according to the U.S. American Community Survey.[7]

How work, wages, and incomes of American Indians intersect with state and federal governments

American Indians and other Indigenous peoples in the United States occupy a fairly unique space. They are both a racial group and a political group. The U.S. Constitution and several U.S. Supreme Court cases have determined that Indigenous peoples and governments in the United States are domestic-dependent nations. These populations possess rights that extend to self-governance, exercise of treaty rights, and other laws specific to their political status. These are unique tools and opportunities available for American Indians for creating jobs and boosting wages and incomes.

Historically, the federal government maintained significant control over American Indians residing on reservations. Until they were granted U.S. citizenship in 1924 under the Snyder Act, American Indians were required to get the approval of the federal agent from the U.S. Department of the Interior's Bureau of Indian Affairs before they were allowed to leave their reservations. In subsequent decades, the federal government enacted additional policies for this population. One was the urban relocation program, which aimed to create incentives for mostly rural American Indians to seek employment in urban centers such as Los Angeles, Minneapolis, Seattle, and Chicago. The program resulted in the relocation of tens of thousands of American Indians from rural to urban populations between 1950 and 1970.

A second program implemented during this time aimed to completely assimilate American Indians by terminating their tribal statuses as political entities. The so-called Indian Termination era—1940 to the 1960s—aimed to pay American Indian tribes to accept a settlement of money in exchange for the termination of their political status for themselves and their descendants. Researchers have yet to evaluate the impact of these two programs on the well-being, earnings, and employment of these relocated American Indian families and their descendants. Anecdotally, however, there do not appear be any marked improvements, as many American Indians in these urban settings are living in poverty.[8]

More recently, the federal government took a different approach. It allowed and encouraged tribal governments to expand economic and political control over their jurisdictions and resources. The modern-day federal-tribal relationship is known as the self-determination era and is marked by the expansion of tribal governments into business operations and in the direct provision of government services.

Previously, for example, the federal government would administer programs on the reservations, from schools to health clinics to housing programs. In the self-determination era, under the Indian Self-Determination and Education Assistance Act of 1975, tribal governments increased their administration of these programs through direct funding from the federal government, which opened up employment and service opportunities to tribal citizens.

In addition, the passage of the Indian Gaming Regulatory Act in 1988 provided a unique opportunity for American Indian tribal governments to expand into the gaming industries. As a result, tribal governments expanded their economic development activities into this new area on their own terms over the decades of the 1990s and 2000s. Assessing how these new efforts by tribal governments to boost employment, wages, and human capital investments is the first step toward formulating new policy proposals to address the still-deep economic inequality faced by American Indian workers and families living on reservations across the United States.

Jobs and wages in and around tribal reservations

The basic employment and earnings data for American Indians in the United States as a whole and among those residing on American Indian reservations indicates overall that labor force participation and real per capita income for American Indians increased over the past 30 years. What's more, the earnings growth for American Indians broadly kept pace with White Americans over this same time period. There are level differences in earnings, however, that persist—even after accounting for some basic human capital and demographic characteristics between these groups over time. And there are stark differences in the earnings of full-time versus part-time workers for American Indians, too.

Consider first the median earnings of American Indians and non-American-Indians for the country as a whole and for nonmetropolitan areas as a proxy for reservation locations from 1988–2019. The median earnings of American Indians are indeed lower than those of White Americans for the country as a whole, as well as for the

nonmetropolitan/reservation locations.[9] The median earnings of American Indians did post a pronounced increase in 1998, but then flatlined before declining amid the Great Recession of 2007–2009 and in the subsequent slow recovery. (See Figure 1.)

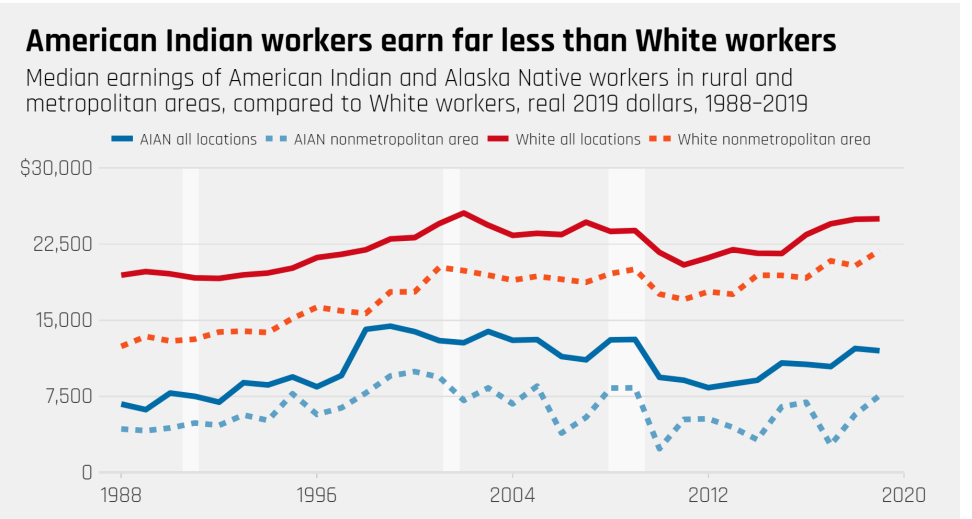

FIGURE 1

The median earnings of American Indians did post a pronounced increase in 1998, but then flatlined before declining amid the Great Recession…

Note: Earnings are defined as all wage income for anyone who self-identifies as either American Indian or White. All dollar amounts have been adjusted to real 2019 dollars using the CPI-U index. Recessions are shaded.

Source: U.S. Census Bureau, "Current Population Survey, 1998–2019" (n.d.); Sarah Flood and others, "Integrated Public Use Micordata Series, Current Population Survey: Version 7.0" (Minneapolis, MN: IPUMS, 2020), available at https://doi.org/10.18128/D030.V7.0.

But there is another measure over the same time period that is useful for understanding the median wages of American Indians—those who are full-time employees working 40 hours per week or more. Earnings for full-time American Indian workers and White workers increased for both groups by about $20,000—though full-time employment, on average, accounts for approximately 57 percent of White employment but only 49 percent for American Indian workers. And there was an upward trend in real earnings for all race groups and for all locations. (See Figure 2.)

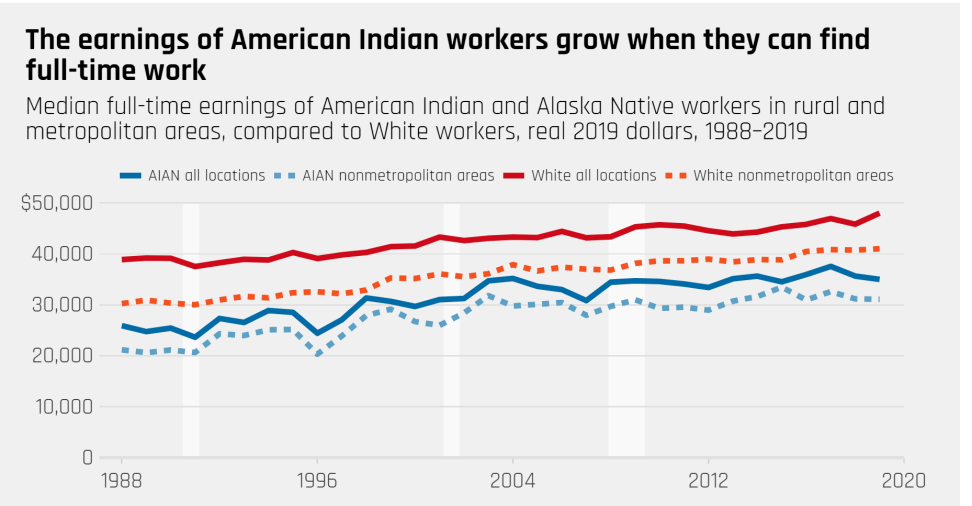

FIGURE 2

Earnings for full-time American Indian workers and White workers increased for both groups by about $20,000…

Note: Earnings are defined as all wage income for anyone who self-identifies as either American Indian or White. All dollar amounts have been adjusted to real 2019 dollars using the CPI-U index. Additionally, only individuals who reported working 40 hours a week or more are included in this analysis. Recessions are shaded.

Source: U.S. Census Bureau, "Current Population Survey, 1998–2019" (n.d.); Sarah Flood and others, "Integrated Public Use Micordata Series, Current Population Survey: Version 7.0" (Minneapolis, MN: IPUMS, 2020), available at https://doi.org/10.18128/D030.V7.0.

Some of this upward trend in earnings, however could be due to differences in educational attainment, age, and gender in addition to full-time status. Preliminary analysis suggests that there is a persistent difference between White and American Indian workers for all locations, even after controlling for these important human capital and demographic characteristics.

The upshot: Earnings among American Indian workers residing on reservations are persistently lower than that of White workers in the United States, particularly those American Indian workers who are employed full time, despite some specific economic gains detailed above.

Employment opportunities in and around tribal reservations

Increasing full-time employment opportunities, then, could well be an important way to increase earnings for American Indian workers. And indeed, one measure of job opportunities on and off reservations demonstrates there are ways to lift employment, and thus the wages and incomes, of American Indians.

Specifically, there is a large share of jobs on reservations (relative to off-reservation locations) in the following industrial categories: arts and recreation, accommodations and food services, and public administration, according to the Longitudinal Business dataset. These align with the relatively large gaming, tourism, and public administration activities on tribal lands. In contrast, there are relatively fewer jobs on reservations (compared to off-reservation locations) in agriculture, construction, manufacturing, retail, and health services.[10] (See Figure 3 on next page.)

But how many businesses survive in and around tribal reservations? It's important to assess and understand where policies can drive job creation. The data show, perhaps surprisingly, that reservation-based business establishments during the Great Recession of 2007–2009 were more resilient than in adjacent counties. In particular, establishments in the arts and entertainment, education, accommodations and food services, public administration, and wholesale/retail sectors fared quite well.[11] (See Figure 4 on next page.)

One potential reason for more successful businesses on tribal reservations may well be that many of these establishments are also tribally owned and operated. Thus, they may have been maximizing the employment of tribal citizens and local residents over profits during the Great Recession. As a result, they may have made different business decisions than private business owners might embrace. This is one of several findings that inform the policy solutions presented next in this essay.

The kinds of jobs available to American Indians

The kind of jobs and the share of jobs on and nearby tribal reservations, 2010

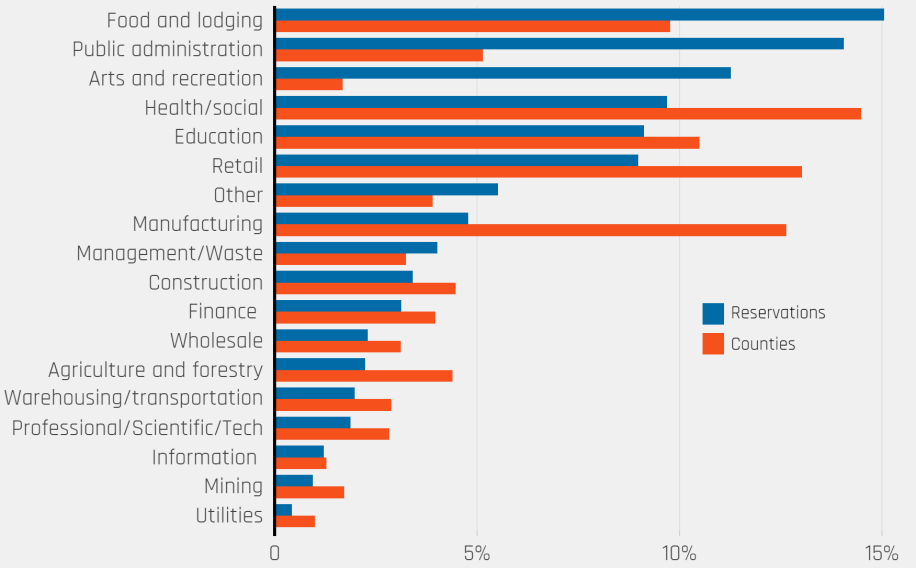

FIGURE 3

...there is a persistent difference between White and American Indian workers for all locations, even after controlling for these important human capital and demographic characteristics.

Source: R. Akee, E. Mykerezi, and R.M. Todd, "Opportunities to diversify: Reservation workplaces and job numbers compared to nearby county areas." In R. Miller, M. Jorgensen, and D. Stewart, eds., Creating Private Sector Economies in Native America: Sustainable Development through Entrepreneurship (Cambridge, UK: Cambridge University Press, 2019), p. 47.

Businesses that are more resilient on tribal reservations are where jobs growth occurs

Differences in the probability of reservation-based businesses surviving, by industry, 2007–2012

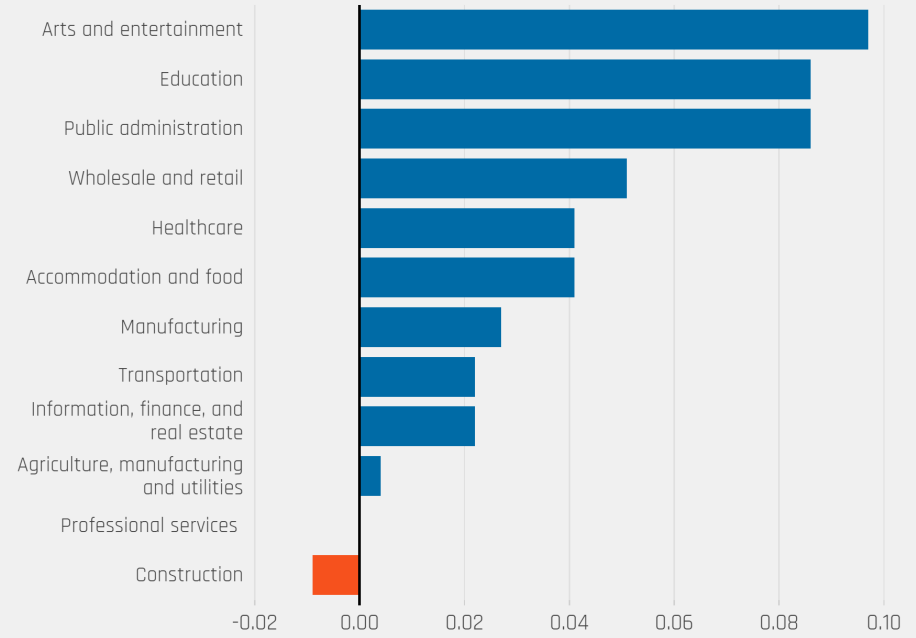

FIGURE 4

...there are relatively fewer jobs on reservations (compared to off-reservation locations) in agriculture, construction, manufacturing, retail, and health services.

Note: Probabilities represent hazard ratio values.

Source: R. Akee, E. Mykerezi, and R.M. Todd, "Business Dynamics on American Indian Reservations Over the Great Recession: Evidence From Longitudinal Datasets" (forthcoming, 2020).

Solutions to improve earnings and employment in American Indian communities

The data analysis above helps identify potential pathways to encourage and support earnings and employment for American Indians residing on tribal reservations. In this section, I will detail three broad policy proposals that could strengthen the overall conditions for improving employment and earnings on American Indian reservations. Specifically, policies that:

- Support industry innovation and tribal sovereignty to boost jobs growth and wage gains
- Reduce barriers to economic development to spur more job-creation and nonwage income
- Improve data quality and collection to improve economic program and policy evaluation

Let's consider each in turn.

Support industry innovation and tribal sovereignty

Supporting the full exercise of tribal sovereignty over land, resources, and citizens is an important step in improving the economic conditions of American Indians residing on reservation lands. Under the Indian Self-Determination and Education Assistance Act of 1975, tribal governments could apply to take over housing, education, healthcare, and the management of tribal lands themselves. The federal government provided funding for this, and the tribal government hired and managed the employees.

Tribal governments consequently became more responsive to the needs of their tribal communities and were able to hold employees responsible for their actions. Employees had a greater incentive to do their jobs effectively, too. The quantity and the price of tribal timber resources, for example, increased once tribes took control of their timber resources from the federal agencies.[12] Similar changes occurred in other agencies; however, rigorous evaluations of those effects in housing, healthcare, and education require better data collection.

The Indian Gaming Regulatory Act of 1988 established the requirements for tribal governments to pursue gaming operations on their tribal lands. As a result, gaming operations expanded tremendously throughout American Indian reservations in

the 1990s and 2000s. Not all tribal reservations benefited equally from tribal gaming operations, but a large proportion have done quite well. Tribal gaming revenues increased from zero to almost $30 billion annually by 2015, the most recent year for which complete data are available, compared to commercial, non-American-Indian gaming industry earnings of approximately $38 billion.[13]

Tribal gaming revenues are used to augment existing funding for programs, employment, and service delivery to tribal members. There is some evidence that tribal casino operations also have positive spillover effects to neighboring communities by providing employment options and demand for small business services.[14] The gaming industries and provision of federal government services by tribal nations are two examples of tribal nations exercising their own sovereignty and authority in new economic endeavors. They serve as guideposts for future innovation by tribal governments.

Create new innovative industries

New policies, for example, could encourage the funding of new and innovative economic activities that further strengthen and diversify tribal economies in sustainable ways. Expansion into novel industries such as climate mitigation and renewable energy generation would reinforce existing aims and goals of tribal governments while diversifying the economic base in tribal reservations. And expanding tribal jurisdiction and ownership of reservation lands would improve the ability of tribal governments to enact economic development projects on larger scales that may be necessary for nonmarket-based economic activities.

Given centuries of the taking of tribal lands, a concerted effort to restore and increase existing land bases would provide tribal governments with the resources to improve employment and earnings opportunities. This would include efforts to reduce the fractionated ownership of tribal and individual American Indian lands. Additionally, it would provide tribal citizens, potentially, with the option to earn a living in the nonmarket economy through traditional subsistence activities, which is an often-cited desire of tribal citizens.

These policy ideas are already being tested. In Washington state, the Lummi tribe recently created the first tribally owned commercial wetland-mitigation bank in the United States. The landbank provides credits for non-American-Indian developers in other parts of the region that create unavoidable adverse impacts to the aquatic environment from permitted projects. It is an offset program that puts specific areas on the Lummi reservation in perpetual conservation mode. The non-American-Indian developers are required to provide or pay for these credits under several environmental laws. The tribal government earns a significant amount of revenue from this activity annually, and it uses those funds to hire and train wildlife

biologists, conservation technicians, and flood specialists. Tribal members are often trained on the job, as well as provided scholarships for college and graduate school to specialize in these occupations. As a result, the labor force has expanded and diversified dramatically.

Similarly, the Yakama, Umatilla, Nez Perce, and Warm Springs Tribes formed the Columbia River Inter- Tribal Fish Commission to improve salmon spawning to the upper regions of the Columbia River. After decades of blockages due to dams, the commission advocated for fish passes at existing dams, as well as negotiated the return of water to some of the smaller tributaries of the Columbia River so that salmon are able to spawn well into Idaho on Nez Perce lands. These results significantly increased the availability of salmon resources inland and provided a return to a traditional way of life and diet for many people. Additionally, fishing revenues for tribal members have increased twofold as a steadier supply of salmon made it more lucrative to specialize in salmon fishing and selling.

Emerging opportunities—such as the 2020 Supreme Court decision in *McGirt v. Oklahoma*, which reaffirms the jurisdiction of the Muscogee Creek lands in the state of Oklahoma—should be viewed as an opportunity to improve economic conditions for the Muscogee Creek and their neighbors. Indeed, this decision may have lasting implications for other Oklahoma tribes and reservation lands. The ruling re-emphasizes the importance of existing treaties that delineate tribal authority and resources; many of these treaties have been ignored or unenforced for generations.

These types of policy solutions could include a new funding mechanism through the Bureau of Indian Affairs that specifically encourages diversifying economic activities on reservation lands. Awards could be selected in a "race to the top" program, where the most innovative and implementable projects are awarded and serve as an example for other communities and tribal governments.

Tribal tax-exempt bonds could supplement these novel activities. Tribal governments have the authority to issue these bonds, but recent data indicate that only 17 percent of tribal governments have used this method to finance investment opportunities.[15] These types of bond issuances are the same ones used by municipal governments for local infrastructure investments and economic development activities all across the United States—they should be encouraged by other tribal nations as an extension of their sovereignty and an opportunity to develop novel industries on reservation lands.

Enact a tribal jobs guarantee program

Given the high levels of poverty and unemployment, on average, on American Indian reservations, a federal jobs guarantee for tribal citizens and residents would

provide an important mechanism to improve earnings on reservations. There is significant justification for this program, given the high levels of existing unemployment and the additional impact of the coronavirus pandemic on employment.

The jobs needed should be determined at the tribal level, with the flexibility to adjust employment decisions to strengthen tribal sovereignty and long-run economic development planning for new and innovative industry development on tribal lands. A tribal jobs guarantee program also would align employment activities with large-scale climate mitigation efforts and/or ecosystem restoration efforts in tribal nations. Further, the jobs guarantee could also focus on other areas where there are well-identified deficits in service or program provision such as healthcare services.

An ancillary policy reform to encourage jobs growth would be to encourage the adoption of uniform commercial codes on American Indian reservations. These codes allow for a more seamless flow of goods and services across these borders. While all 50 U.S. states have adopted these codes, which facilitate trade in goods and services, not all tribal governments have adopted these codes.[16] Taking this step across all tribal reservations would boost jobs.

Restore tribal lands to tribal nation governance

The stealing of Indigenous peoples' lands is too complex a story to discuss in detail here. Briefly, however, over the centuries, European settler-colonial populations stole, purchased, and seized land from American Indians. Then, during the tribal land allotment era (1887–1934) large parcels of remaining lands were deemed "surplus" by the Bureau of Indian Affairs and often sold at below market value. As a result, almost two-thirds of American Indian-controlled lands, as of 1887, were no longer under tribal or individual American Indian control by 1934.

Efforts to improve the land area controlled by American Indians is an important step toward improving the earnings of American Indians. Today, some American Indian reservations are "checkerboarded" in terms of land ownership, where one square block may be owned by a tribal government or an individual American Indian landowner while the adjacent parcels are held by non-American-Indians. This makes governing difficult, and it makes economic development and investment especially difficult because the parcels may not be large enough to support economies of scale.

As a result, there may be large areas that are not particularly productive because the land use and planning are not well-coordinated. This may also be the case for the preservation of forests, rivers, and lakes. Depending upon the size of parcels, there may be little incentive to protect and preserve large swaths of natural resources.

This, in turn, affects tribal members in a second manner. Tribal lands do not just serve as a place to start a business or to build a home. Reservation lands and the surrounding areas are often protected lands and regions such as forests, mountains, bogs, marshes, bays, lakes, or rivers. Increased access to lands could increase American Indians' nonwage earnings through hunting, fishing, or gathering. These food resources may be an important component of Indigenous peoples' diets, depending upon region and time of year.[17]

Tribal reservations need to be contiguous land to increase the productivity and use of those lands for hunting, fishing, trapping, or other nonmarket-based uses. The U.S. Congress should fund the purchase of reservation lands that have been previously sold to non-American-Indians and expand existing programs such as the tribal land buy-back program, which buys land from tribal members for tribal government use, including the buy-back of nontribal, member-owned reservation lands.[18] This would increase the available tribal lands for economic development, land conservation, and nonmarket-based economic activities.

Reduce barriers to economic development

There are significant obstacles to economic development on reservation lands, and tribal nations have taken significant steps to improve those conditions in the past few decades. I briefly describe three specific areas that deserve more attention and are crucial to future economic activities:

- Increase access to capital
- Invest and expand infrastructure on tribal lands
- Boost educational attainment and access

Investments in these three areas would create potential opportunities on tribal lands to increase retail and health services at least to reach parity with that of the adjacent, off-reservation locations and enable the development of agriculture and manufacturing on reservation lands due to the endowment of natural resources.

Increase access to capital

Several of the prior policy proposals refer to programs for tribal governments. Yet access to capital is essential to increase the opportunities for entrepreneurship for individual tribal citizens as well. There are several policy options that would either increase asset ownership or access to credit for tribal members.

The first one is to fully fund and extend the Section 184 Indian Home Loan Guarantee Program administered by the U.S. Department of Housing and Urban Development. This program is an important source for home mortgages on American Indian reservations. The expansion of this program has put home ownership in reach for many more American Indians and may serve as an important method to assist in asset ownership for this population.[19]

A second policy is to boost U.S. Small Business Administration loan guarantee programs, specifically the 7a program, which has been used extensively by American Indian-owned businesses in recent years. It is an important source of capital for business start-up and expansion funds.

A third proposal is to increase the capitalization of American Indian-owned and American Indian-serving Community Development Financial Institutions. In general, CDFIs are regulated by the U.S. Department of the Treasury and were set up in the Community Development and Regulatory Improvement Act of 1994. They are designed to improve the lending and financial services for underserved people and communities in the United States. Importantly, there is a Native American CDFI Assistance Program that facilitates the Native American-serving CDFIs.[20]

The demand for credit often exceeds the supply from these CDFIs in and around American Indian reservations. These CDFIs are often composed of American Indian board members and community members who are better equipped to assess and conduct business with this population. These CDFIs increased their lending over the past decade where little to none had previously existed, and the number of Native American-serving CDFIs grew from just 14 in 2001 to 74 by 2016.[21] More funding from the U.S. Congress to expand the capital and lending power of these institutions would be money well-invested.

Invest and expand infrastructure on tribal lands

Increasing investment in infrastructure on American Indian reservations is an important means to improving access to employment and educational opportunities. There are two policies that can significantly upgrade or establish different types of infrastructure on tribal lands—improve the physical infrastructure on reservation lands and increase broadband access in rural and reservation communities.

Roads on reservations are often poorly maintained due to a lack of resources. They are often unpaved or severely potholed. Poorly maintained roads impede travel to and from schools, health clinics, and employment. These have long-term effects on the ability to live and work on or off of a tribal reservation.[22] Even worse, housing on tribal lands have some of the highest levels of incomplete plumbing and kitchen facilities.[23] Tribal homes have a higher likelihood of using wood or coal to heat homes

in the wintertime, which often contributes to considerable respiratory illnesses affecting school attendance and employment. Appropriations for the creation and maintenance of tribal infrastructure come from the U.S. Congress. These appropriations are often based on existing treaties and agreements with tribal governments. These responsibilities should be honored by the U.S. government.

Second, there is an increasing need for increasing broadband access in rural and reservation communities. Prior to the coronavirus pandemic, internet access on reservations was low, compared to the United States as a whole, with about 61 percent of households on the median reservation with internet access, compared to about 69 percent in adjacent counties.[24] Some largely population reservations, however, fall below 55 percent access, such as the Navajo Nation. Broadband and reliable internet connectivity has taken on even more prominence amid the coronavirus pandemic, as many school-age children and college students rely on the web for their current educational pursuits. For some workers, broadband connection has meant that they are able to work from home while shelter-in-place mandates have been implemented.

In the absence of these connections, this would deal a severe blow to the working population and primary school, secondary school, and college students. The U.S. Congress needs to provide additional funding for the U.S. Department of Agriculture's Tribal Broadband program because current funding allocations and plans are not comprehensive and cover only a small proportion of the uncovered tribal rural areas.

Educational attainment and access

An important determinant of earnings is educational attainment and experience. Educational attainment, on average, is lower for American Indians than the average U.S. citizen.[25] Additionally, there is evidence that school quality lags behind that of other race and ethnic groups in the United States.[26]

That's why Congress should increase federal funding for reservation-based schools and funding for the Bureau of Indian Education as required by dozens of U.S. treaties with American Indian nations. The Bureau of Indian Education is a direct mechanism to improve educational quality and access on reservations, while fully funding existing tribal colleges and universities would improve access to higher education in culturally relevant settings.

Improve data collection for American Indians

A pervasive obstacle to diagnosing and tracking economic development and earnings growth of the American Indian population is the lack of timely and disaggregated data. Due to their relatively small population size in the United States, American Indians comprise anywhere from 1 percent to 2 percent of the U.S. population, depending upon the definition used for "American Indian." National longitudinal surveys tend to have very few American Indian observations in their samples. As a result, the only reliable data for this population tends to be data from the U.S. Census Bureau's decennial censuses and the American Community Surveys.

While these two Census Bureau datasets provide useful information about the American Indian population at single points in time, the same individuals are not linked across time or place, and thus make it difficult to evaluate the impact of employment, training, and educational programs aimed at improving economic outcomes or earnings for American Indians. Therefore, there are far fewer credible research findings for this population, which diminishes the opportunities for advocacy and improved policy implementation.

The U.S. Congress should increase funding for the creation of longitudinal datasets focused on the American Indian population. Alternatively, existing surveys such as the U.S. Bureau of Labor Statistics' National Longitudinal Study of Youth could oversample for these populations so that there would be a usable sample population. Additional longitudinal datasets such as the University of Michigan's Health and Retirement Study could do the same. These efforts would all lead to increased tools for assessment of the earnings and well-being of the American Indian population over time and under different policies and programs.

Conclusion

Improvements since 1990 in the general well-being of American Indians residing on reservations detailed in this essay need to be expanded in three key ways. The first is the support and exercise of tribal sovereignty and the expansion of innovative industries on reservations. The second is to reduce the barriers to economic development on tribal lands and provide funding for educational institutions on tribal reservations to reduce a persistent barrier to the economic development and well-being of American Indian workers and their families. The third is to increase the data collection on the American Indian population in nationally representative datasets. Without these longitudinal datasets, we are unable to conduct the stan-

dard evaluation and analysis of existing training or employment programs on the success of American Indians. Investing in these longitudinal datasets will go a long way to improving our ability to assess which programs work and which do not.

*—**Randall Akee** is an associate professor in the Department of Public Policy and American Indian Studies at the University of California, Los Angeles and a research associate at the National Bureau of Economic Research.*

Endnotes

1 In this analysis, I will focus primarily on American Indians in the lower 48 states residing on tribal reservation lands. There are other Indigenous peoples in the United States such as Alaska Natives, Native Hawaiians, Samoans in American Samoa, Chamorro in Guam, and Taino residing in Puerto Rico. Analyzing those additional groups is beyond the scope of the present analysis primarily due to space constraints. Future work on this topic is justified for those populations as well.

2 In 2015, approximately four-fifths of American Indians (or Alaska Natives) resided in urban, nonreservation areas; there are approximately 2.5 million American Indians or Alaska Natives (single race) in the country as a whole, and about 540,000 reside on American Indian or Alaska Native lands, according to the 2018 American Community Survey data.

3 To my knowledge, there are no available evaluations of these programs in the academic literature.

4 R. Akee, M. R. Jones, and S. R. Porter, "Race matters: Income shares, income inequality, and income mobility for all us races," *Demography* 56 (3) (2019): 999–1021, available at https://link.springer.com/article/10.1007/s13524-019-00773-7.

5 See, for instance, Figure 6 or Figure 7 in Akee, Jones, and Porter, "Race matters: Income shares, income inequality, and income mobility for all US races."

6 Due to small sample sizes in the Survey of Consumer Finance, it is not possible to identify a usable sample of American Indians to calculate wealth and asset ownership for this population. See R. Akee and others, "The role of race, ethnicity and tribal enrolment on asset accumulation: an examination of American Indian tribal nations," *Ethnic and Racial Studies* 40 (11) (2017): 1939–1960.

7 R.M. Todd and F. Burlon, "Homeownership gaps among Indian reservations prove puzzling" (Minneapolis: Federal Reserve Bank of Minneapolis, 2009), available at https://www.minneapolisfed.org/article/2009/homeownership-gaps-among-indian-reservations-prove-puzzling.

8 A.F. Campbell, "How America's past shapes Native Americans' present," *The Atlantic Magazine*, October 12, 2016, available at https://www.theatlantic.com/business/archive/2016/10/native-americans-minneapolis/503441/.

9 Economic and earnings data for American Indians residing on reservations is problematic for years prior to the 1990s since that geographic unit is not fully employed until the 1990 U.S. Census for all reservation lands. Therefore, data for previous decades at the reservation-level are only available for a subset of reservations, if at all. Additionally, the Current Population Survey does not provide specific geographic units for American Indian reservation location as the American Community Survey and U.S. Census data do. Therefore, I use the nonmetropolitan designation as a proxy for residing on an American Indian reservation. See S. Flood and others, "Integrated public use microdata series, current population survey: Version 7.0" (Minneapolis, MN: IPUMS, 2018).

10 R. Akee, E. Mykerezi, and R.M. Todd, "Opportunities to diversify: Reservation workplaces and job numbers compared to nearby county areas." In R. Miller, M. Jorgensen, and D. Stewart, eds., *Creating Private Sector Economies in Native America: Sustainable Development through Entrepreneurship* (Cambridge, UK: Cambridge University Press, 2019), p. 37, available at https://www.cambridge.org/core/books/creating-private-sector-economies-in-native-america/opportunities-to-diversify-reservation-workplaces-and-job-numbers-compared-to-nearby-county-areas/364712BB04F452AAD797A7B47397BE7E.

11 R. Akee, E. Mykerezi, and R.M. Todd, "Business dynamics on American Indian reservations over the Great Recession: Evidence from longitudinal datasets" (forthcoming, 2020).

12 M.B. Krepps and R.E. Caves, "Bureaucrats and Indians: Principal-agent relations and efficient management of tribal forest resources," *Journal of economic behavior & organization* 24 (2) (1994): 133–151.

13 American Gaming Association, "State of the states" (2016); National Indian Gaming Commission, "Gross Gaming Revenue Trends" (2016), available at https://www.americangaming.org/wp-content/uploads/2016/11/2016-State-of-the-States.pdf.

14 R. Akee, K.A. Spilde, and J.B. Taylor, "The Indian gaming regulatory act and its effects on American Indian economic development," *Journal of Economic Perspectives* 29 (3) (2015): 185–208, available at https://www.jstor.org/stable/43550127; G. Gonzalez-Rivera and others, "An impact analysis of tribal government gaming in California." Working Papers 201434 (University of California at Riverside, Department of Economics, 2006), available at https://ideas.repec.org/p/ucr/wpaper/201434.html.

15 Edith Brashares and Siobhan O'Keefe, "Indian Tribal Government Access to Tax-Exempt Bond Financing" (2013), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2370079.

16 P.H. Kunesh and B.D. Horowitz, "Access to credit in Indian country: The promise of secured transaction systems in creating strong economies." In R. Miller, M. Jorgensen, and D. Stewart, eds., *Creating Private Sector Economies in Native America: Sustainable Development through Entrepreneurship* (Cambridge, UK: Cambridge University Press, 2019), p.97, available at https://www.cambridge.org/core/books/creating-private-sector-economies-in-native-america/access-to-credit-in-indian-country-the-promise-of-secured-transaction-systems-in-creating-strong-economies/4CBDD167B809759109D9DAD2D6A6F50B.

17 M.B. Kumar and others, "Harvesting activities among First Nations people living off reserve, Métis and Inuit: Time trends, barriers and associated factors" (Ottawa, Canada: Statistics Canada, 2019), available at https://www150.statcan.gc.ca/n1/en/catalogue/89-653-X2019001.

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The primary purpose of this project is to present evidence-based economic policy proposals at the federal and state levels to deliver broadly shared economic prosperity by making wages a key outcome to structural economic reforms. A second goal, however, is to elevate a diverse set of voices and cutting-edge ideas from a group of scholars across universities and stages of their careers. The ideas discussed here belong to the authors alone and do not reflect Equitable Growth's policy positions or the policy positions of any of the authors' organizational affiliations.

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