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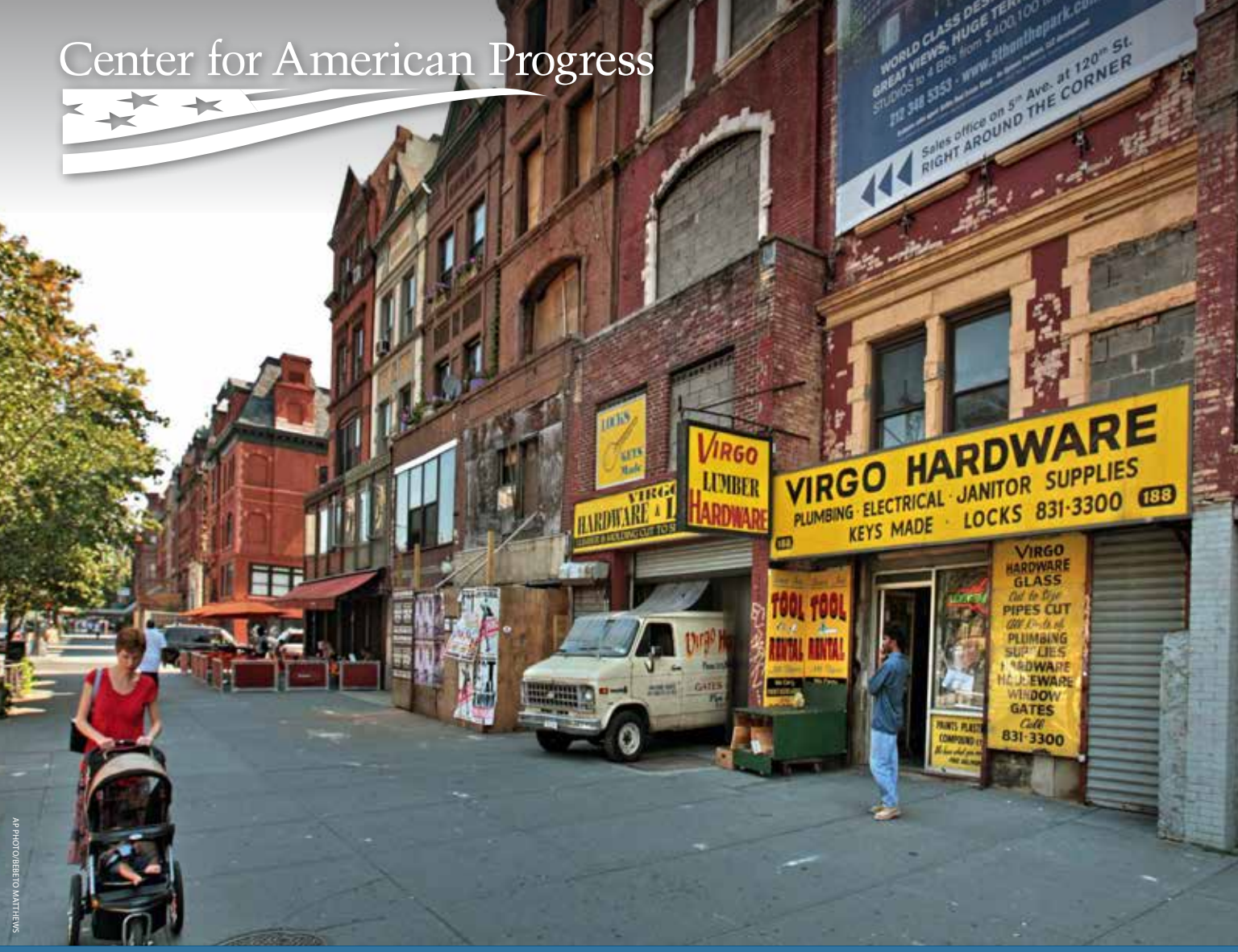

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The Impact of Inequality on Growth

By Jared Bernstein December 2013

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Introduction and summary

Among the most important economic challenges facing the United States and some other advanced economies today is the increase in the inequality of economic outcomes. In the case of the United States, the distributions of income, wages, and wealth are more dispersed than ever.[1] Though measurement issues abound, it is widely agreed that U.S. economic inequality is at historically high levels.

This fact, however, has different implications for different observers. Many critics of higher inequality suggest that it violates basic fairness, particularly when considering, for example, the divergence of median compensation and productivity growth. Such trends, these critics hold, are evidence of working people no longer getting their "fair share" of the growth that they are helping to generate.

Others note that inequality serves as a wedge between growth and living standards, funneling income largely to those at the top of the scale and thus making it harder at any given level of economic growth for living standards to grow as they have in more equitable times or for poverty to fall during business cycle expansions. Economic growth, as this report argues, has become a spectator sport for too many poor and middle-class households that watch as the gross domestic product, or GDP, productivity, the stock market, and corporate profits rise while their incomes either stagnate or grow much more slowly.

To add a few concrete numbers to this observation, note that so far in this expansion, which officially began in the second half of 2009, the stock market is up 60 percent, GDP is up 8 percent, corporate profits as a share of national income are at historic highs, yet median household income is down 5 percent, with all figures adjusted for inflation.[2]

Another more recent line of argument holds that persistently high levels of inequality are eroding opportunity and mobility for those whose living standards and economic well-being are negatively affected by the wedge dynamic just

described. This is a fundamental critique because it is widely held that in America, while we do not aspire to equal economic outcomes, we believe strongly in equal opportunity. If inequality were to thwart the opportunities of the "have-nots," this would represent a significant violation of a basic American tenet.

While this paper will reference these arguments, the goal here is to examine something different, though not unrelated, to the problems noted above—specifically, the impact of inequality on growth. Virtually all of the research on the impact of inequality takes growth as a given and examines the distribution of that growth, or in the case of the opportunity research noted above, the extent to which higher inequality is associated with less opportunity and mobility. This other line of research asks whether there is causal linkage between higher inequality and slower macroeconomic growth.

This paper begins by examining the channels through which such a causal relationship might flow, recounting arguments made previously in other reports.[3] Next, it explores several theoretical models in a hunt for empirical evidence of a causal relationship between higher inequality and slower growth. Such evidence is generally quite elusive, as might be expected. Both inequality and growth are complex phenomena with many moving parts. While some of the theories are clear and persuasive, finding evidence in the data to support their predictions is tricky. It is widely believed, for example, that the wealthy have a lower propensity to consume at the margin. That is to say, since their income is such that they can handily meet their needs and wants, an extra dollar that goes their way is more likely to be saved than spent. Thus, we would expect that income concentration, by distributing national income away from those with higher consumption propensities—generally seen as poor and middle-class individuals to those with lower consumption propensities such as the rich and the financially well off—would lead to slower growth in consumer spending.

But this was not at all the case in the previous economic expansion of the 2000s, in part because easy access to credit and a housing bubble were intervening variables. That is, while historically high levels of inequality meant that most of the economy's growth was channeled to the top of the income scale, many middle-class homeowners experienced sharply increased housing wealth. This higher "wealth effect"—the extra spending that occurs when assets you hold appreciate—drove consumer spending higher in recent years, even while real incomes, excluding wealth effects, were flat.

Of course, when the bubble burst, this wealth effect reversed, leading to the deep and long recession from which the U.S. economy is still recovering.

These dynamics make it difficult to find evidence to support the most commonly cited negative growth impact of higher inequality: that in a highly consumption-driven economy such as ours, the upward distribution of growth to those with lower propensities to consume should lead to slower growth. The logic is sound; and, in fact, that dynamic better describes the current recovery than the last one. But the credit bubble intervened in ways that cannot be ignored.

But—and this is perhaps the most interesting finding of this report—what if the credit bubble itself is associated with inequality? If that connection is convincingly made, given its impact on the deepest recession since the Great Depression—a recession that we are still climbing out of—it would be a strong indictment of the role of inequality in slower growth. There is circumstantial evidence to support this connection between inequality, financial instability, and credit bubbles. There is no smoking gun, but recent work, both theoretical and empirical, reveals potential linkages between high levels of inequality that appear to have interacted with underregulated financial markets, contributing to overleveraging, the housing bubble, the Great Recession, and its aftermath.

Financial bubbles and busts have clearly occurred in periods when inequality was not as high as it is now, so it will take a greater and more careful examination to determine if this connection really exists. If evidence from future study in this rich area of research supports this linkage of inequality and the appearance of financial bubbles, it will have uncovered an important and economically destructive way by which high levels of inequality are hurting growth.

Other causal channels deserve close watching as well. More and better data, for example, continue to surface, suggesting causal linkages between inequality and opportunity, most notably in the educational sphere.[4] While such connections do not necessarily have a near-term impact on growth, they do imply a situation where some children will not achieve their productive potential. This in and of itself is a tragedy in a rich country such as ours, but it also has obvious longer-term growth implications, as the quality of human capital is an important input into any credible growth model.

Moreover, other connections suggested by the research reviewed below have growth implications as well. The interaction between high levels of wealth concentration and a political system heavily influenced by money threatens to give rise to politics that are more responsive to special interests than, for example, the need for investments in public goods that would boost productivity and growth. As alluded to above, other recent research is building connections between rising inequality and deeply damaging financial instability as too many families with stagnant incomes find that borrowing is the only way they can get ahead. At the same time, it is argued that high levels of wealth concentration is leading to higher savings among the wealthy and thus cheaper capital for leveraging households.

Again, all of this research is relatively new, and while it makes suggestive connections, there is not enough concrete proof to lead objective observers to unequivocally conclude that inequality has held back growth. Yet even if it is determined by future research that no such linkage exists, there are still good reasons to address the excessive levels of inequality in the U.S. economy. Inequality puts at risk fundamental American precepts: the belief that hard work and fair play pays off, the conviction that the opportunities for upward mobility are available to all, and the trust in the basic fairness of American society. This remains true no matter what effects inequality has on growth.

In that regard, the high level of inequality that we have today requires a policy response leading to a more equitable and inclusive economy. Full employment is especially important, and given the persistence of weak labor markets since 2000—very much predating the last recession—achieving full employment may require public-sector job creation, either directly through public infrastructure projects or indirectly through public subsidies for private jobs. Incentives such as greater union representation, increased minimum wages, a solid safety net, progressive taxation, and sectorial policies that lift productive sectors such as manufacturing can help raise the relative incomes of middle- and low-wage workers.

Theories of growth as a function of inequality

One of the most classic theories relating growth to inequality is something that economists refer to as the Kuznets curve. Renowned economist Simon Kuznets posited that as emerging economies grew, inequality grew as well, as the few with high-asset endowments—landowners, for instance—profit from their ownership of productive resources. Then as industrialization evolves, a much larger portion of the population has the chance to participate in higher value-added work, which reduces inequality. The result is an inverted U-shaped curve with inequality on the y-axis and per-capita income on the x-axis. As income grows, its distribution initially becomes more unequal, but as the benefits of productivity become more widely shared, inequality diminishes.

While that roughly describes the pattern of income and inequality's growth in emerging democratic economies, it demonstrably does not reflect the pattern of American inequality over the past century or more. As the work of inequality experts Thomas Piketty and Emmanuel Saez, professors at the Paris School of Economics and University of California, Berkeley, respectively, has shown, that trend is more of an actual "U" rather than an inverted one, as inequality grew to historical highs in the late 1920s, fell during the Great Depression through the 1970s, and has since grown to heights matched only by those last seen in the late 1920s. Moreover, the underlying assumption of the Kuznets curve is that the benefits of productivity growth would flow more broadly as society advances. As noted earlier, and as shown by Lawrence Mishel of the Economic Policy Institute, since the 1970s productivity and median compensation have sharply diverged.[5] Neither does the Kuznet's hypothesis associate higher inequality with slower growth.

In contrast, the theories linking inequality to growth fit generally into supply-side, demand-side, and political-economy theories. Another model discussed in this paper invokes inequality's role in the credit booms and busts that have dominated—and deeply damaged—our economy in recent years. Let's look at each model more closely.

Supply-side theories: Inputs and growth

Most theories of long-term economic growth emphasize the supply side of the economy; that is to say, the amount and quality of inputs along with the level of technology and human capital that transforms those inputs into the goods and services we need and want. Economists Heather Boushey and Adam Hersh of the Center for American Progress, for example, cite the level of human capital, the cost and access to financial capital, and the depth of investment in public goods as key to growth and argue that inequality significantly influences these inputs. This argument is also associated with Nobel laureate economist Joseph Stiglitz of Columbia University.

This paper examines this argument in greater detail below, but a simple example may prove helpful here. It is not hard to imagine that higher inequality could lead to worse educational opportunities for children in many households compared to an economy where growth is more equitably distributed. In this model, higher income inequality leads to higher educational inequality, where low-income children end up in lower-quality schools, benefit less relative to higher-income children from parental investments in child-enhancement goods such as music and art lessons or vacations to interesting places, and have less access to higher education. Much like a slower computer or a machine that makes fewer and poorer-quality widgets, the relatively low human capital of these future workers leads them to become less-effective inputs into the production of economic output. That, in turn, slows the rate of growth compared to an alternative scenario—a counterfactual—where all children get high-quality schooling.

More complex versions of this model work through a political channel where high levels of wealth concentration, for example, yield political influence that supports low taxes, supply-side tax cuts, and diminished government investments in public goods and research and development expenditures, among others. There is, in turn, compelling evidence that underinvestment in public goods can hurt productivity and slow the economy's growth, or to put it another way, lower its "speed limit."[6]

Demand-side theory

Another way in which inequality is likely to negatively affect growth is through the differences in the marginal propensity to consume across the income scale. Because of the assumed diminishing marginal utility of money—the idea that the utility, or personal benefit, of the next dollar you receive is a bit less than the dollar you received before—economists believe that individuals with higher incomes have lower marginal propensities to consume and thus have higher tendencies to save. That is to say, high-income people have the income they need to handily afford the things they need, such as groceries and housing, and want, such as jewelry and vacations. So they are less likely to spend—as opposed to save—an extra dollar. Research cited in this paper by Boushey and Hersh supports these assumptions.[7]

The U.S. economy is 70 percent consumer spending—much higher than the 55 percent average in Europe, for example.[8] This means that high levels of income and wealth concentration at that portion of the distribution where the propensity to consume is low could plausibly depress demand relative to a very different set of economic dynamics where middle- and lower-income families benefitted more from growth.

Furthermore, Keynesian accelerator models presume that investment itself is a function of output growth and thus consumption. A robust consumer demand signals to investors that greater capital stock will be needed in forthcoming periods to meet the growing demand for output—and vice versa in a recession, of course. Thus if lower inequality generates more consumer spending and growth though a higher propensity to consume at the margin in some macroeconomic models, this faster growth leads to more investment.

Again, a stylized example might help cement the concepts in play here. Imagine an economy with two consumers and one investor. With high economic inequality, one consumer—let's call him Richie—gets most of the growth and buys a fleet of cars and a few fancy watches. The second consumer—a low-income consumer, who we will call Poe—benefits little from growth and buys only necessities, if that. But with low inequality, consumer Poe now has enough money to buy an inexpensive car and perhaps a Timex. While Richie is not as flush in the low-inequality scenario, he still has enough to buy a couple of cars and a pricey timepiece or two.

In the first scenario, the investor does not see enough demand to justify expanding production, say, to build a new line of mid-range products. In scenario two, however, our investor sees more demand, which motivates her to expand her production line that in turn leads to more growth than would otherwise prevail; and she does so as a function of more the broadly based demand generated by a more equitable income distribution.

Note the role of Poe's higher marginal propensity to consume. In the high-inequality regime, Richie easily has the income to offset Poe's reduced consumption, but he derives little utility from another purchase at the margin. Poe, on the other hand, is starting out on a much lower point on his marginal utility curve, so if some additional income flows his way, he is a lot more likely to spend more of his money. This is also the theory behind some of the commentary of Nick Hanauer, an entrepreneur and venture capitalist who argues that high inequality leads to lower growth through this consumption channel.[9]

This all may sound fanciful and theoretical, but it has practical merit. In planning and executing stimulus measures, policymakers often recognize that growth multipliers are higher for tax cuts targeted at middle-income earners rather than at high-income households. This point was relevant, for example, in the recent debates over the fiscal cliff deal where many economists, as well as the Congressional Budget Office, or CBO, argued that increasing taxes on the wealthy would be expected to have very little impact on growth.[10]

Political economy

More complex models of inequality's impact on economies involve political channels through which concentrated wealth influences policy outcomes in ways that serve to both further heighten inequality and block measures that would support more equitable outcomes. Not all of these models, however, predict growth impacts. That is, one class of models simply predicts distributional outcomes: Concentrated wealth buys concentrated political power, which channels more growth upwards. But unless we are willing to invoke the supply and demand impacts just discussed, such models do not necessarily predict slower growth.

Another class of economic models, however, goes further, predicting not only slower growth but the potential of a failed state. In their book, *Why Nations Fail*, Massachusetts Institute of Technology economist Daron Acemoglu and Harvard University political scientist James Robinson present sweeping historical evidence of linkages between what they call "extractive political and economic institutions" and high inequality, intense poverty, deep human exploitation, failed political systems, and ultimately failed states.[11]

The U.S. political and economic systems interestingly fare well in Acemoglu and Robinson's historical review. Whether it is the robber barons' of the Gilded Age power grabs, or the repressive or extractive regimes in the Jim Crow South on the right side of the political spectrum, or former President Franklin Delano Roosevelt's attempts to pack the Supreme Court on the left, the authors find that often after long, painful struggles, the fundamental inclusive institutions in this country prevailed. To illustrate that point they devote a passage to the struggle for civil rights in the American South that began in the 1950s and note that while blacks in the South led the way in "challenging extractive institutions," they were not alone in this fight:

> *… because the U.S. South was not a separate country and the southern elites did not have free reign as did Guatemalan elites, for example. As part of the United States of America, the South would finally receive support from the U.S. executive, legislature, and Supreme Court partly because the civil rights movement was able to have its voice heard outside the South, thereby mobilizing the federal government.*[12]

Acemoglu and Robinson tell a related story of how, what they call "virtuous circles" that were formed by inclusive institutions, busted the monopolies of the robber barons:

> *… the reaction to the monopoly trusts … illustrates that when political institutions are inclusive, they create a countervailing force against movements away from inclusive markets. This is the virtuous circle in action. … Trust busting in the United States, in contrast to what we have seen in Mexico … illustrates this facet of the virtuous circle.*[13]

The question this line of argument raises, of course, is to what extent has income and wealth concentration undermined these positive dynamics in the current U.S. political economy? *Why Nations Fail* is largely a historical treatise and thus does directly address this question. But Acemoglu views the case of Venice in the late Middle Ages as a warning for the United States.[14]

The authors tell a compelling story of how Venice in the 13th and 14th centuries greatly prospered through inclusive institutions such as political, entrepreneurial, and trading regimes that provided paths for upward mobility and thus more broadly shared prosperity and stronger growth. But the Venetian elites, whose wealth and power were diminished by these developments, managed to pass laws that shut down this process, severely restricting the economic opportunities of the nonelites. The negative impact on growth in this switch from inclusive institutions to extraction institutions persists through the present. It is worth noting that this section of their book is titled, "How Venice Became a Museum."

In what can be read as a warning to the cotemporary United States, Acemoglu and Robinson conclude:

> *… moves toward inclusive institutions … can be reversed. Venice became prosperous. But its political and economic institutions were overthrown, and the prosperity went into reverse. … The fact that inclusive institutions can go into reverse shows that there is no simple cumulative process of institutional improvement.*[15]

The model described next embodies precisely this Venetian type of development where economic elites, enriched by highly concentrated wealth, influence the political process to disassemble inclusive and opportunity-providing institutions, thus enforcing even greater inequality and ultimately undermining growth. In this model, concentrated wealth interacts with politics in ways that favor the "haves" over the "have-nots," or the beneficiaries of the inequality versus those on the short end. Previous reports have elaborated on this model in some detail; this report provides a summary with an emphasis on implications for growth.

A key part of this model posits that with levels of inequality that prevail in the United States today, the opportunities for less-advantaged families and especially their children to achieve their potential are significantly diminished. Let's begin by considering an economy with a stable income distribution. In such an economy, growth, which starts out as exogenous to the model, leads to income growth and

poverty reduction for middle- and low-income families. This provides the children in such families with, for example, educational opportunities, which in turn enhances their economic-mobility prospects. Through schooling and other learning experiences—such as interesting vacations, quality neighborhood libraries, and parental investments in child-enhancement goods and services —these children achieve their intellectual and productive capacity, which is important for growth.

But once we introduce high and growing levels of inequality into the model, the results change. GDP and productivity growth are diverted from lower-income families, and under this scenario middle incomes and poverty rates stagnate or worsen. This in turn blocks opportunities, including educational opportunities, and reduces upward mobility. Children from lower- and middle-income families fail to reach their productive potential, which feeds negatively back on growth.

Thus far, these dynamics are covered in the models cited earlier, but the interesting part of this model is the prediction that income concentration enters into the political realm by promoting policies that protect the beneficiaries of inequality's growth and blocking policies that would push back against it. This is particularly likely to be the case in a country such as ours where private contributions play a much larger role in campaigns than in other advanced democracies. The model therefore generates the following set of hypotheses wherein politics and policy reinforce rising inequality and block policies that would promote more broadly shared growth:

- Less-advantaged children will, over time, experience less-favorable education opportunities, both in terms of quality primary school education and college access and completion.

- Rates of economic mobility will flatten or fall.

- The political process will become increasingly solicitous of the preferences of the wealthy.

- Policies that exacerbate inequality, such as regressive tax policies or advantageous treatment of nonlabor income, will get a more favorable hearing than those policies that push back against inequality, such as minimum-wage increases, progressive tax changes, and policies related to increasing collective bargaining, just to name a few.

In turn, here are some corollary indicators that we would expect to see if the dynamics predicted by this model were in play:

- Regressive tax changes
- Shift from labor to capital incomes
- Deregulation and expansion of financial markets
- Regular bubbles in financial sectors, accompanied by excessive leverage, under-priced risk, and financial "innovation"
- Privatization of social insurance
- Eroding labor standards, including lower minimum wages and fewer labor protections
- Diminished unionization and opposition to collective bargaining
- Increased outsourcing of jobs
- Monetary policy favoring low inflation over full employment
- Diminished government commitment to education
- Erosion of safety-net programs
- Few rules restricting campaign finance
- Smaller government outlays and receipts as share of GDP
- Diminished investment in public goods
- And finally, as per growth, anti-Keynesianism and pro-austerity fiscal policies resulting in slack labor markets and output gaps

The outcomes of some of these predictions are evident in the U.S. data, while others are not. Over the past few decades, for example, the effective tax rates of the wealthiest taxpayers have, in fact, declined significantly. Data from the Internal Revenue Service shows a decline in the effective tax rate for the top 400 wealthiest taxpayers from about 26 percent in the early 1990s to about 20 percent in 2009, the most recent year that data are available.[16]

On the other hand, while regressive tax changes have certainly been proposed and championed in much the way the model would predict—through politicians supported by very wealthy donors—the most recent changes to U.S. tax policy—the American Taxpayer Relief Act of January 2013, less formerly known as the fiscal cliff deal, were fairly progressive.[17] Attempts to privatize social insurance have similarly failed. Recent monetary policy has tilted aggressively toward fighting unemployment. Despite the model's prediction, this was not the norm of the past few decades, though it bears noting that the Federal Reserve is to no small degree politically insulated.

Yet other developments support the model's predictions. National income shares have shifted quite sharply toward profits and away from compensation; safety-net programs have faced budget cuts largely through spending cuts to various programs benefiting the poor; campaign finance is largely unrestricted; austere fiscal measures are in ascendency; and, as discussed below, investment in public goods has slowed. Importantly, not only have financial bubbles inflated as a function of underpriced risk and so-called financial "innovation"—the proliferation of complex financial instruments that derive their value from movements of other financial instruments—but policy efforts to regulate the industry are being opposed and even blocked in ways the model would predict.

Moreover, a valid economic model does not just describe the present; it predicts the future. Even a cursory review of recent politics reveals that many of the aforementioned bullets are high up on the list of conservative aspirations. Keynesian policies, while clearly needed, are nowhere to be seen on the political landscape, and recent budget proposals by conservatives have explicitly emphasized the goal of locking in historically low ratios of government spending to GDP.[18]

But what does any of this have to do with growth? Some connections such as anti-Keynesian austerity are obviously linked, but other predictions such as lower minimum wages, less unionization, and even regressive tax changes are more related to distributional outcomes than to growth outcomes.[19] The linkage between debt, credit, and financial volatility, however, is potentially implicated in recession and slower growth.

Inequality and credit busts

A final model linking inequality to growth invokes inequality's role in promoting debt bubbles. An article by Michael Kumhof and Romain Rancière, economists at the International Monetary Fund,[20] and another article by economists Barry Z. Cynamon of the Federal Reserve Bank of Saint Louis and Steven M. Fazzari of the Washington University in St. Louis,[21] both construct models of this phenomenon:

- The wedge of inequality diverts income growth from middle- and low-wage workers; at the same time, high-income households acquire more capital assets. This increases the savings of wealthy households relative to lower-income households.

- In order to keep their living standards from declining, the middle class borrows more. Financial innovations, including new types of securitization, increase the liquidity and lower the cost of loanable funds available to the borrowers. As Kumhof and Rancière put it, "The bottom group's greater reliance on debt—and the top group's increase in wealth—generated a higher demand for financial intermediation."[22]

- The financial sector thus grows rapidly, as do the debt-to-income ratios of the middle class relative to the wealthy. (Cynamon and Fazzari; see Figure 6)

- The combination of rising middle-class debt and stagnant middle-class incomes increases instability in financial markets, and the system eventually crashes, leading to a large demand shock as the relatively large borrowing class deleverages. (Cynamon and Fazzari; see Figure 8)

- Regarding this last step, unique developments in the United States and later in Europe amplified that part of the model. Financial innovations—such as securitization that increased the distance between the loan originator and the loan holder, which contributed to looser underwriting standards—interacted in a particularly volatile way with deregulatory zeal and the belief, often associated with former Federal Reserve Chairman Alan Greenspan, that financial actors would self-regulate.

To summarize this section on different models, a number of them clearly posit negative causal relationships between growth and inequality. In the supply-side model, inequality leads to less-productive labor inputs. In the demand-side model, inequality leads to less-robust consumption and investment. In the credit-bust model, inequality leads to an overleveraged middle class, financial market instability, and a credit bubble-and-bust cycle.

While inequality is central to the political-economy model, its growth implications are not obvious. Growth could be exogenous to the model, and all the dynamics just described would affect a given growth level's distribution. For our purposes, however, it is important to explore ways in which growth might be endogenous to this model and the other models, which we will turn to next.

Does empirical evidence support these models?

This section goes model by model to see if there is any empirical evidence to support or disprove the predictions of these models. In sum, there is not strong empirical support for all of these linkages. Some of this—similar to the predictions made by Keynesian models that variation in the marginal propensity to consume may stem from data limitations or, more interestingly, ways in which families' whose incomes were constrained by inequality—found other ways to increase their consumption and, of course, the possibility that the theory does not hold. Some recent work provides circumstantial evidence for the model linking inequality to overleveraging of the middle class, to the credit bubble, and to the very large demand contraction known as the Great Recession. Here too, however, alternative explanations that do not invoke inequality cannot be ruled out.

Supply: Does inequality lower the quality of inputs?

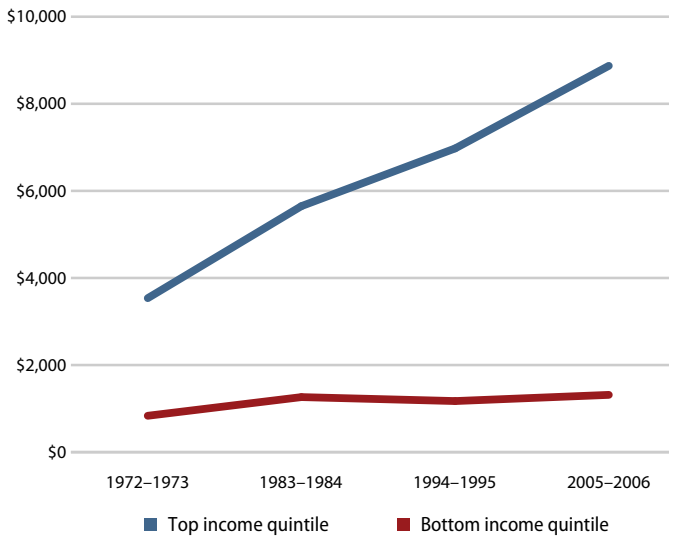
While there is compelling evidence that inequality has a negative impact on educational opportunity and strong economic logic relating diminished educational opportunity to growth, there is not much evidence linking inequality to reduced labor quality. The measurement challenges invoked by this quest, however, are daunting.

The figures below from the volume titled, "*Whither Opportunity*?"[23] suggest connections between greater income disparity and diminished educational opportunities for children. Figure 1 shows "enrichment expenditures" on children by income class at the top and bottom

FIGURE 1

Enrichment expenditures on children from 1972–2006

in 2008 dollars



Note: "Enrichment expenditures" refers to the amount of money families spend on books, computers, high-quality child care, summer camps, private schooling, and other things that promote the capabilities of their children. Source: Greg J. Duncan and Richard J. Murnane, "Introduction: The American Dream, Then and Now." In Greg J. Duncan and Richard J. Murnane, eds. Whither Opportunity? Rising Inequality, Schools, and Children's Life Chances (New York: Russell Sage Foundation, 2011).

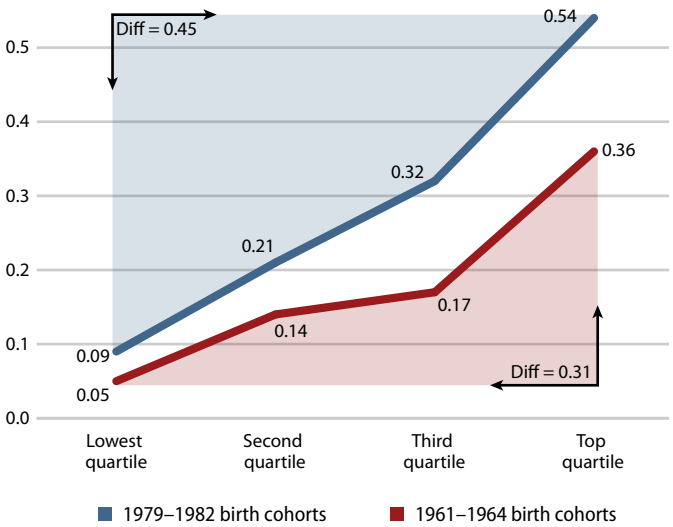
quintiles over time. Such expenditures—on music or art lessons, books, extracurricular sports, and tutoring—grew much more quickly for higher-income children relative to low-income children. The ratio of expenditures grows from about four to about seven over the years shown in the figure, a period when income and wealth inequality grew sharply.

The next figure examines relative college completion rates for different birth cohorts by income quartile across time. While college completion rates rise with income for both cohorts and rates for all income classes have gone up over time, the slope of the latter curve for the most recent cohort is steeper, implying greater disparity in completion rates over time. For the early 1960s cohort, the college completion gap between the top and bottom quartiles was 31 percentage points, and for the early 1980s cohort it was 45 percentage points.

Social scientists have long-identified limited family resources as a "central explanation for why poor children lag behind their peers."[24] But the question here is in regard to evidence that links this outcome to future labor quality or macroeconomic outcomes. The literature that accounts for growth quite clearly predicts that a less-educated workforce—one with less-productive labor inputs—will lower the economy's growth rate. But do labor-quality measures correlate negatively with inequality trends?

FIGURE 2

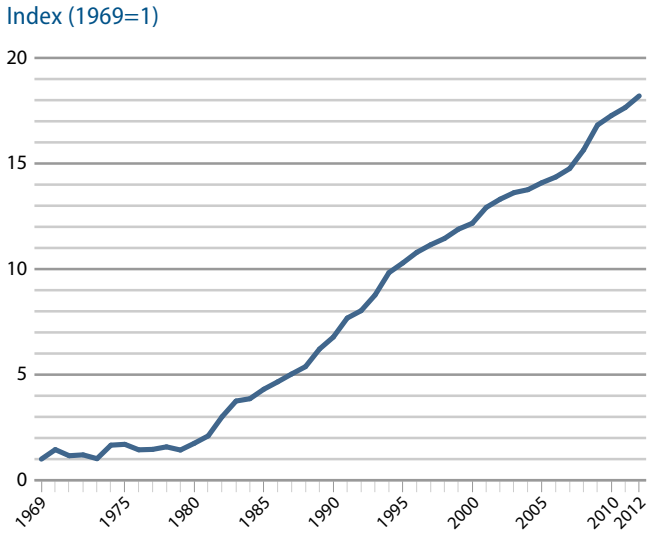
Fraction of students completing college by income quartile and birth year



Source: Martha J. Bailey and Susan M. Dynarski, "Inequality in Postsecondary Education." In Greg J. Duncan and Richard J. Murnane, eds. Whither Opportunity? Rising Inequality, Schools, and Children's Life Chances (New York: Russell Sage Foundation, 2011).

FIGURE 3

Labor quality 1969–2012



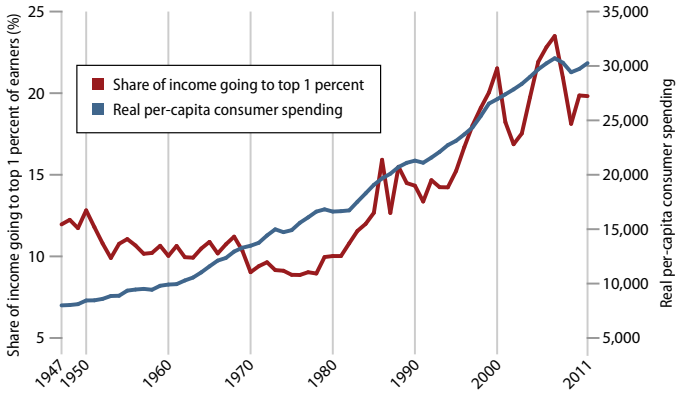
Source: John Fernald, "Productivity and Potential Output before, during and after the Great Recession." Working Paper 2012-18 (Federal Reserve Bank of San Fransisco, 2012), available at http://www.frbsf.org/publications/economics/papers/2012/wp12-18bk.pdf.

In one word, no, but for reasons that are pretty intuitive. The key inputs into measured labor quality are the education and experience of the workforce. The demographics of an aging and thus more-experienced workforce and the evolution of greater access to education have led to the relatively steady upward pattern as seen in Figure 3 from the work of economist John Fernald.[25] Research by Federal Reserve Bank of Chicago economists Daniel Aaronson and Daniel Sullivan, for example, point out that education upgrading of the workforce has been occurring for more than a century, generating large increases in high school and college graduation rates, which translates directly into higher values of labor quality.[26] Fernald's series is also somewhat countercyclical: It accelerates in recessions as less-skilled and less-experienced workers disproportionately leave the labor force. Note the steeper slopes in the deep recessions of the early 1980s and the most recent sharp economic downturn.

Moreover, Fernald's research shows that labor quality has been a quantitatively constant contributor to productivity growth since the mid-1970s, contributing about 0.4 percent per year.. Timing obviously matters in this sort of evaluation because children facing poorer educational opportunities today will not depress labor quality until many years down the road. But a correlation between these series—education quality and the income share of the top 1 percent—does not exist, regardless of the lag structure, largely because the labor-quality series grew considerably faster between 1979 to 2011 when inequality was increasing than from 1947 to 1979 when inequality was stable or falling. This result is not a function of the large recession in the latter period, which would inflate labor quality. The same result holds for a residual labor-quality series attained by regressing the series on unemployment.

FIGURE 4

Real per-capita consumer spending and inequality 1947–2011



Source: Author's analysis of data from Bureau of Economic Analysis. Thomas Piketty and Emmanuel Saez, "Income Inequality in the United States, 1913-1998," The Quarterly Journal of Economics 143 (1) (2003).

So while a solid empirical case that higher inequality diminishes educational outcomes and the theoretical case that such outcomes hurt growth can be made, an empirical correlation between inequality and Fernald's index of labor quality cannot be found.

In sum, while diminished educational opportunity appears to be a function of higher inequality, and growth is widely agreed to be negatively affected by less-educated and less-productive inputs, the empirical evidence of these logical linkages is hard to find.

Demand: Does the lower marginal propensity to consume of the "haves" slow GDP growth?

Evidence exists of the diminished marginal propensity to consume of high-income households relative to households with lower incomes .[27] The question for this section, however, is whether there is any evidence that this effect interacts with higher inequality in such a way as to depress macro consumption growth against a counterfactual of a more equal distribution.

Here again, simple correlations do not appear in the data. Much like the educational-input argument above, this one too has solid theoretical foundations from microeconomics. But, also similar to the education case, finding the evidence in the macrodata is again a challenge. As with the labor-quality index, real consumption per capita grows fairly consistently around an inequality trend that has grown much faster in recent decades than in the postwar decades (see Figure 4 which plots real spending per person against the Piketty-Saez measure of the share of income held by the top 1 percent). To make the point, consider that between the late 1940s and 1970s—specifically, 1948 to 1979, comparing business-cycle peaks—real per-capita consumption rose 2.4 percent per year, while the income share going to the top 1 percent fell by a couple percentage points. Between 1979 and 2007 per-capita consumption grew slightly more slowly, up 2.2 percent per year. But the income share going to the top 1 percent went up 13.5 percentage points. If higher inequality slowed consumption growth by distributing less market income to the bottom 99 percent, we would likely expect much larger differences than this to show up in the data.

Simple regression analysis does no better than these broad differences. Table 1 below shows the coefficients from a time-series regression of log changes in per-capita consumption on the top 1 percent income-share variable and a set of controls, including unemployment and home prices, the latter of which captures wealth effects on consumption—the fact that when a person's assets increase in value, they tend to spend more even if their income has not gone up. The first entry shows that the level of inequality does not correlate at all with the annual change in real spending. But because the inequality series does not have a constant mean—instead, it has a "unit root" in levels but not in changes—the other models enter it in changes.

Entering the inequality variable in annual changes yields a significant variable suggesting a 1 percentage-point increase in the share of income going to the top 1 percent is correlated with a 0.4 percent increase in real consumer spending per person. But even though the simple model controls for unemployment, it turns out that the coefficient loses its significance when we exclude the Great Recession, a period when capital losses led to a sharp and temporary fall off in inequality at a period when consumer spending also contracted sharply.

Since we might not expect changes in inequality to have a contemporaneous impact on spending, it is reasonable to consider a lag structure. The last coefficient in the table enters all the change variables in the regression—consumer spending, inequality, and home prices—in two-year intervals. Here again, the model runs through 2007. The coefficient is of the two-year change in the top 1 percent income share is significant, and once again, it has the opposite sign predicted by the marginal propensity to consume, or MPC, theory elaborated above.

Regression results

Consumer spending per capita on inequality from 1947 through 2011 (coefficients on inequality variable)

Top 1 percent	-0.0003	
d(Top 1 percent)	0.0042	▲
d(Top 1 percent)*	0.0031	
d(Top 1 percent)**	0.0051	▲

* Through 2007; excludes Great Recession

** Two-year change in dependent variable and two-year lag in d (top 1 percent)."d" refers to the difference in a variable's value between the current and previous period.

▲ Significant at p<0.05% level

Note: Models control for unemployment and log change in home prices (Case-Shiller index). Author's analysis is based on U.S. Bureau of Economic Analysis, Piketty-Saez, and Case-Shiller data.

While the absence of the expected correlation may seem surprising here, there is likely at least one good reason for it. While numerous data sources show that higher inequality coincided with stagnant middle-class incomes and sticky poverty rates, other dynamics regarding the income and spending of Americans were afoot in these years, especially since 2000. The most significant of these dynamics was a credit boom that helped to inflate a housing bubble, making many middle and moderate income households a lot wealthier than they would appear if you ignored this part of their balance sheet.

No analysis of consumer spending over these years can omit the increase in housing wealth, which leads Cynamon and Fazzari to refer to these years as the "consumer age." Economists Robert Shiller of Yale University, Karl Case of Wellesley College, and John M. Quigley of the University of California, Berkeley, for example, find quantitatively large effects from housing wealth on consumption, yet the impact of housing wealth on spending—in particular, its distributional effects—is often left out of the macro analysis because changes in housing wealth are left out the national GDP and consumer spending accounts.[28]

Does the accumulation of significant housing wealth among families throughout the income scale disprove linkages between MPC theory and the results shown so far? The answer is no. It does, however, provide an important reminder that there are many moving parts to the relationship between inequality and growth. A more sophisticated model is needed to incorporate inequality, credit dynamics, wealth effects, bubbles, and busts. Let's turn to such models next.

Political economy, credit bubbles, busts, and inequality: What's the evidence?

As noted above, Kumhof and Rancière introduced a model wherein inequality leads to greater demand for credit by families facing stagnant earnings and a larger stock of loanable funds held by the wealthy. Combined with some of the dynamics from the political-economy model, also described above, the predicted result is a relatively large group of overleveraged households inflating a credit bubble fostered by inadequate regulatory oversight and underpriced risk. Once that bubble bursts, a protracted demand contraction follows, as households deleverage. Popular research argues that such credit-bubble recessions are longer and deeper than average economic downturns.

Surely that sounds familiar, and it also creates a causal linkage between higher inequality and the so-called "shampoo cycle"—bubble, bust, repeat—that has characterized the U.S. economy in recent decades. But does any evidence exist to support this model?

Cynamon and Fazzari look closely at these relations using unique U.S. data on spending and saving from the past few decades.[29] They begin with the notion that under the traditional MPC hypothesis, higher income concentration among the rich should have depressed consumption and thus lowered demand relative to more equitable distributions. But, as with the cursory correlation hunt above, they did not find that outcome in the U.S. data. Instead, they found consumption was equally strong, if not stronger, over the period of higher inequality. This led them to ask: How, in a period of rising inequality and stagnant incomes for the middle class, could their spending rise as much as it did in the 2000s? Their answer:

> *American households, outside of those in the top of the income distribution, went on an extended borrowing binge. Household debt relative to after-tax income rose to unprecedented levels. And it was the resulting financial fragility that caused both residential construction and broader measures of household spending to plummet, leading to the most severe economic contraction in the U.S. since the Great Depression.*[30]

One clear implication of this model is higher savings rates for the rich relative to the rest of the population. But savings data disaggregated by income class are hard to find. By mapping microdata on balance-sheet compositions from the Survey of Consumer Finances, which come out only every three years, onto the changes in each asset and liability category reported in the Federal Reserve's Flow of Funds report, which comes out quarterly, Cynamon and Fazzari have a data set that imputes savings and spending rates by income class.[31] Traditional macro-expenditure data, such as the U.S. Bureau of Economic Analysis's National Income and Product Accounts, or NIPA, tables, classify home construction as residential investment—and thus not assigned to household accounts—while, for owner-occupied housing, they impute rental income and add it to disposable personal income and rental expense, which is subtracted from personal-consumption expenditures. The authors reverse the imputed—noncash—items and reclassify construction of single-family residences as real investment by households, and thus expenditures that add to consumer demand.

The authors then establish these empirical facts:

- Aggregate demand—consumer spending, including new residential production—relative to income rose consistently from the early 1990s until the Great Recession.

- In the 2000s both demand and debt-to-income ratios rose more for the bottom 95 percent than for the top 5 percent. In 2007 the debt-to-income ratios were around 140 percent for the bottom 95 percent and about 60 percent for the top 5 percent. Those are quite different patterns than in the 1990s, when both demand and debt-to-income grew at equal rates for both groups. This observation also suggests something more than inequality was behind these developments since inequality grew in the 1990s as well.

- When the housing bubble burst, this debt ratio became unsustainable for the bottom 95 percent and their savings rates grew sharply, slamming aggregate demand.

Up to this point, Cynamon and Fazzari's contribution is a more empirical analysis of this chain of events than other papers that make similar arguments. But a key question for an analysis of the impact of inequality on growth is, what evidence links this chain to the high levels of inequality that prevailed over the past few decades?

Overleveraging by itself, for example, does not seem obviously connected to higher inequality. Suppose, for whatever reason that money was uniquely cheap. Might we not expect middle-class households, even in a more income-equitable climate, to leverage up as they did in the 2000s? Perhaps if they were getting ahead without borrowing, they would not have borrowed so much. But this does not stand out as a strong prediction given the price of credit.

Cynamon and Fazzari address the question by presenting an estimate as to how their demand index for the bottom 95 percent might have trended had this group's share of national income not fallen as it has since 1989. They arrive at the counterfactual by assuming the income share of the bottom 95 percent does not fall the way it actually did over the past few decades. Had that loss of income share not occurred, the disposable-income growth of the bottom 95 percent would have roughly equaled the dissaving—spending beyond your income—that fuelled their extra consumption. In other words, the bottom 95 percent could have supported their demand in the 2000s without all the borrowing, or in the authors' words, the "realized level of household demand that stimulated the economy during the Consumer Age could have been supported *without* the realized decline in the saving rate."[32]

Timing is important in these types of narratives. The scenario of Cynamon and Fazzari, as well as that of Kumhof and Rancière, is that in the presence of heightened inequality, demand was maintained through dissaving and a historically large growth in debt-to-income by the bottom 95 percent. But the dynamic was unsustainable and when the bubble burst, we had a long, deep, and intractable recession followed by a weak recovery. While Cynamon and Fazzari's data on savings and spending do not go back before the 1980s, their findings do show the same evidence found in the Federal Reserve's Flow of Funds data showing that debt to disposable income was stable at around 60 percent from 1959 through the early 1980s, the very years before inequality started growing.

The fact still remains that we have experienced financial bubbles in the United States and other advanced economies in periods without rising inequality. It is reasonable to suppose that 2000s-style securitization and underpriced risk would have led to greater borrowing by middle-income households, even in the absence of higher inequality. Cynamon and Fazzari were asked how they think things might have played out differently if inequality had not gone up so much. Would we have been less likely to have experienced a deep recession and slow-growth recovery. Their response:

> *If absent high inequality, the bottom 95 percent had become equally leveraged, we would have had more demand and more output. If it had happened to a great enough degree to cause a financial crisis we still would have had a recession. But the level to which we fell would probably have not been so deep, because the bottom 95 percent would have had more income to keep spending at a higher level after the supply of new credit dried up. So, without the rising inequality, the path of the economy would have been higher, even if it had been similarly volatile.*[33]

Also, in support of inequality's role, there is reason to question whether the Federal Reserve would have supported such easy money—that is to say, kept interest rates as low—if a more equitable distribution in those years supported adequate demand absent a bubble. This is not to suggest that the Fed's thinking throughout the high-inequality, high-demand period was that, "we need to offset the income dampening impact of inequality on the middle class with low interest rates." The suggestion is instead that if demand had already been stronger than it actually was in those years and the Fed's observed so many households leveraging up, they might have worried more about overheating than they did.

The inequality scholars, Thomas Piketty of the Paris School of Economics and Emmanuel Saez of the University of California, Berkeley, also weigh in on the question of whether causal linkages exist between highly elevated levels of inequality and what they term "macroeconomic fragility" but which can be interpreted to mean financial-market fragility leading to the boom-bust cycle described above.[34] Based on their long-time series of the distribution of market income, Piketty and Saez ask whether it is a "mere coincidence" that the highest concentrations of income occurred right before both the Great Depression and the Great Recession.

Their answer is inconclusive as it is difficult to parse correlation from causation. As noted above, history shows that it clearly does not take high inequality for destructive financial bubbles to form. In an interesting and broad study of this question of inequality and financial crises across time and countries, economists Tony Atkinson and Salvatore Morelli of Oxford University[35] also find inconclusive results, discovering, for example, that banking crises were as likely to be preceded by falling inequality as by rising inequality. It seems, however, that researchers probably need to dig into the national accounts and examine savings and spending by income class, as per Cynamon and Fazzari, to get a more granular view of these dynamics.[36]

Yet Piketty and Saez argue that it is "highly plausible the rising top incomes did contribute to exacerbate financial fragility," and they cite a mechanism for this, which comports well with Cynamon and Fazzari's findings.[37] If those whose income share has fallen steeply as inequality has risen do not perceive this shock to their income to be permanent, they will try to offset the potential for reduced consumption with debt accumulation. Cynamon and Fazzari's evidence suggests that this dynamic was in fact operative during the 2000s.

Finally, it is important to consider the political-economy model discussed above, wherein income concentration interacts with money in politics to drive economic and regulatory policy. Such a model would predict deregulation of financial markets, facilitating "innovations" in securitization and ultimately supporting risky credit flows to the broad household sector. In this sense, financial deregulation, including a Federal Reserve willing to overlook its oversight role of the banking sector, plays a key role—one that neither Kumhof and Rancière nor Cynamon and Fazzari specify in this sequence of events. Simply put, a lot of regulators needed to remain asleep at the switch for all this dissaving and borrowing to replace the demand sapped by inequality. Moreover, that dynamic needed to happen for a long enough time to inflate a bubble that was to be so damaging to growth.

Conclusion and policy implications

There are numerous reasons for policymakers and citizens to be concerned about the rise of inequality, not the least of which are its impact on the basic American social contract that says that work pays off; the diminishing of opportunity; the rise in societal unrest; and its impact on political functionality. But the concern of this paper is the impact of inequality on macroeconomic growth.

The review of the evidence suggests that while some of the traditional channels by which inequality affects growth have solid theoretical backing, empirical evidence is elusive. Intuitive and historically verified growth-accounting methods predict that if inequality, through its impact on diminished educational opportunity, leads to a less-well-educated workforce against a counterfactual with less inequality, growth will be diminished. But for a number of reasons stated in the text, there is no correlation, even with the requisite lags between trends in inequality and trends in labor quality.

Nor is there evidence, at least not a first blush, linking higher levels of income concentration to reduced consumer spending as theories of marginal propensity to consume or save would predict. One explanation for this seeming contradiction, however, is that sharply rising household equity and its wealth effects offset this effect, leading to far stronger consumer demand than would have otherwise prevailed.

Various scholars have suggested that inequality played a role in the credit bubble that led to the Great Recession, and if so, this would certainly be an important and worrisome link. The idea is that as inequality channeled income growth away from most families, the only way for them to get ahead was through borrowing. As more income concentrated at the top among those with higher propensities to save and as Fed policy and financial "innovations" led to much cheaper credit, debt-to-income ratios among the broad middle class rose to new heights, creating an unsustainable debt bubble.

To this causal chain connecting inequality to the credit boom and bust of the 2000s, a political-economic dimension has been added, further linking inequality to deregulatory policies and practices that amplified the sequence just described. Economists Cynamon and Fazzari, as described in some detail in the previous section, present empirical evidence in support of many of these connections.

Thus, depending on how convincing this model of the recent debt and growth dynamics is, some readers may consider this to be an apt description of how inequality has affected growth in recent decades. This paper, however, raises a number of challenges to the model and its results; most importantly, it challenges the role of inequality.

Regardless of its impact on growth, inequality's impact on incomes, poverty, opportunity, and mobility calls for a policy response. Recall, for example, Figures 1 and 2, which show a relationship between inequality and worse educational outcomes, including greater inequality in child-enrichment spending. These observations point toward the need for policies that help disadvantaged children overcome educational barriers.

While there is a lot of partisan political rhetoric coming from all sides in favor of educational opportunity, there are worrisome budgetary trends that point in the other direction. Specifically, Congress has legislated cuts—lower spending caps—in the nondefense discretionary side of the budget, the part of the budget that funds Head Start and other pre-K programs, along with college-access measures targeting less-advantaged students, such as Pell Grants. According to Richard Kogan of the Center for Budget and Policy Priorities, given current spending caps, Pell Grants are already $50 billion short over the next decade in terms of meeting current services, much less expanded access, after adjusting for inflation and population growth.[38]

Other policy ideas consistent with the findings described above should address two large and persistent flaws in the U.S. economy: the lack of bargaining power of many in the workforce and the inherent instability in our financial markets.

Compared to most other advanced economies, union density in the United States is very low. Since a central goal of collective bargaining is a broader distribution across the workforce of a firm's profits, the loss of this function has been shown to be associated with increases in wage inequality over time. Private-sector unionization rates are currently so low—around 6 percent—that there may not be a

great deal of inequality-reducing traction at this margin right now.[39] Still, policies that would level the playing field for union organizing, such as reducing the time between certification and voting for union representation at a workplace, make sense and should be pursued.

Low-wage workers, who are invariably noncollege educated, have little bargaining clout in our labor market and thus depend on federal and state minimum wages that keep pace with inflation if not productivity growth. Wage-floor policy is thus also a part of the solution.

While higher minimum wages and more unionization would help, their impacts on inequality would likely be small relative to the benefits of full employment to middle-wage and lower-wage workers. Extensive research has shown that the elasticity of real-wage growth with respect to lower unemployment is larger and more significant for workers on the lower end of the wage scale relative to higher-paid workers.[40] Moreover, the one period over the past few decades where low and middle real incomes rose with productivity growth was the late 1990s, which was also the sole period where the job market was at full employment.[41]

But how do we get to where incomes for the majority rise with productivity growth given the slack labor markets that have been the norm in recent decades? If markets cannot provide the needed quantity of jobs, and especially if our safety-net programs continue to move toward greater emphasis on work, then U.S. policymakers may need to consider more direct forms of job creation. This is clearly a large and potentially expensive endeavor, but there may be no other way to both absorb excess labor and reduce wage and income inequality and stagnation, particularly among less-skilled workers.

The evidence suggests that the channel through which inequality hurts growth is asset bubbles and financial-market instability, so policies that impose adequate oversight in that sector also flow from this research. Following the linkages in the models suggest that more careful underwriting practices are necessary to avoid overleveraging by middle-income households. More oversight of "innovative" securitization practices by the financial sector should similarly help correct the risk-pricing mechanism, which severely underpriced risk during the bubble years.

Finally, the political-economy model strongly suggests that the toxic interaction of wealth concentration and increasingly pervasive influence of money in politics is another obvious intervention point. Specific recommendations of policies to better control campaign financing and reign in lobbying advancing policies that exacerbate inequality—supply-side tax cuts, for example—are beyond the scope of this paper, but they too are essential.

The research on inequality's impact on growth remains inconclusive. Intuitive connections, backed by circumstantial trends such as high inequality and high leveraging among the broad swath of "have-nots," exist between inequality and diminished educational opportunity, diminished public investment, the rise of dysfunctional politics, and perhaps even the bubble boom-bust cycles that have become an uncomfortable feature of the U.S. economic landscape.

But even if future research fails to find causality where there is now just correlation, there are still good reasons to push back against such excessive levels of inequality that now exist in the U.S. economy. Fundamental American precepts—such as basic fairness, the conviction that opportunities and upward mobility should available to all, and the social contract that links hard work and playing by the rules with a chance to get ahead—are at risk when inequality is where it is today. This will remain true no matter how inequality impacts macroeconomic growth.

Even if inequality is ultimately found to have little impact on growth, the high levels we have today are still highly problematic. This reality points toward another body of research that is increasingly necessary in the service of a more equitable economy: investigating the impact of policies that push back against inequality. Greater union power, higher minimum wages, a solid safety net, progressive taxation, sectorial policies that lift manufacturing relative to finance, and public job creation to achieve full employment can all help raise the relative incomes of middle- and low-wage workers. But policymakers and many economists will argue that to promote such policies risks growth and jobs, among other things. In the interest of developing and implementing policy actions against rising inequality, researchers need to evaluate these claims with particular attention to the empirical impacts of these progressive interventions.

About the author

Jared Bernstein is a senior fellow with the Center on Budget and Policy Priorities. He was the chief economist and economic advisor to Vice President Joe Biden from 2009 through 2011. Bernstein is a co-author of nine editions of "The State of Working America" and numerous books for popular and academic audiences. He is an on-air commentator for CNBC and MSNBC, contributor to *The New York Times* Economix blog, and hosts jaredbernsteinblog.com.

Acknowledgements

The author wishes to thank Heather Boushey, Barry Cynamon, Steve Fazzari, John Fernald, and Jay Shambaugh for helpful comments and/or data. Any mistakes are the author's own.

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