

economic inequality growth



How Are Economic Inequality and Growth Connected?

A Review of Recent Research

Heather Boushey and Carter C. Price October 2014

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Preface

The Washington Center for Equitable Growth is committed to understanding whether and how economic inequality affects economic growth and stability. Our purpose is three-fold:

- Improve our understanding of equitable growth and inequality by encouraging new academic research and bringing together scholars to share their work.
- Build a stronger bridge between academics and policymakers to help ensure
- Research on equitable growth and inequality is relevant, accessible, and informative to the policymaking process.
- Shape a rigorous, fact-based national debate on equitable growth and inequality.

As we consider these questions, our first point of departure is to lay out what we know about the trends in economic inequality and economic growth in the United States. This report—the last in a foundational series on different aspects of equitable growth—focuses on what economists know about the macroeconomic effects of inequality on economic growth and stability. In this report, we examine what we know about whether there is a measurable effect of inequality in income or assets on economic growth or stability.

The Washington Center for Equitable Growth is committed to accelerating cutting-edge analysis into whether and how structural changes in the U.S. economy, particularly related to economic inequality, affect growth. We will be working with scholars across the United States and worldwide to reach a better understanding of the dynamics of economic growth and inequality and what policymakers can achieve in the way of equitable growth. We look forward to the debate.



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Overview

In the mid-20th century, economists began witnessing inequality's decline in the developed world. Prior to the two World Wars and Great Depression, rising inequality was characteristic of most of the developed world, but in the aftermath of the upheavals, the trend reversed. At the time, many reasoned that declining inequality was a natural outgrowth of the development process: As countries become more economically mature, inequality would fall. This trend led Nobel Laureate economist Simon Kuznets to write:

“One might thus assume a long swing in the inequality characterizing the secular income structure: widening in the early phases of economic growth when the transition from the pre-industrial to the industrial civilization was most rapid; becoming stabilized for a while; and then narrowing in the later phases.”¹

Given the narrowing of inequality in the more economically developed nations, Kuznets' analysis suggested that the inequality in poorer countries was a transitional phase that would reverse itself once these nations became more economically developed. Thus, similar to how the level of inequality was decreasing in wealthy nations, inequality would eventually decline in poorer countries as they became richer. In fact, some economists theorized that inequality in the less developed world was actually good for growth because it meant that the economy was generating select individuals wealthy enough to provide the savings necessary for investment-led growth.

Today, the world looks very different than it did in 1955 when Kuznets made his famous assertion. In the past several decades, economic inequality in the United States and other wealthy nations has risen sharply, spurring renewed interest in the question of whether and how changes in income distributions affect economic wellbeing. Over the same time period, economic inequality has persisted and even grown in many poorer economies.

These trends have sparked economists to conduct empirical studies, analyzing data across states and countries, to see if there is a direct relationship between eco-

conomic inequality, and economic growth and stability. Early empirical work on this question generally found inequality is harmful for economic growth. Improved data and techniques added to this body of research, but the newer literature was generally inconclusive, with some finding a negative relationship between economic growth and inequality while others finding the opposite.

The latest research, however, provides nuance that can explain many of the conflicting trends within the earlier body of research. There is growing evidence that inequality is bad for growth in the long run. Specifically, a number of studies show that higher inequality is associated with slower income gains among those not at the top of the income and wealth spectrum.

Economists and policymakers today should not be surprised that empirical studies were inconclusive given the broad theoretical (and sometimes contradictory) reasons that hypothesized inequality would both promote growth and inhibit growth. On the one hand, hundreds of years of economic theory has been built on the hypothesis that inequality in outcomes creates incentives for individuals to work hard or be more productive than others in order to receive greater incomes—activity that spurs growth. In addition, many theorized that inequality would help individuals become rich enough to save some of their earnings and fund investments necessary to produce economic growth.

On the other hand, economic theory also suggests the opposite—that inequality may inhibit the ability of some talented but less fortunate individuals to access opportunities or credit, dampen demand, create instabilities, and undermine incentives to work hard, all of which may reduce economic growth. Growing inequality could also generate a relatively larger group of low-income individuals who are less able to invest in their health, education, and training, thereby retarding economic growth.

In this paper, we review the recent empirical economic literature that specifically examines the effect inequality has on economic growth, wellbeing, or stability. This newly available research looks across developing and advanced countries and within the United States. Most research shows that, in the long term, inequality is negatively related to economic growth and that countries with less disparity and a larger middle class boast stronger and more stable growth. Some studies do suggest that in the short run, inequality may spur growth before hindering it over the longer term, but overall there is growing evidence that, in the long run, more equitable societies are associated with higher rates of growth.

There is growing evidence that inequality is bad for growth in the long run.

In looking at studies that directly estimate the effect of inequality on growth, there are concerns about data quality and statistical methodology.

The purpose of these studies is to establish whether economic inequality has some effect on economic growth or stability. For researchers, there are important two questions: is there a causal relationship between inequality and growth? If so, can researchers actually identify this factor, or are they actually measuring the effect of some other factor. Establishing causality is exceptionally difficult in the social sciences and the standard approach employed for studying relationships between inequality and growth has been to look at the level of inequality preceding the growth period being measured. This does not firmly establish causality but can be indicative of it. On the other hand, the approaches for detecting the relationship vary widely by the statistical design, the data, controls included. Given enough time and flexibility in their specifications, economists have demonstrated an ability to draw a variety of conclusions. The best practices in this area are evolving and so it is important to look at the breadth of the literature, rather than focus on a single paper or approach.

Important as well for the purposes of this paper is this—the latest economic research we reviewed only examines the outcome of whether there are results for regressions that demonstrate positive or negative relationships between inequality and economic growth and stability. This means the paper cannot provide clear guidance for policymakers on exactly how to address inequality or mitigate its effects on growth. In other words, the research examined in this paper generally does not identify the channels or mechanisms by which inequality affects growth.

An additional issue (above and beyond the challenges of how to specify a model) is the paucity of data to evaluate questions about inequality and growth. Ideally, economists would want a variety of measures for inequality, including earnings, income, and wealth, that can be compared across a large number of countries over a long period of time. Sadly, such a perfect data set does not exist. Therefore, economists are left to do the best estimates with the data at hand. Over time, though, the data sets that have been used to perform these analyses have been improving.

Other scholars who have examined this literature have also come to the conclusion that to inform policymaking, we need to do more than search for a mechanistic relationship between inequality and growth. Dani Rodrik, the former Harvard University professor now at the Institute of Advanced Studies, underscores the limitations of this kind of research, arguing that methods for analyzing data that

We need to do more than search for a mechanistic relationship between inequality and growth.

span across places and time are ill-suited to address the fundamental questions about the relationship of government policy and inequality with growth outcomes.² This conclusion is echoed by University of Melbourne economist Sarah Voitchovsky in her recent review of the literature in the “Oxford Handbook on Economic Inequality,” where she says:

“While data constraints continue to limit the type of empirical analyses that can be undertaken, investigations that focus on specific channels generally provide more robust conclusions than evidence from reduced form analyses.”³

This paper does not contain policy advice. Instead, it contains analysis that largely demonstrates there are direct, and possibly causal, relationships between economic inequality and growth—places that begin with a lower level of inequality subsequently tend to grow faster and have longer periods of growth than those with a higher level of inequality. In future research, we will focus on the channels through which inequality could or does affect economic growth.

Defining the Issue

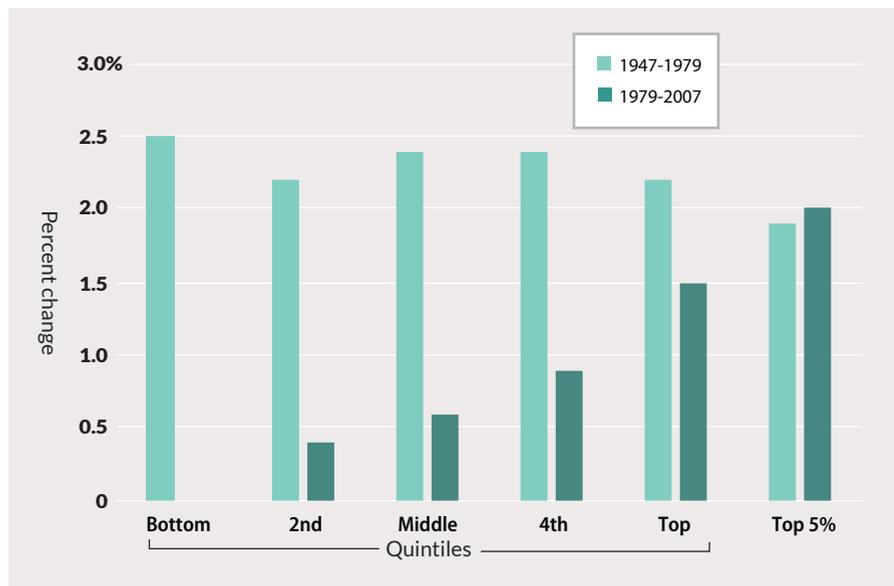
Looking at the U.S. economy over the past half-century, one trend jumps out: There has been a sustained rise in inequality in wages, incomes, and wealth. Growing inequality has led to more income and wealth accruing to those at the top of the income ladder, pulling the rich increasingly further apart from everyone else on the other rungs.⁴

In the decades just after World War II, from 1947 to 1979, family incomes grew at about the same pace across the income spectrum, but since then, income for families at the very top have grown disproportionately (See Figure 1). Between 1947 and 1979, across the income distribution, average family incomes grew at a pace of just over 2 percent per year.⁵ Then, in the period from 1979 to 2007, families in the bottom quintile experienced essentially no income growth while families in higher quintiles saw progressively greater annual income growth. And, if looking at the overall increase in incomes, there is a slowdown in income growth. Over the period since 1979 to present, all income groups have seen slower than 2 percent annual income growth, even those in the top quintile, although in other research not shown in Figure 1, we see much higher income gains for those in the top 1 percent.⁶ This is a remarkable transformation in the U.S. economy over a relatively short period of time.

FIGURE 1

Average Annual Change in U.S. Family Income from 1947 to 2007

Between 1947 and 1979, income growth was roughly the same across all income groups, but afterwards income growth was heavily skewed toward those the top of the income ladder.



Source: Economic Policy Institute
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Back in the mid-1950s, economist Simon Kuznets postulated that as the U.S. economy developed we would see less inequality, not more. As President of the American Economic Association in 1955, Kuznets published an article in the *American Economics Review* titled, “Economic Growth and Income Inequality” where he hypothesized a long-run relationship between inequality and economic growth. His data led him to conclude that countries would become more unequal as they develop, then, after reaching a certain level of economic development, they would become more equal again. He based his theory on the empirical evidence he collected, using U.S. data from 1919 to 1945 and for slightly different years for other countries.⁷

Inequality in the United States did indeed lessen over those years, but hindsight has shown that this was an aberration due to the economic consequences the two World Wars and Great Depression rather than a long-term trend.⁸ To his credit, Kuznets was aware of the empirical limitations of his theory, saying that his work was “perhaps 5 percent empirical information and 95 percent speculation.”⁹ And in general he was acutely aware of the difficulties of interpreting data as incontrovertible objective facts:

“The valuable capacity of the human mind to simplify a complex situation in a compact characterization becomes dangerous when not controlled in terms of definitely stated criteria. With quantitative measurements especially, the definiteness of the result suggests, often misleadingly, a precision and simplicity in the outlines of the object measured.”¹⁰

As it turns out, there does not appear to have been a natural trend toward greater equality. In his painstakingly documented book “Capital in the 21st Century,” Paris School of Economics professor Thomas Piketty says, “there is no natural, spontaneous process to prevent destabilizing, inegalitarian forces from prevailing permanently.”¹¹ Piketty’s larger body of work, including collaborations with University of California-Berkeley economist Emmanuel Saez, University of Oxford economist Anthony Atkinson, and others working on the World Top Incomes Database, demonstrates that the period of greater equality in the developed economies in the mid-20th century was transient.

This understanding of current economic trends—high earners and the wealthy pulling away from the rest of the United States’ population—leads to a new research question: If there is no natural movement away from high inequality, how does this affect economic growth and stability? In the mid twentieth century era of declining inequality and strong economic growth, this question was less pressing. Given today’s trends of higher inequality and slow or non-existent income gains for all but top earners, economists are focusing on whether there is an interaction between the two.

On the theoretical side, there is a long tradition in economics arguing that acting to reduce inequality could be counterproductive. Yale University economist Arthur Okun summarized this view in his 1975 book, “Equality and Efficiency: The Big Tradeoff,” where he posited that income equality and economic efficiency are in tension.¹² Inequality provides incentives for work and investment. In a democracy, though, he said it may not be politically expedient to leave living standards entirely up to the market. In his words:

“The contrasts among American families in living standards and in material wealth reflect a system of rewards and penalties that is intended to encourage effort and channel it into socially productive activity. To the extent that the system succeeds, it generates an efficient economy. But that pursuit of efficiency necessarily creates inequalities. And hence society faces a tradeoff between equality and efficiency.”¹³

If there is no natural movement away from high inequality, how does this affect economic growth and stability?

Okun's view is based on the idea that monetary rewards and penalties drive productive activity, that is, if you pay people more (or, perhaps, pay them at all), they will work harder and be more productive. These rewards and penalties are optimal for growth. In this view, any intervention is distortionary and will, therefore, lower economic growth. However, in a democracy, policymakers may, for good reason, implement policies that promote equity. Okun's purpose was to help policymakers understand the trade-off between an efficient market response and equality.

To be clear, Okun was not opposed to policymakers acting to reduce inequality. "The market needs a place, and the market needs to be kept in its place," he said.¹⁴ Rather, he was concerned with how policymakers should act, given the economic realities of the supposed trade-off. His main concern was what he termed, "the leaky bucket," that is, how much of redistributive policy leaks out of the system due to administrative costs, reduction in work effort, effects on saving and investment, and "socioeconomic leakages" such as claims that extending unemployment benefits will reduce efforts to find a job.

Of course, Okun was writing at what we now know was the end of nearly 30 years of reduced inequality and strong economic gains for families across the income distribution, as shown in Figure 1. After the mid-1970s, the trends changed markedly. In his book, he rather optimistically lays out that his goal is to examine when policymakers will choose equality or efficiency:

"I shall travel through the places where society deliberately opts for equality, noting the ways these choices compromise efficiency and curb the role of the market, and examining the reasons why society may choose to distribute some of its entitlements equally."¹⁵

While the idea that there is a trade-off between equality and efficiency as Okun put forth in 1975 may have been a widely accepted idea at the time, it is not the case that theory points entirely to this conclusion. Much of the traditional economic thinking Okun relied upon is based on the notion that people respond rationally to their narrowly defined financial interests in order to maximize utility. These theoretical models assume a high degree of similarity between people's preferences and the information they have available. However, strong simplifying assumptions limit the utility of the predictions from many of these theories and economists have been developing new approaches to account for a more realistic level of complexity. Behavioral economics is devoted to understanding why people make the decisions they do premised on the fact that humans do not

always make economic decisions that appear to be rational. It is not the purpose of this paper to summarize this sub-field of economics,¹⁶ yet it is critical to understand that inequality may not always provide sufficient incentives for people to work harder despite the implications from some branches of theory.

In general, there are a variety of ways that inequality could affect individual behavior, almost any of which could have an effect on productivity or economic growth that may not fit into the framework of rationality as economists have traditionally defined it. High inequality may erode trust in the workplace and lower productivity or reduce access to credit, for example, which would slow business development, reduce access to education, and decrease consumption.¹⁷ Similarly, individuals may not consider education as valuable an investment if the returns on education in a highly stratified society were low or very risky.

Then there is the observation that high-income concentration could lead to a political environment that is harmful to economic growth—either by funneling more resources to the elite or through extensive redistribution of income in ways that reduce productivity.¹⁸ High inequality also could dampen consumption growth. If people rely on credit and savings, rather than earnings, for much of their consumption, there could be higher economic instability built into each and every business cycle due to speculative bubbles during economic expansions, and the effects of leveraged losses during economic downturns.¹⁹

Economists today argue that it may be that the extent of inequality in society or the degrees of disparities between the incomes of those at the top, the middle, and the bottom of the income distribution which affect Okun's leaky bucket. Economic theory can provide several hypotheses for how economic growth should change as inequality changes, but empirical analysis is required to identify the truth.

Method for Determining Links Between Economic Inequality and Growth

This section of our paper reviews the econometric evidence linking economic inequality to economic growth or stability, focusing specifically on recent papers that seek to understand whether inequality or the shape of inequality—inequality resulting from the concentration of income or wealth at the top or deprivation at the bottom—affect economic growth and stability. This research includes evidence from the United States, wealthy economies, and developing economies. We divide the literature into three groupings:

- Early literature through 1996, generally summarized in an article by economist Roland Benabou, then at New York University and now at Princeton University.²⁰
- A middle-era literature, through 2009, generally summarized by University of Melbourne economist Sarah Voitchovsky.²¹
- More recent literature that has emerged since 2010.

There are a variety of empirical challenges with this literature. First, as Columbia University economist Xavier Sala-i-Martin demonstrated by running two million growth regressions across a variety of variables and specifications, the results strongly depend on the model.²² A wide variety of factors can be put into a regression and found to be statistically significantly associated with growth, making it exceptionally difficult to discern the truth about what affects growth. This work highlights the challenge of fully understanding of the inequality-growth relationship.

Because of the complex array of possible interactions, economic theory does not supply a “best” way to test the relationship between inequality and growth. Macroeconomic theory points to ways that inequality in terms of income and wealth will affect the macroeconomy through their effects on consumption, saving, and investment. Ideally, researchers need data on both income and wealth to truly understand how inequality in each affects economic growth and stability, as both are important in macroeconomic theory. Yet comparable data across countries on wealth distribution are scant, leading researchers to focus their attention

on more readily available, but often lower quality, income inequality data more so than theory warrants.²³

Second, there are a series of measurement issues. Does it matter how economic inequality is measured, as a point estimate or through measures that describe the shape of the distribution of inequality? Do these different measures affect the outcome differently? What measure of growth should be used? Gross Domestic Product, median income, or some other measure? (See box.)

Measures of economic inequality

Economic inequality is a function of the distribution of income, wealth, or other economic factors. As such, there are a wide variety of inequality measures that seek to characterize inequality.²⁴ Each metric reduces inequality to a single number, which limits the information that can be provided. Yet taken together, multiple measures can provide a textured understanding of the shape of the economic distribution for a variety of factors. Here are several different measures:

- The Gini coefficient is one of the most common measures of inequality because of its simplicity to compute. It ranges from zero, representing perfect equality, to one, which represents complete concentration.
- The Theil index is a measure of dispersion that is frequently applied to inequality. It too can be normalized to range from zero for perfect equality to one for complete concentration. The Theil index has the advantage that it can be decomposed into inequality within groups and inequality between groups, allowing for analysis of the demographic components of inequality.
- Comparisons of percentiles, deciles, and quartiles are frequently used as measures of economic inequality. The 90-10 ratio is a comparison of the income of the top decile (the 90th percentile) to the income of the bottom decile (the 10th percentile), which can provide a measure of the spread of incomes and hence inequality.

Finally, there are sampling questions concerned with whether advanced and developing countries should be pooled together or treated separately. While studies typically find negative statistical relationships between inequality and growth when looking across a mix of countries, this may not be the right way to go about the regression analysis. Should democratic and non-democratic countries be examined together? Theoretically, there are different channels through which inequality could affect

growth, depending on the political structure of each country. However, given that inequality in the United States looks increasingly similar to the high inequality of developing countries, we may have much to learn from their experiences.

Fortunately, the data that economists can use to understand this important relationship between inequality and growth has improved over time, as have the methodologies applied to study the relationship between the two trends. The next section will work through the history of these trends in the economic literature on inequality and growth and the current state of our understanding.

Evidence of Links Between Inequality and Growth

The early literature

In a 1996 review of studies on the relationship between inequality and growth, economist Roland Benabou, then at New York University, found that ten of thirteen papers he reviewed that looked directly at this relationship found a consistent, statistically significant, negative relationship between inequality and growth, two papers found a generally negative relationship between inequality and growth but not a consistent magnitude or a statistically significant relationship, and one paper found no relationship between inequality and growth.²⁵ In other words, almost all of these studies found that greater inequality led to slower economic growth. These papers used a variety of measures of inequality including the Gini coefficient for income, the Gini coefficient for land ownership, the Thiel index for income, the share of income going to the middle quintile, and the share of income going to the top quintiles. (See the Appendix for a complete list of the papers reviewed.)

Some critics of this early work note that many of these studies looked at both developed and developing countries together. There were also concerns about omitted variable bias—that is, how variables not included in the regression may bias the findings—and substantial debate about which controls should be used. Controls determine what factors might be influencing growth regardless of inequality. The controls in these studies tended to include the country’s continent and type of government, among other factors. Additionally, there were general questions about the quality and consistency of the data being used in these early studies.

The middle era literature

To resolve issues related to data quality and consistency, World Bank economist Klaus Deininger and Former President of the Global Development Network and World Bank economist Lyn Squire constructed and released in 1996 an extensive data set of inequality estimates.²⁶ Their initial analysis of this data found that the relationship between income inequality and growth was not statistically significant.²⁷ This data and more complex statistical techniques allowed for a new generation of studies looking at inequality and growth that could overcome some of the critiques of earlier work. While income inequality was not found to have a large negative impact on growth, in other work using this data, Deininger and Squire found that unequal distribution of assets significantly impedes economic growth.²⁸

In a 2008 meta-analysis of studies on income inequality as measured by the Gini coefficient and growth in per capita GDP, economists Laura de Dominicis and Henri L.F. de Groot of Vrije University Amsterdam and Raymond J.G.M. Florax of Purdue University note the trend for older studies (those in the mid-1990s and before) to find a negative relationship but for some later studies to find a positive relationship.²⁹ They suggest an approach to help resolve the confusion in the literature such as using higher quality data and restricting the analysis to a more homogeneous set of countries or to regions within a country. Then, in a 2009 literature review, economist Sarah Voitchovsky of the University of Melbourne summarized many of this second wave of studies and found that there had not been a strong consensus on whether and how income inequality affects economic growth in general, but that high inequality in wealth and human capital development (the education, training, and health of people) were consistently associated with lower growth in the future.³⁰

Some of the disagreement among these studies stems from methodological differences, Voitchovsky notes. In her own work, she found that the type of inequality is important when assessing the impact on growth. In an earlier paper from 2005, she found that the data indicate different outcomes for economic growth for inequality at different levels of the income distribution.³¹ Specifically, she found that a high level of inequality at the bottom of the income distribution was generally associated with lower subsequent economic growth but that, under some specifications, higher inequality at the top could be associated with higher economic growth. (See Appendix.)

Others also find a nuanced relationship. An oft-cited study by Harvard University's Robert Barro found mixed evidence of a relationship between

High inequality in wealth and human capital development (the education, training, and health of people) were consistently associated with lower growth in the future.

inequality and growth with the relationship changing for different levels of GDP.³² His result for rich countries was a positive relationship between inequality and growth but this finding was extremely sensitive to his choice of controls. These results could suggest that inequality may be negatively associated with growth in poor countries and positively associated with growth in rich countries, again bringing to the foreground the importance of the countries in the sample.³³

Massachusetts Institute of Technology economists Abhijit Banerjee and Esther Duflo also find nonlinear relationships between lower inequality and stronger growth that vary depending on changes in the overall level of inequality or the level of development in a country.³⁴ Nancy Birdsall and Juan Luis Londono, president of the Center for Global Development and economist for the National University of Colombia, respectively, examined Latin American countries and found asset inequality to be negatively related to economic growth, meaning greater inequality in assets is associated with slower economic growth.³⁵ Interestingly, because the level of inequality in the United States is approaching heights generally only found in the developing world, the trends identified for developing countries may be more applicable than those of developed nations.

More recent literature, post 2010

When looking at the more recent literature of international comparisons, the initial strong consensus that inequality and growth were negatively related has been replaced by a period of extensive debate over the methodologies and data followed by what appears to be a new, somewhat nuanced theme emerging that high inequality is bad for economic growth over long time horizons and that high inequality is particularly bad for those on the bottom of the income spectrum. But in the short run, most of the research agrees that high inequality can be associated with faster economic growth in general, but the benefits tend to flow to the top for that short period of time.

In 2011, Dan Andrews, an economist at the Organisation for Economic Cooperation and Development, Christopher Jencks at Harvard University, and Andrew Leigh at the Australian National University, looked at inequality in the form of concentration at the top portion (primarily the top ten percent though they also tested the top one percent) of the income distribution and, like Voitchovsky's 2005 paper, found higher income inequality is associated with higher economic growth when looking only at data from after 1960.³⁶ However,

The level of inequality in the United States is approaching heights generally only found in the developing world.

these results do not hold if capital gains income is included and the results were not robust for the top one percent. Their analysis, however, leads to the conclusion that it takes 13 years of growth for the bottom 90 percent of the income distribution to be as well off as they would be with lower inequality.³⁷ Because of the relatively small estimated benefit to general growth relative to the sampling errors, Andrews, Jencks, and Leigh note that “[t]he claim that inequality at the top of the distribution either benefits or harms everyone therefore depends on long-term effects that we cannot estimate very precisely even with these data.”³⁸

Economists Daniel Halter and Josef Zweimuller of the University of Zurich, and Manuel Oechlin of the University of Bern identified methodological differences in the papers that find a positive relationship between inequality and growth and those that find a negative relationship.³⁹ Specifically, those papers that examine inequality’s effect on growth over time within countries tend to find a positive relationship but those that use cross-sectional comparisons find a negative relationship. These results imply that a study’s methodological choices will determine which effects dominate the results and that there are different effects related to inequality driving short-term and long-term patterns in growth. They posit that the time-difference methods are detecting short-term positive effects to growth, while the cross-sectional methods pick up the long-term negative effects for growth when there is persistently high or growing inequality.

Diego Grijalva of the University of California-Irvine finds similar differences between the long-run and short-run trends, though he notes that the short-term results are non-linear and therefore the relationship between growth and inequality in the short term is not strictly positive.⁴⁰ This means some economic inequality (not extreme inequality though) may have some positive short- and medium-term effects on economic growth, but in the long run high levels of economic inequality tend to be detrimental to economic growth. This is particularly relevant to the United States currently because of the high level of inequality relative to other wealthy nations.

The time scale of growth is clearly an important factor. Most studies look at the level of growth instead of the duration of growth. To better understand the time dimension of these trends, International Monetary Fund economists Andrew G. Berg and Jonathan D. Ostry looked at periods of growth instead of fixed durations. They find that “countries with more equal income distributions tend to have significantly longer growth spells.”⁴¹ Inequality outweighed other factors in explaining such sustainable growth across 174 countries. Indeed, inequality was a

stronger determinant of the quality of economic growth than many other commonly studied factors that were also included in Berg and Ostry's model, such as external demand and price shocks, the initial income of the country (did it start out very poor or wealthy?), the institutional make-up of the country, its openness to trade, and its macroeconomic stability.⁴² Focusing on the question of stability also underscores a key point that inequality may indirectly affect economic growth in profoundly important ways.

In a 2014 extension of this work, Ostry, Berg, and their IMF colleague Charalambos Tsangarides include an analysis of the impacts of redistribution, as well as market inequality. They find that economic growth is lower and periods of growth are shorter in countries that have high inequality as measured by the Gini coefficient of income after taxes and transfers.⁴³ In the same paper, the researchers show that transfers (redistributions of income from upper to lower income individuals) do not harm economic growth—at least up to a point consistent with policies in other wealthy nations. This most recent work provides strong evidence that higher levels of income inequality are detrimental to long-term economic growth and that the policies some nations have taken to redress inequality not only do not adversely impact growth but, instead, spur faster growth. Notably, this finding applies to both developed and developing countries.

This most recent work provides strong evidence that higher levels of income inequality are detrimental to long-term economic growth.

Evidence from across states within the United States

Several studies specifically test the relationship between inequality and growth within the United States, using a range of statistical techniques. Analysis of the U.S. state-by-state data offers advantages over the international data among countries because it is more reliable in quality and consistency, and is greater in length of coverage. But the individual U.S. states are not ideal units of observation because, among other things, the political boundaries do not necessarily coincide with regional economies.

Still, much can be learned from state-level analysis. Ugo Panizza of the U.N. Conference on Trade and Development finds a negative relationship between inequality and growth in the United States.⁴⁴ A larger share of income accruing to the middle class is associated with higher growth rates, according to his analysis, while higher inequality (measured by the Gini coefficient or by the ratio of income shares of the lowest quintile to the highest quintile) leads to lower growth rates. Panizza estimates that a one standard deviation increase in the income share of the

middle quintile is associated with growth rates between 0.1 and 0.6 percentage points, which translates into growth being about 6 percent higher, over a decade.

As with some of the international research, using data for 48 states from 1960 to 2000, Mark Partridge of Ohio State University finds that in the short run, inequality is positively related to growth while in the long run, the income share of the middle class is positively associated with more robust growth.⁴⁵ Economists Mark Frank and Donald Freeman of Sam Houston State University, using methods focusing on longer run trends, find a strong, negative relationship between inequality and growth.⁴⁶ Though, Mark Frank released a subsequent study using new state level inequality and growth data from 1945 to 2004 that found higher income concentration increased short run growth.⁴⁷ This second paper by Frank is analogous to the Andrews, Jencks, and Leigh though at the state level and highlights some of the nuances of the relationship between inequality and growth.

In a recent book, “Just Growth: Inclusion and Prosperity in America’s Metropolitan Regions,” Chris Benner, associate professor of community and regional development at University of California-Davis, and Manuel Pastor, professor of American studies and ethnicity at University of Southern California, show that less economic inequality within regional economies is linked to regional prosperity.⁴⁸ They show with both quantitative and qualitative methods why and how regional economic growth is associated with less inequality across metropolitan regions in the United States, concluding that economic growth and falling inequality are “not a contradiction but a necessity.”

Taking a different tack, economists Roy van der Weide of the World Bank and Branko Milanovic of the City University of New York in a 2014 paper look at income growth instead of gross domestic product for inequality measures at different points along the income distribution, using state-level data in the United States. They find that high levels of economic inequality decrease income growth for those at the bottom of the income distribution.⁴⁹ They also look at whether the results stem from inequality from a concentration of income at the top or from deprivation at the bottom and find that both types of inequality were associated with slower income growth at the bottom.

Interestingly, van der Weide and Milanovic also find that a high level of inequality at the bottom of the income ladder is associated with slightly faster income growth at the top of the ladder. Unlike the data that Piketty and his colleagues have put together, their data—U.S. Census data from 1960 to 2010 for states—has

the disadvantage of not providing income data for individuals at the very top of the income distribution. Yet the advantage of Milanovic and van der Weide's data is that it is available going back to 1960 and is based on a survey of all households, so the researchers know a good deal about them in terms of detailed demographic data and information about jobs, industries, occupations and other factors, whereas Piketty and Emmanuel Saez's U.S. data on incomes at the very top is for tax units and provides no details on demographics or other characteristics.⁵⁰

Milanovic and van der Weide's research is consistent with earlier work by then University of Massachusetts-Amherst economist Jeffrey Thompson (now at the Federal Reserve Board in Washington, DC) and Congressional Budget Office analyst Elias Leight, who looked at the effects of inequality on incomes across households.⁵¹ They found that increases in the incomes of those at the top of the income distribution, measured by either the top 10 or 1 percent, are associated with declines in incomes of low and middle income households.

The results of studies of the relationship between economic inequality and growth that focus on the United States mirror those of the international studies—inequality is associated with lower long-term growth and is particularly associated with lower income growth for those not at the top of the income distribution. But, as the international results indicate, the results for the United States imply that economic growth, in the short run, may not be harmed by high levels of inequality.

Inequality is associated with lower long-term growth and is particularly associated with lower income growth for those not at the top of the income distribution.

Conclusion

Economic theory supports conflicting narratives about the potential impact of economic inequality on growth. There are some ways that inequality could boost growth and other ways that it could retard growth. Furthermore, there are numerous possible mechanisms that could relate inequality to growth and many of these channels would have conflicting outcomes. Thus, because theory cannot provide strong guidance, it is imperative to use data and analysis to understand the relationships.

The empirical literature has been evolving as new data become available and better data analysis methods are applied. Initially, there was a strong body of literature implying that economic inequality was bad for economic growth. These initial studies had data and methodological limitations that were addressed in a second generation of empirical papers on the subject. This second generation of papers had conflicting results. Some found a strong negative relationship between inequality and growth, while others found the opposite by using different approaches.

The likely source of this conflict has been identified as one of timing—studies that look at the longer-term growth implications find that inequality adversely affects growth rates and the duration of periods of growth, while those that focus on short term growth find that inequality is not harmful and may be associated with faster growth. Furthermore, studies that look at the impact of inequality on different levels of the income distribution have found that inequality is particularly bad for the income growth of those not at the top.

While inequality and growth research may be approaching a new consensus on the general implications of inequality on economic growth, more work is needed to fully understand the specifics of how inequality affects growth. In particular, now that the United States is approaching a level of inequality that is very rare among developed economies and more closely resembles a developing economy, which mechanisms apply? These are questions that will require continued updates to the data and methods.

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Aknowledgements

The authors would like to thank Jeff Thompson, Robert Lynch, Ben Zipperer, Nick Bunker for comments, and Ed Paisley, David Evans, and Bridget Ansel for their help making this paper read well and look good. We would also like to thank Adam Hersh who helped with an earlier iteration of this review. The errors are, of course, ours alone.

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Appendix

In a 1996 review of the early literature on the relationship between economic inequality and economic growth, economist Roland Benabou at Princeton University found that most studies concluded there was a negative and significant relationship (meaning higher inequality was associated with lower economic growth). These studies used a variety of different data sources and measures of economic inequality. Table 1 contains information about the studies in Benabou that looked directly at the relationship between economic inequality and growth.

TABLE 1

Early Empirical Studies of Inequality and Growth

Nearly all the early studies of the relationship between inequality and growth up until 1996 found that higher inequality was associated with lower growth.

	Paper	Inequality/ Growth	Statistically Significant	Measure of Inequality
1	Alesina-Rodrik (94) ¹	Negative	Yes	Income and land Ginis
2	Benhabib-Spiegel (96) ²	Negative	No	Q3 income share
3	Bourguignon (94) ³	Negative	Yes	Q1,Q1+Q2,Q5 income shares
4	Brandolini-Rossi (95) ⁴	None	No	Income and land Ginis
5	Clarke (92) ⁵	Negative	Yes	Income Gini, Theil, and others
6	Deininger-Squire (95) ⁶	Negative	No	Income and land Ginis
7	Keefer-Knack (95) ⁷	Negative	Yes	Income and land Ginis, Q3 income share
8	Perotti (92) ⁸	Negative	Yes	Q3 income share
9	Perotti (94) ⁹	Negative	Yes	Q1+Q2, Q3 income shares
10	Perotti (96) ¹⁰	Negative	Yes	Q3+Q4 income share
11	Persson-Tabellini (92) ¹¹	Negative	Yes	Land Gini and Q3 income share
12	Persson-Tabellini (94) ¹²	Negative	Yes	Q3 and Q5 income shares
13	Venieris-Gupta (86) ¹³	Negative	Yes	Q3 income share

Note: The table in Benabou (96) has a total of 23 papers, but only 13 of those look specifically at the relationship between income/wealth inequality and growth. We only report these 13 papers that contained inequality and growth results from Table 2 in Benabou (96). Most of the remaining ten looked at related concepts such as the relationship between human capital attainment and growth.

Source: Benabou, Roland. "Inequality and Growth." *NBER Macroeconomics Annual*, 1996, 11–74.
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In 2009, Sarah Voitchovsky of the University of Melbourne reviewed the subsequent inequality and growth literature and found a slightly different story. In response to the early empirical work on the subject, a variety of new studies tested different approaches to assessing the relationship between inequality and growth with less consistent results than the earlier work. Table 2 is a summary of the papers included in Voitchovsky’s review.

TABLE 2

Middle-Era Empirical Studies of Inequality and Growth

The second wave of studies on economic inequality and growth had mixed findings.

Paper	Inequality/ Growth	Statistically Significant	Measure of Inequality
1 Banerjee-Duflo (03) ¹⁴	Nonlinear (negative)	Yes	Multiple
2 Barro (00) ¹⁵	Positive (rich countries), Negative (poor countries)	No, Yes	Multiple
3 Castello-Domenech (02) ¹⁶	Negative	Yes	Human Capital Gini
4 Deininger-Squire (98) ¹⁷	Negative	Yes	Multiple
5 Forbes (00) ¹⁸	Positive (short term growth)	Yes	Multiple
6 Knowles (05) ¹⁹	Negative	Yes	Income Gini
7 Voitchovsky (05) ²⁰	Positive (top percentile), Negative (bottom percentile)	Yes	Gini, Percentile Ratios Top/Bottom

Source: Voitchovsky, Sarah. "Inequality and Economic Growth." In *The Oxford Handbook of Economic Inequality*, edited by Wiemer Salverda, Brian Nolan, and Timothy M. Smeeding, 2009.

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