Microeconomics in Context, Fourth Edition

CHAPTER 10: ECONOMIC AND SOCIAL INEQUALITY

As the United States economy began recovering from the Great Recession of 2007-2009, economic data indicated that the vast majority of all income growth was going to the richest Americans. From 2009-2012, over 90% of new income accrued to just the top 1% of income earners. As the economy recovered further, new income distribution was less lopsided, but still uneven. The top 1% captured over half of all income growth in the U.S. over the period 2009-2015.[1]

The trend toward higher economic inequality is not limited to the United States. Over the last few decades, inequality has been increasing in most industrialized nations, as well as most of Asia, including China and India. And while inequality has generally been decreasing in Latin American and Sub-Saharan African countries, these regions still have the highest overall levels of inequality.[2]

Analysis of inequality, like most economic issues, involves both positive and normative questions. Positive analysis can help us measure inequality, determine whether it is increasing or decreasing, and explore the causes and consequences of inequality. But whether current levels of inequality are acceptable, and what policies, if any, should be implemented to counter inequality are normative questions. While our discussion of inequality in this chapter focuses mainly on positive analysis, we will also consider the ethical and policy debates that are often driven by strongly-held values.

1. DEFINING AND MEASURING INEQUALITY

One of the final economic goals we discussed in Chapter 1 was “fairness.” Note that this goal is subtly, but fundamentally, different from “equality.” Income differences within a society may be considered fair even if they are somewhat unequal. Few desire a society in which everyone earns the same exact income. But what does it mean to have a society that is neither “too equal” nor “too unequal”? In order to discuss how to achieve a good balance of income and wealth distribution, we first need some objective measures of inequality, which allow us to draw comparisons across time and across societies. We will first consider *what* we are measuring, and then *how* we measure it.

1.1 INEQUALITY OF WHAT?

When the subject of inequality is raised, most people think of income or wealth inequality. These are indeed central to any economic analysis of the topic. But it is also important to recognize that inequality is a broader concept that extends beyond the realm of money.

Let us consider a few examples. Vast inequality exists in the quality of health care across the world. Preventable or treatable diseases in numerous tropical countries (such as malaria, measles, and tuberculosis) cause average life expectancy to be

significantly shorter than in the United States or in other rich countries. There is also significant health inequality within many countries. According to a 2017 analysis, average life expectancy in the United States is 10-15 years longer for the wealthiest Americans than for the poorest.[3]

There is also a considerable imbalance in education, both nationally and internationally. Children in Australia can expect to receive, on average, about 20 years of schooling – the most years of any country. Meanwhile, the average for children in the Sub-Saharan countries of Niger, Chad, and the Central African Republic is less than eight years of education.[4] Inequalities arise not only due to income differences, but also due to race and gender. In the United States, the difference in academic achievement between white and black students has decreased significantly in recent decades but still remains evident. However, the achievement gap between students from low- and high-income families in the U.S. has dramatically increased.[5] There are mixed results for gender-based educational inequality. By 2016, 24 countries had fully closed the educational gap by gender, while in 17 countries women still had less than 90% of the educational outcomes that men have.[6]

Related to both health and education is what Nobel laureate Amartya Sen has famously referred to as "capabilities." By his reckoning, money is only one dimension—albeit an important one—of an individual's "capability" to function in his or her economic environment. To Sen, what matters most is that people possess the necessary tools—including money, health, education, friends, and social connections—to provide them with realistic economic *choices.* As Sen has pointed out, there is considerable inequality of capabilities in the world, not just in the poor countries.

Inequality is also manifest in certain environmental outcomes. Proponents of "environmental justice," point out that polluting industries and toxic waste disposal sites in the United States tend to be located disproportionately near poor and minority communities. This effect is even more pronounced in some developing countries. Oil and gas development in Nigeria by international corporations has resulted in thousands of oil spills that have impoverished local residents due to reduced agricultural production, lower fish harvests, and polluted drinking water.[7] In many developed countries, there are stronger regulations on industrial pollution, but major impacts from oil and chemical spills and other emissions still occur, often affecting lower-income communities.

One also sees considerable inequality when confronting the issue of climate change. Numerous studies find that climate change will hit poor countries the hardest, exacerbating global inequality. Warmer temperatures and changing precipitation patterns in Africa and other developing regions could reduce the growing season and lower yields, leading to a 20% global increase in the number of people at risk of hunger by 2050.[8] According to a 2015 analysis in the journal *Nature*, by the end of the 21st century climate change will have a significantly higher proportionate impact on incomes in the world's poorest.[9] In addition to these specific effects, a critical fact about climate change, as well as other environmental damage, is that the rich can generally protect themselves much better than the poor can.

1.2 MEASURING INEQUALITY

While recognizing these various types of inequality, for the purposes of economic analysis we will focus primarily on inequality of income and wealth. The two most common metrics used to measure income inequality are:

1. Measure the income share (percent of all income) held by various groups ordered by income from poorest to richest, such as the bottom 20%, the middle 20%, the top 1%, etc.
2. Measure the overall distribution of income in a society, using mathematical and graphical techniques.

Income Distribution Data

Let's consider the first approach. Table 10.1 presents the distribution of household income in the United States in 2016. The data are arranged in order of income, and the share of the total income "pie" that accrues to each twentieth percentile (or quintile) is in the second column. To understand what this table means, imagine dividing up U.S. households into five equal-sized groups, with the lowest-income households all in one group, the next-lowest in the next group, and so on. Note that the table also breaks out the richest 5% as a separate group.

Table 10.1 Household Income Distribution in the United States, 2016

Group of Households	Share of Income (Percent)	Annual Income Range
Bottom 20%	3.1	Below $24,002
Second 20%	8.3	$24,003 - $45,600
Third 20%	14.2	$45,601 - $74,869
Fourth 20%	22.9	$74,870 - $121,018
Top 20%	51.5	Above $121,018
Top 5%	22.6	Above $225,250

Source: U.S. Census Bureau, Historical Income Tables: Households, Tables H-1 and H-2.

The lowest-income quintile, with household incomes below $24,002, received only 3.1 percent of all the household income in the country. The richest quintile, those with incomes of $121,019 or more, received 51.5 percent—in other words, more than half—of all the income received in the United States. The top 5% of households receive nearly as much income as the bottom 60%. (Note that the first graph in Chapter 0 presents a slightly different way to present income inequality, looking at average incomes in each group rather than income shares.)

Using these data, we can now construct several measures of inequality based on the ratios of the income share of one group compared to another group. One common measure is the ratio of the income share of the richest fifth to that of the poorest fifth of the population; in this case, we obtain 51.5/3.1 = 16.6—that is, households in the richest quintile have over 16 times the income, on average, of households in the poorest

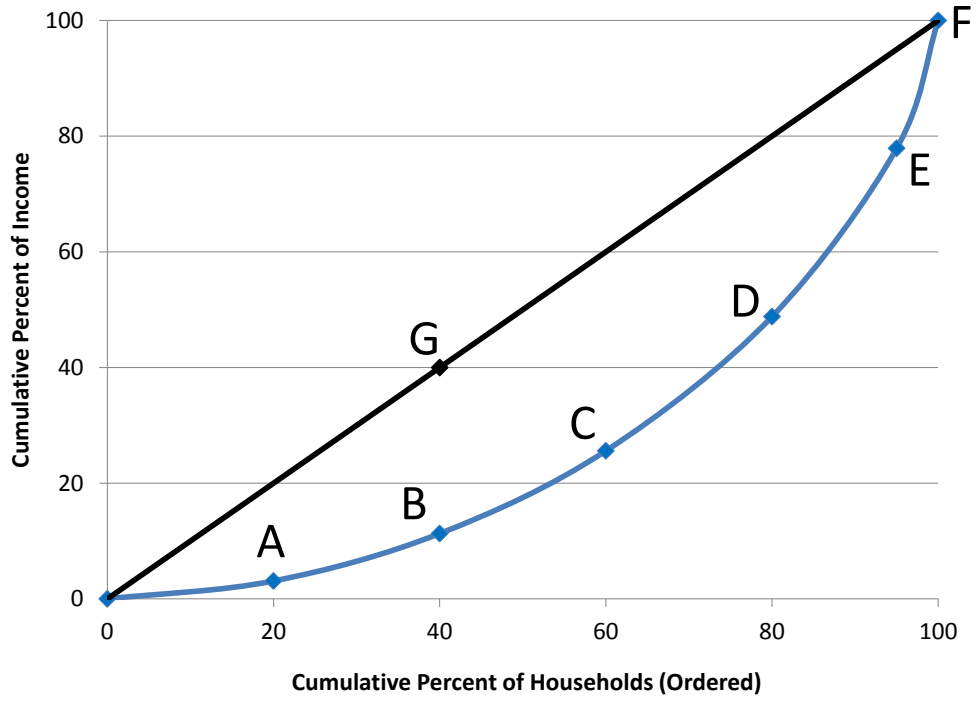
quintile. We can then see how this ratio has changed over time to track changes in inequality. For example, in 1980 this ratio was only about 10, indicating an increase in the spread between the richest and poorest fifth of the population. The U.S. Census Bureau publishes various ratios based on the incomes at different percentiles of the distribution, such as the $90^{th}/10^{th}$ ratio, the $95^{th}/20^{th}$ ratio, and the $80^{th}/50^{th}$ ratio. Again, these can be tracked over to time to determine how inequality has changed.

The Lorenz Curve and Gini Coefficients

However, a simple ratio is somewhat arbitrary, focusing on some parts of the income distribution while ignoring others. Economists frequently prefer to use a more comprehensive measure that reflects the shape of the entire income distribution. This measure first involves creating a graph of the income distribution, referred to as a **Lorenz curve**—named after Max Lorenz, the statistician who first developed the technique. A Lorenz curve for household income in the United States is shown in Figure 10.1. In this graph, the horizontal axis represents the *cumulative* percent of households, lined up from left to right in order of increasing income. The vertical axis measures the *cumulative* percentage of all income received by different groups of households (the lowest 20%, the lowest 40%, etc.).

> **Lorenz curve:** a line used to portray an income distribution, drawn on a graph with percentiles of households on the horizontal axis and the cumulative percentage of income on the vertical axis

Figure 10.1 Lorenz Curve for the United States, 2016



Source: U.S. Census Bureau, Historical Income Tables: Households, Tables H-1 and H-2.

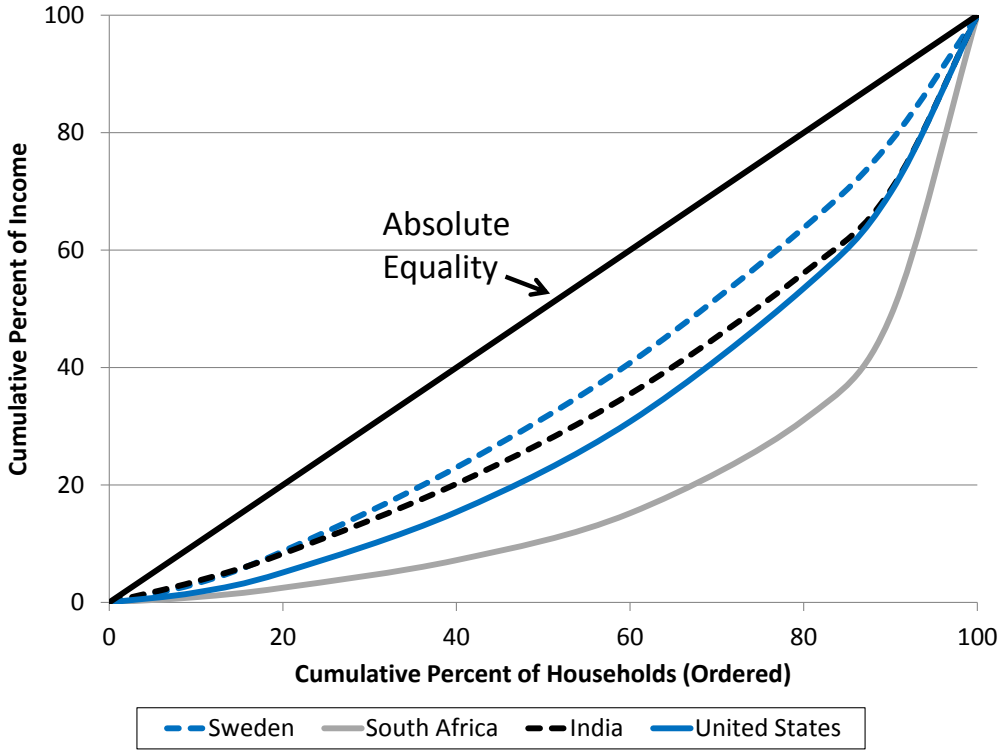
We use the data in Table 10.1 to draw the Lorenz curve in Figure 10.1. Point A represents the fact that the poorest 20 percent of households received 3.1 percent of all income. To obtain Point B, we need to calculate the cumulative percent of income received by the bottom 40 percent of households. So we add the income received by the bottom 20 percent to the income received by the next 20 percent. Thus the cumulative percent of income received by the bottom 40 percent is 3.1 + 8.3 = 11.4 percent of total income. For point C, we need to calculate the cumulative percent of income received by the bottom 60 percent of households, which is 3.1 + 8.3 + 14.2 = 25.6 percent of total income. Similarly, point D shows that the income share of the bottom 80 percent is 48.5 percent of all income. Finally, point E shows that the bottom 95 percent received 77.4 percent of all income (everyone except the top 5 percent).

The Lorenz curve must start at the origin, at the lower left corner of the graph (because 0 percent of households have 0 percent of the total income) and must end at point F in the upper right corner (because 100 percent of households must have 100 percent of the total income).

The Lorenz curve provides information about the degree of income inequality in a country. Note that the 45-degree line in Figure 10.1 represents a situation of absolute equality. If every household had the same exact income, then, for example, the "bottom" 40 percent of households would receive 40 percent of all income. This is shown by point G in Figure 10.1. Imagine the other extreme—a situation in which one household received all the income in a country. In this case, the Lorenz curve would be a flat line along the horizontal axis at a value of zero until the very end, where it would suddenly shoot up to 100 percent of income (at point F).

Of course these two extremes do not occur in reality, but they indicate that the closer a country's Lorenz curve is to the 45-degree line, the more equal its income distribution. This is illustrated in Figure 10.2, which shows the Lorenz curve for four countries: Sweden, South Africa, India, and the United States. Income is distributed relatively equally in Sweden; its Lorenz curve is closest to the 45-degree line of absolute equality. South Africa has one of the most unequal income distributions – we see its Lorenz curve bows far from the line of equality. The lower portion of India's Lorenz curve is similar to Sweden, but the upper portion is similar to the U.S. We would conclude that income inequality in India is more unequal than Sweden, but more equal than in the U.S.

Figure 10.2 Lorenz Curves for Sweden, South Africa, India, and the United States



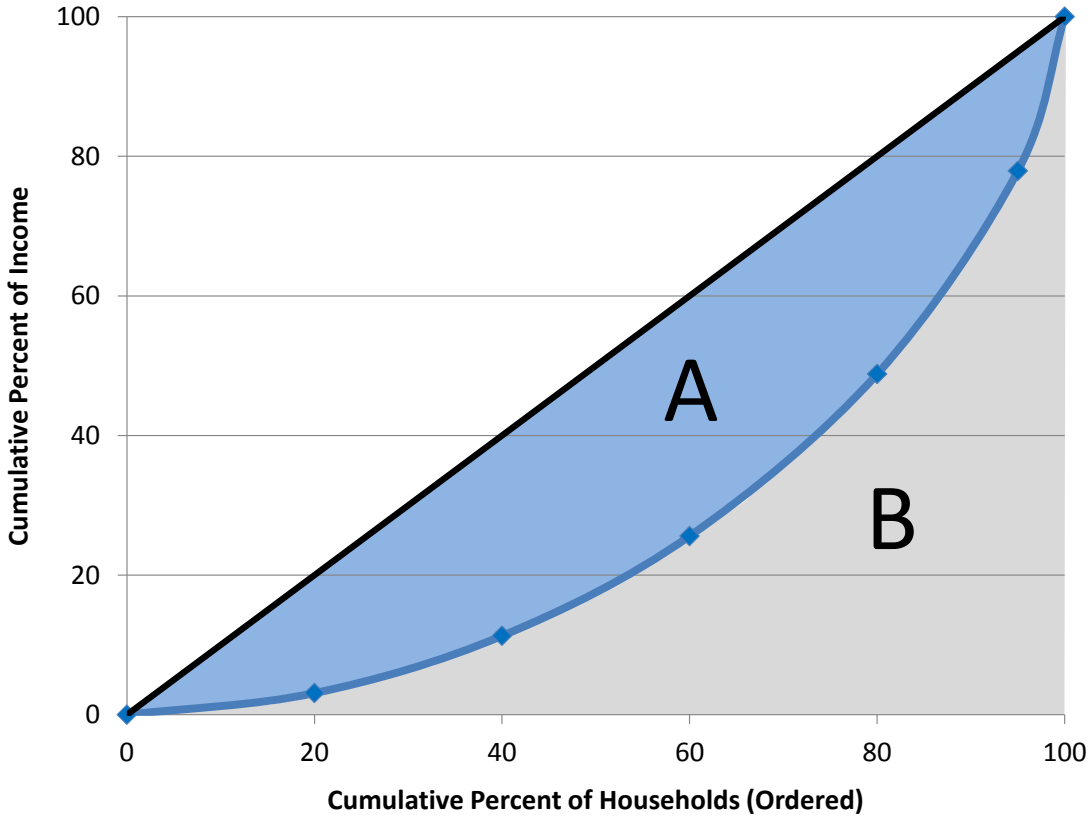
Source: World Bank, World Development Indicators database. Year of data varies from 2011 to 2013.

Thus the more the Lorenz curve bows away from the line of absolute equality, the greater is the extent of inequality in the income distribution. This observation led a statistician by the name of Corrado Gini to introduce a numerical measure of inequality that came to be known as the **Gini ratio (or "Gini coefficient")**, which is defined as the ratio of the area between the Lorenz curve and the diagonal line of equality to the total area under the diagonal line.

Referring to Areas A and B in Figure 10.3, the Gini ratio is A/(A+B). Clearly, the Gini ratio can vary from 0 for absolute equality (since in such a case Area A would equal zero as the Lorenz curve overlaps the line of absolute equality) to 1 for absolute inequality (where Area B would equal zero). According to U.S. Census Bureau calculations, the Gini ratio for U.S. household income in 2016 was 0.481. We will present international comparisons of inequality, along with data trends, later in the chapter.

Gini ratio (or Gini coefficient): a measure of inequality, based on the Lorenz curve, that goes from 0 (absolute equality) up to 1 (absolute inequality). Greater inequality shows up as a larger area between the Lorenz curve and the diagonal line of absolute equality

Figure 10.3 The Gini Coefficient: A/(A+B)



You might be wondering about some details of the measure of income we are using. The definition of income used for the data in Table 10.1 is pre-tax income excluding the value of noncash government benefits such as food assistance and Medicare, and also excluding the value of employer-provided benefits such as health care. How might the Gini coefficient change if we defined income differently? Higher-income people, after all, pay more in taxes, so perhaps we should look instead at disposable income after taxes. Meanwhile, poor people may qualify for noncash programs such as food assistance, or for subsidized housing and medical care, and arguably the value of these programs should be included as part of income.

On the basis of considerations like these, the U.S. Census Bureau has experimented with at least 15 different definitions of income. In addition to the definition used in Table 10.1, another definition is meant to approximate what the distribution of income would be if—hypothetically—the impact of government activity were excluded. For this definition, the Census Bureau starts with pretax income and subtracts government cash transfers (such as welfare payments). Then it adds the value of employer-provided health insurance benefits, generally received by workers with higher incomes. Under this definition, the Gini ratio, not surprisingly, rises, showing greater inequality. The share of the bottom fifth drops considerably, while the share of the top fifth rises.

Adjusting income for the effects of the tax system mainly lowers incomes at the top, though as we will see in the next chapter all households pay taxes to some extent.

When the Census Bureau further adds in the effects of noncash government transfer programs such as food assistance and Medicare, the distribution becomes somewhat less unequal.

Income Inequality and Well-Being

How much importance should we place on income inequality and the Gini index? Many important goods and services are, after all, obtained without the use of cash income. Many families produce at least some services (such as child care and cooking) for themselves. In addition, many of the things that we enjoy—such as pleasant parks, safe roads, or clean air—add to our well-being without requiring payments (although some of these things are financed through taxes). If we were to look at the distribution of *well-being* rather than just the distribution of income, we would need to take account of these other sources of important goods and services. Some of these goods may contribute to lessening inequality—for example, everyone, rich or poor, can enjoy a public park or use a public library. Evidence suggests, however, that at least in some cases the distribution of such non-purchased goods may accentuate, rather than lessen, inequality. For example, as noted earlier, proponents of "environmental justice" point out that polluting industries and toxic waste disposal sites tend to be located disproportionately near poor and minority communities.

Another interesting issue is the relationship between income and leisure time. Data for the United States indicate that higher education, and thus higher income, is associated with less leisure time. But this does not mean that poor people simply enjoy lives of greater leisure and well-being. Instead, unemployment rates are much higher for people with less education, suggesting that some leisure time is involuntary. Meanwhile, job satisfaction increases with education, which also contributes to well-being.[10] As we've seen before, well-being is multi-dimensional and we should be wary about drawing conclusions about well-being based on any single variable.

Discussion Questions

1. What are some of the differences between inequality of income and inequality of "capabilities" or well-being? How are these three concepts related? Which one do you think deserves the most attention from policymakers?
2. What do you think is the minimal amount of annual income that an individual, or a small family, would need to live in *your* community? (Think about the rent or mortgage on a one- or two-bedroom residence, etc.) What does this probably mean about where the average level of income in your community fits into the U.S. income distribution shown in Table 10.1?

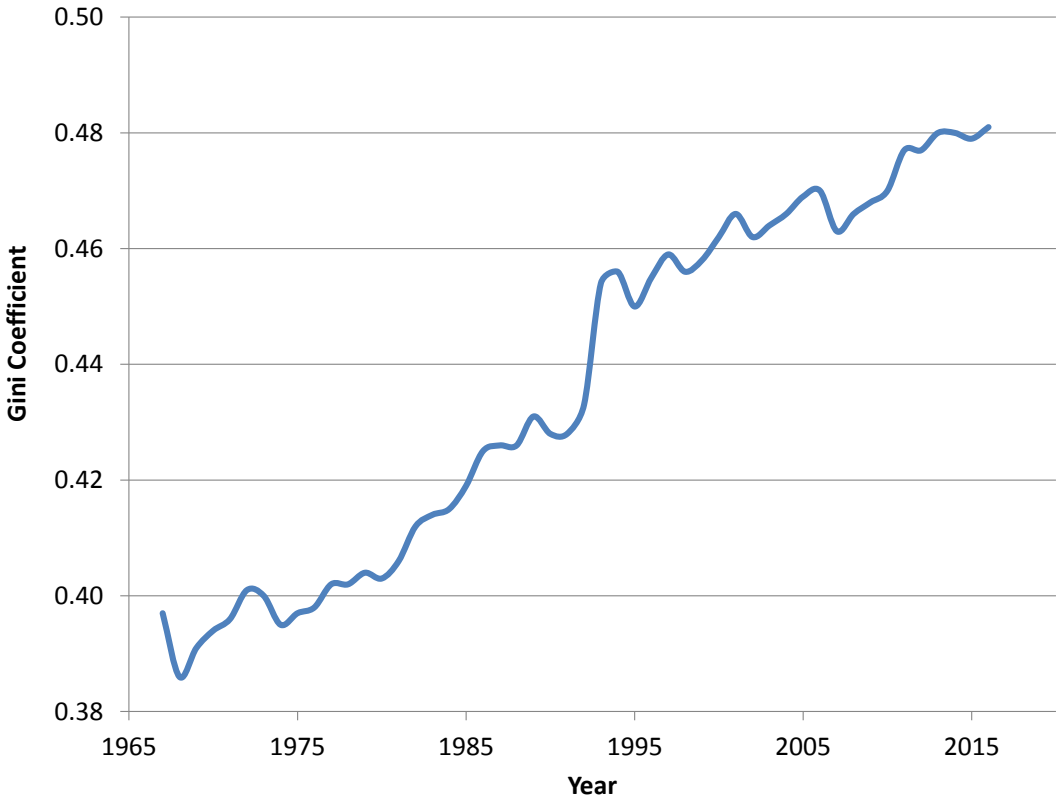
2. INEQUALITY TRENDS AND FURTHER CONSIDERATIONS

We now can use inequality data to track how inequality changes over time. In this section we first explore income inequality trends in the United States and then discuss some additional perspectives on inequality, including inequality of wealth and how inequality is related to race, age, education, and other factors.

2.1 INCOME INEQUALITY OVER TIME IN THE UNITED STATES

No one disputes that income inequality in the United States has increased in recent decades. We can see this in Figure 10.4, which shows the Gini coefficient in the U.S. from 1967 to 2016, based on data from the U.S. Census Bureau. The Gini coefficient reached a record low of 0.386 in 1968. After that, the Gini coefficient increased in 39 of the next 48 years.

Figure 10.4 Gini Coefficient in the United States, 1967-2016

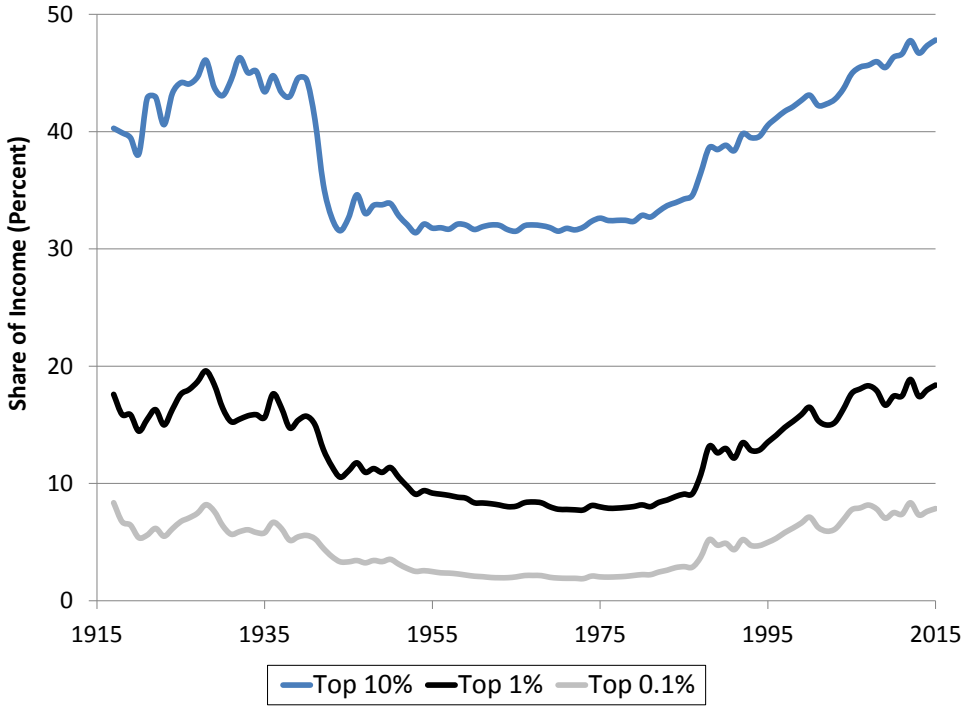


Source: U.S. Census Bureau, Historical Income Tables: Households, Table H-4.

While comparable government data are not available for the years prior to 1967, academic researchers have estimated longer trends in income inequality by focusing on the share of total income going to the top income groups. Figure 10.5 shows how the income share of three high-income groups in the U.S. – the top 10%, the top 1%, and

the top 0.1% – has changed since the early 20th century. After the Great Depression, the share of income going to the top income groups generally declined, suggesting that income inequality was decreasing. The share of income going to the top 10% remained low at around 32% from 1950 until the early 1970s. The share of income going to the top 0.1% reached a low of less than 2% in the early 1970s. Since the early 1970s, the income shares going to these top groups have increased, generally surpassing the high levels that occurred prior to the Great Depression. We will consider some the explanations for the recent trend toward higher inequality later in this chapter.

Figure 10.5 Income Shares of Top-Income Groups, United States, 1917-2016



Source: Saez, 2016.
Note: Data exclude capital gains.

2.2 WEALTH INEQUALITY

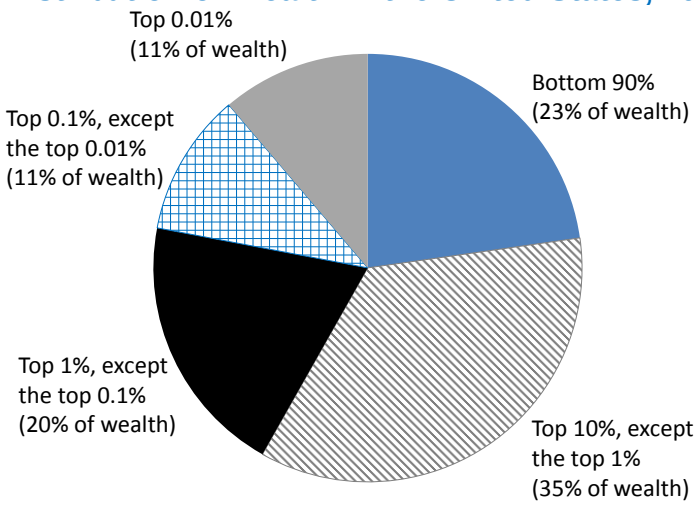
Gini coefficients may also be calculated for the distribution of wealth rather than income. This distribution, which depends on what people own in assets, tends to be much more unequal than income distribution. Many lower-income people have almost no net wealth, and even people with middle-class income levels often have only a relatively small amount of wealth. It is even possible to have *negative* net wealth. This happens when the value of a person's debts (e.g., for a car, house, or credit cards) is higher than the value of her assets. For people in the middle class, the equity that they have in their house is often their most significant asset. By contrast, those who do own substantial wealth are generally in a position to put much of it into assets that increase in value over time or yield a flow of income and dividends—which can in turn be invested in the acquisition of still more assets.

The distribution of wealth is, however, less frequently and less systematically recorded than the distribution of income—in part because wealth can be hard to measure. Much wealth is held in the form of unrealized **capital gains**. A household realizes—turns into actual dollars—capital gains if it sells an appreciated asset, such as shares in a company, land, or antiques, for more than the price at which it purchased the asset. An asset can appreciate in value for a long time before it is actually sold. No one, however, will know exactly how much such an asset has really gained or lost in value until the owner actually *does* sell it, thus "realizing" the capital gain. Another reason that it is harder to get information on wealth is that although governments normally require people to report their annual income from wages and many investments for tax purposes, most governments do not require everyone to regular and comprehensive reporting of asset holdings. Finally, wealth consists not only of financial assets but also commodities, paintings, real estate, and the like. Such disparate forms of wealth make it difficult to obtain reliable estimates of aggregate wealth statistics.

capital gains: increase in the value of an asset at the time it is sold compared to the price at which it was originally purchased by the same owner

These caveats notwithstanding, reasonable estimates of the U.S. Gini coefficient for wealth have been made. They are in the neighborhood of 0.8, significantly higher than the income Gini coefficient of 0.48.[11] While the top 10% of U.S. households by income receive about 30% of all income, as shown in Figure 10.6 the top 10% by wealth own 77% of all wealth. The top 1% (those with more than $4 million in assets) own 42% of all wealth, much more than the bottom 90% combined. And the top 0.01% (about 16,000 families with at least $111 million in assets each) own 11% of U.S. wealth.[12] For an interesting study of Americans' perceptions of current wealth inequality, see Box 10.1.

Figure 10.6 The Distribution of Wealth in the United States, 2012



Source: Saez and Zucman, 2016.

Just as income inequality has been increasing in recent decades, so has wealth inequality. A plot of the wealth shares owned by the top groups in the U.S. over time

looks much like the income shares in Figure 10.5. The share of national wealth owned by the top 1% was over 50% prior to the Great Depression, declined to less than 25% by the late 1970s, but then steadily increased to around 45% today.[13]

Contemplating such vast wealth inequality brings us back to the question of opportunity. Do those with little or even negative wealth have the opportunity to achieve an adequate level of well-being? In addition, great wealth often confers upon its owners both economic and political power. When the ownership of wealth is highly uneven, the ability to direct the operations of businesses and to influence government policy through campaign contributions and the like may become concentrated in the hands of relatively few. They may then use this power to maintain or exacerbate existing inequalities. We return to this point again later in the chapter.

BOX 10. WEALTH INEQUALITY IN THE UNITED STATES

Figure 10.6 presents data on the actual distribution of wealth in the United States. However, political debates about inequality are often based upon perceptions rather than facts. A 2011 study surveyed people regarding their perceptions of wealth inequality in the U.S.[14] Specifically, respondents were asked to estimate what percentage of total wealth was actually owned by each wealth quintile. Further, people were also asked to construct their ideal distribution of wealth, again assigning a percentage of total wealth to each quintile.

The results are presented in Figure 10.7, along with the actual distribution of wealth in the U.S. We see, for example, that the top quintile actually owns 84% of all wealth in the U.S. according to the paper. (Note that the "actual" distribution of wealth in Figure 10.7 differs somewhat from the distribution given in Figure 10.6—the two figures rely upon different data sources and apply to different years.) However, respondents estimated that the top quintile only owned 59% of all wealth. But most respondents thought that even this estimated concentration of wealth was excessive. On average, their ideal wealth distribution allocated only 32% of all wealth to the top quintile.

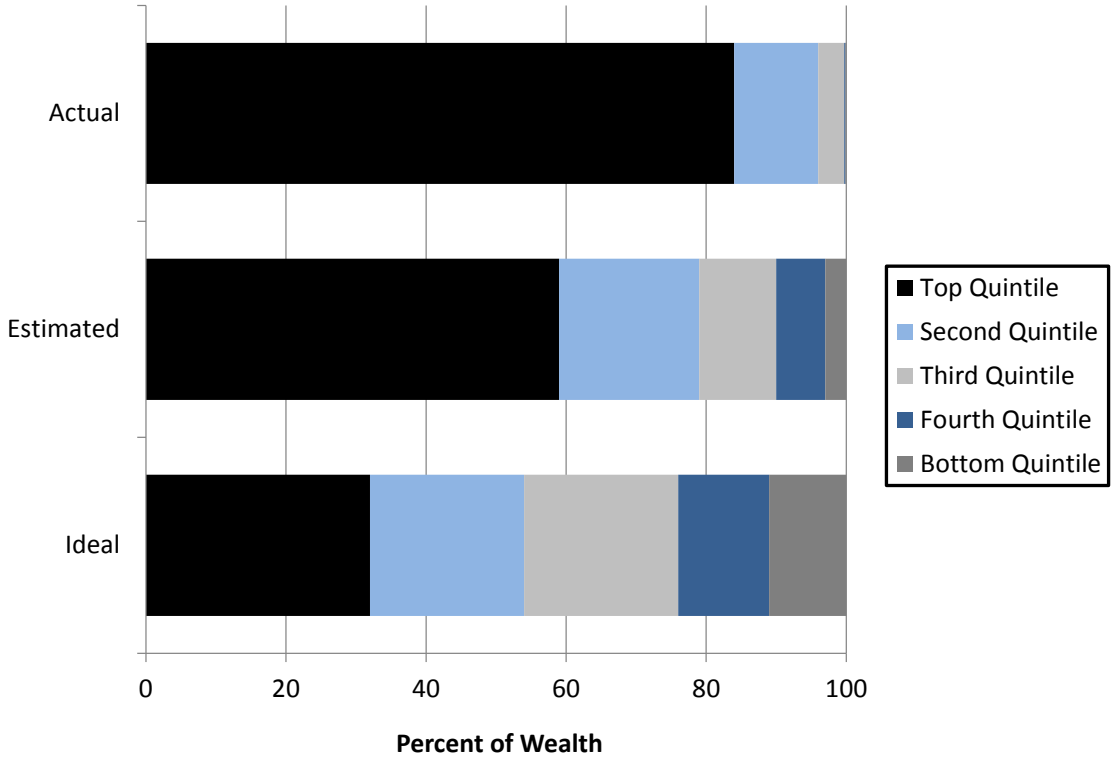
Looking at the other end of the wealth spectrum, the bottom quintile actually owns only 0.1% of wealth in the U.S. Respondents estimated that the bottom quintile owns about 3% of wealth. According to their ideal distribution, the bottom quintile should own about 11% of all wealth.

The results clearly illustrate the difference between reality, perceptions, and subjective preferences. The study authors draw two primary messages from the results:

First, a large nationally representative sample of Americans seems to prefer to live in a country more like Sweden than like the United States. Americans also construct ideal distributions that are far more equal than they estimated the United States to be—estimates which themselves were far more equal than the actual level of inequality.

Second, there was much more consensus than disagreement across groups from different sides of the political spectrum about this desire for a more equal distribution of wealth, suggesting that Americans may possess a commonly held ''normative'' standard for the distribution of wealth despite the many disagreements about policies that affect that distribution, such as taxation and welfare.[15]

Figure 10.7 Actual, Estimated, and Ideal Distribution of Wealth in the United States

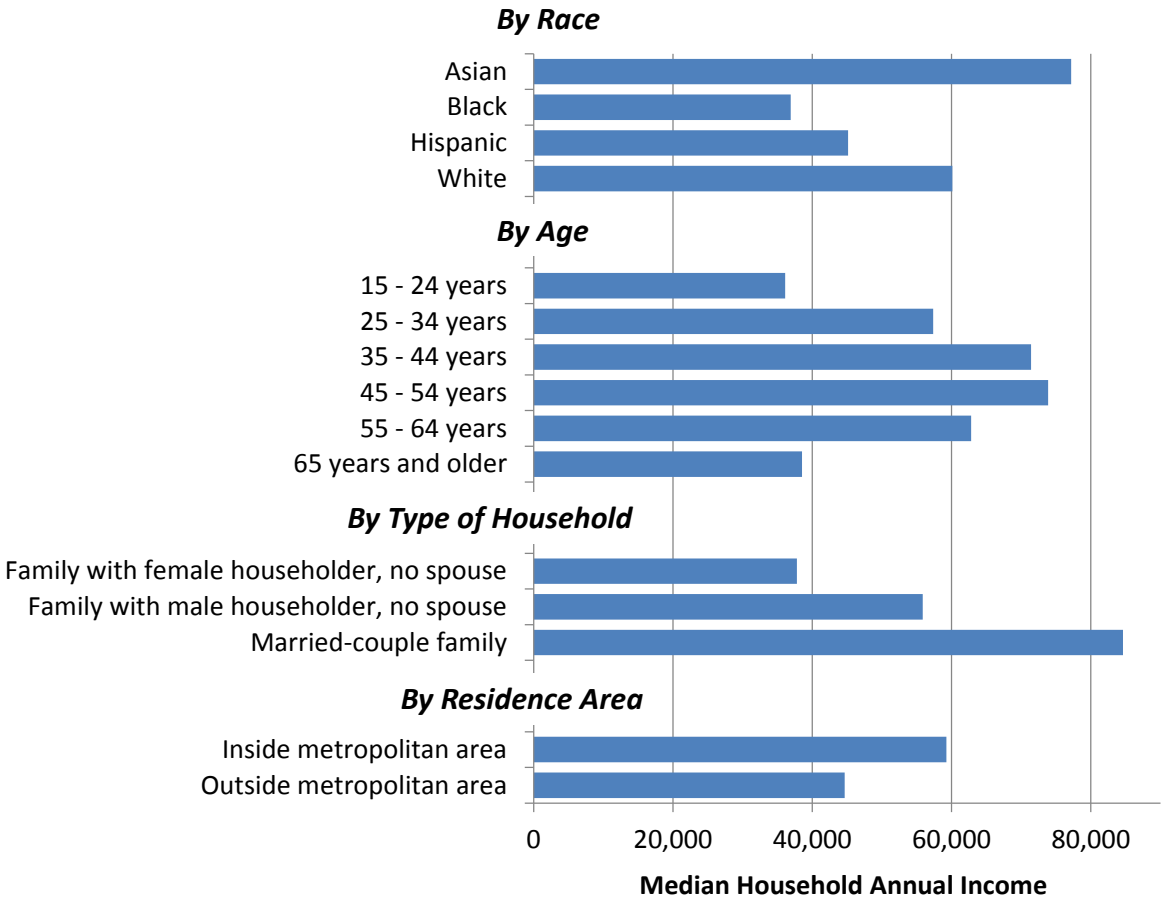


Source: Norton and Ariely, 2011.

2.3 FURTHER PERSPECTIVES ON INEQUALITY

So far we have documented the extent of income and wealth inequality in the United States. But we need to delve a little further to better understand what drives inequality. For example, income inequality is clearly related to race in the United States, as shown in Figure 10.8. Asian households have the highest median annual income, about $77,000, while black households have the lowest at only $37,000. Median income also changes with age, increasing up to middle-age, and then declining as people retire. Married couples, with the potential for two adult workers, have higher incomes than households with just one adult male or female. Further, whether a family with only one adult is headed by a male or a female can make an income difference of nearly 50%. Finally, households in metropolitan areas have median incomes about 33% higher than those outside of metropolitan areas.

Figure 10.8 Median Household Income in the United States by Select Characteristics, 2015



Source: Proctor et al., 2016, Table 1.

Economic inequalities based on race, age, and other demographic factors are even more pronounced when we consider household wealth. Figure 10.9 presents data on the median value of household assets for different types of households.[16] In some cases, we can see how inequalities arising due to differences in income are magnified when it comes to wealth. While white households' incomes are 63% higher than the incomes of black households, the assets of white households are more than 8 times higher than those of black households. Hispanic households also have little in assets, only about $12,000.

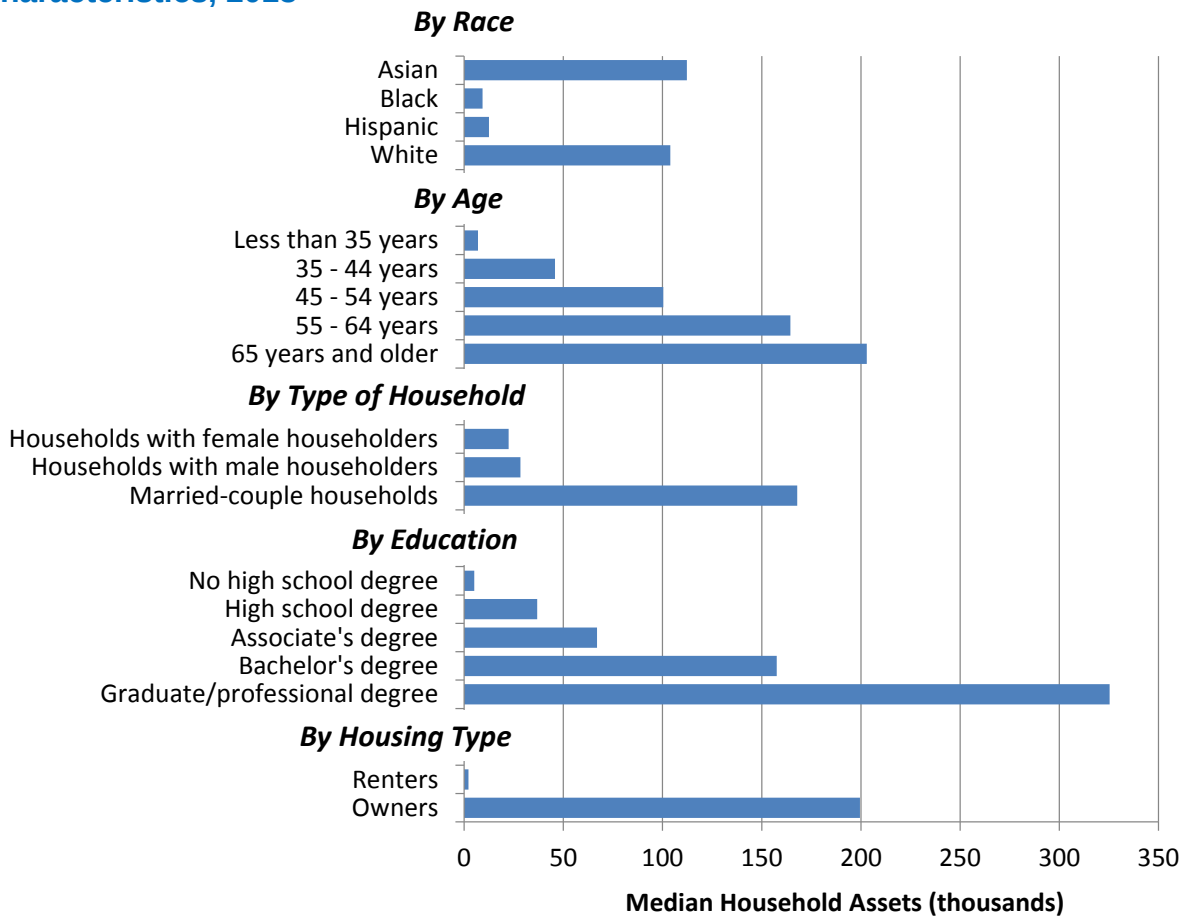
The median value of household assets tends to rise with age. So while older households (aged 65 and older) have relatively low income as seen in Figure 10.8, they have comparatively high assets. While married couples have incomes about twice as high as households with just one adult, their assets are more than 6 times larger. We also see that education has a significant impact on household assets. For example, those with a college degree have over four times as much household wealth as those with only a high school diploma. Finally, those owning their own homes (including those still paying a mortgage) have 90 times the assets of renters. This demonstrates the importance of real estate equity in building household wealth.

2.4 ECONOMIC MOBILITY

Figures 10.8 and 10.9 suggest that some inequality is to be expected in any society, given that people's incomes and assets tend to increase as they become older and more established in their careers. So at any point in time in a country, we are likely to have younger people with relatively low incomes and few assets, middle-aged people with higher incomes and more assets, and retirees who tend to have relatively low incomes but relatively high assets. Thus we have people moving from lower income groups to higher income groups, and vice versa. This possibility for people or households to change their economic status, for better or worse, is called **economic mobility**. For a given level of economic inequality, we may be more tolerant if economic mobility is higher because it implies that people have the opportunity to improve their economic condition.

economic mobility: the potential for an individual or household to change its economic conditions (for better or worse) over time

Figure 10.9 Median Value of Household Assets in the United States by Select Characteristics, 2013



Source: U.S. Census Bureau, 2017.

A common way to measure economic mobility is to track the frequency with which individuals or households move into different income groups, especially in relation to the group in which they were raised. For example, a 2013 U.S. study looks at the income quintiles of people in their late 30s related to their "birth quintile" – the quintile where their parents were, at the same age.[17] For people raised in families from the bottom quintile, 44% are still in the bottom quintile as adults, 22% rise into the second quintile, and about 6% rise all the way to the top quintile. Meanwhile, people raised in families from the top quintile are 47% likely to also be in the top quintile as adults, with about 25% in the fourth quintile and 7% falling all the way to the bottom quintile. So while some economic mobility exists, one's background is clearly an important determinant of one's adult income. A 2015 study summarized the situation:

> [C]hildren raised in low-income families will probably have very low incomes as adults, while children raised in high-income families can anticipate very high incomes as adults. The differences are extreme: The expected income of children raised in well-off families (90th percentile) is about 200 percent larger than the expected income of children raised in poor families (10th percentile) and about 75% larger than that of children raised in middle-class families (50th percentile).[18]

Other research focuses on how economic mobility in the United States has changed over time. Perhaps the most comprehensive analysis of economic mobility over time in the U.S. found that mobility has remained relatively constant for people born between 1971 and 1993.[19] For example, the probability of a child from the bottom quintile reaching the top quintile as an adult was 8.4% for those born in 1971 and 9.0% for those born in 1986.

A 2016 paper took a different approach to studying economic mobility, looking at how one's income changes throughout a working career.[20] This study found that earnings mobility has decreased as inequality has increased since the 1980s. A particularly striking finding was a dramatic decline in upward mobility for those starting their careers in the middle class, even for those with a college degree.

Another aspect of economic mobility is whether successive generations are, on average, better off than their parents. With consistent economic growth, each generation can look forward to higher average incomes. However, recent research suggests that this is no longer the case in the United States – see Box 10.2.

BOX 10.2 THE FADING AMERICAN DREAM

One aspect of the "American Dream" is that each successive generation hopes it will be better off than the previous generation. This continual increase in living standards is referred to as "absolute income mobility." While this was often taken for granted in the past, is this part of the American Dream still alive?

According to a 2017 paper in *Science*, the answer seems to be mostly "no."[21] Looking at data on children born in the U.S. from 1940 to 1984, and their parents, the researchers were able to determine the percentage of children that ended up earning more than their parents (after adjusting for inflation). For children born in 1940, over

90% of them ended up earning more than their parents. But for children born in the 1980s, this percentage had dropped to 50%.

Two explanations for the decline in absolute income mobility are proposed: lower GDP growth rates and greater income inequality. Of these two explanations, the paper concludes that:

> most of the decline in absolute mobility is driven by the more unequal distribution of economic growth in recent decades, rather than by the slowdown in GDP growth rates. In this sense, the rise in inequality and the decline in absolute mobility are closely linked. Growth is an important driver of absolute mobility, but high levels of absolute mobility require broad-based growth across the income distribution. With the current distribution of income, higher GDP growth rates alone are insufficient to restore absolute mobility to the levels experienced by children in the 1940s and 1950s. If one wants to revive the "American dream" of high rates of absolute mobility, then one must have an interest in growth that is spread more broadly across the income distribution.[22]

Discussion Questions

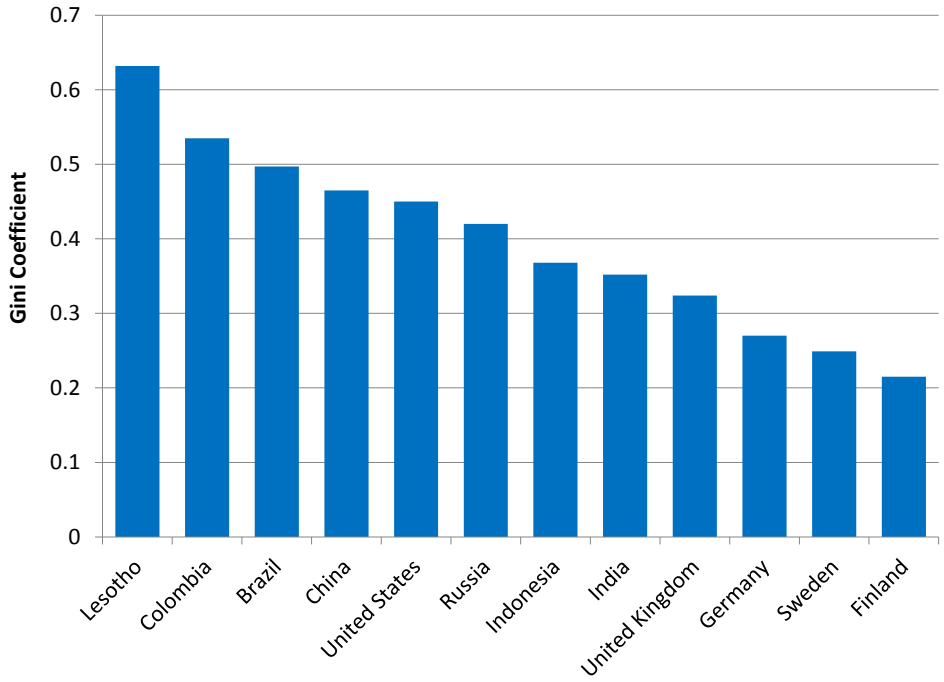
1. Were your parents better off economically than their parents? Do you believe that you will be better off than your parents? Do you think that this is true of most of your friends?
2. Make a list of the reasons that inequality can be considered desirable, and the ways in which inequality hurts social well-being. Is it possible to limit the negative consequences of inequality while still harnessing the positive aspects?

3. INTERNATIONAL DATA ON INEQUALITY

3.1 CROSS-COUNTRY COMPARISONS

We can compare the U.S. data presented so far to data on income inequality, wealth inequality, and economic mobility in other countries. The Gini coefficient for the United States is higher than that of all other major industrialized countries, signifying that the country has a higher degree of income inequality. Recall our international comparison of economic inequality in Chapter 0. Figure 10.10 repeats the figure presented in Chapter 0, showing the range in income inequality across different countries. Lesotho, with a Gini coefficient of 0.63, has the highest degree of income inequality of any country. Finland, with a Gini coefficient of 0.21, has the lowest level of income inequality. While many of the countries with the lowest income inequality are also high-income countries, inequality is also relatively low in Hungary, Belarus, Ethiopia, and Pakistan, among others.

Figure 10.10 Income Gini Coefficient for Select Countries



Source: CIA World Factbook, United States Central Intelligence Agency.
Note: Year of data varies.

Patterns across geographic regions are fairly consistent. Latin American countries, for example, tend to have relatively high degrees of inequality. In addition to Brazil and Colombia, Haiti, Guatemala, Panama, and Chile all have Gini coefficients above 0.50. Asian countries, in contrast, appear, by this measure, to be more economically equal. Most countries in the Asian continent have Gini coefficients between 0.3 and 0.4. Sub-Saharan Africa appears to have the greatest variability, ranging from 0.33 (Ethiopia) to 0.63 (South Africa and Lesotho).[23]

As mentioned in the introduction to this chapter, the trend toward higher income inequality is not limited to the United States. Between 1985 and 2008 income inequality increased in 17 of 22 OECD countries (it was constant in three, and decreased in two).[24] The International Monetary Fund notes that income inequality has "increased substantially" in most developed countries since the 1990s, as well as in Asia and Eastern Europe.[25] In 2015 the World Economic Forum, best known for its annual meeting in Davos, Switzerland, identified income inequality as the top global issue facing the world's leaders in the coming years, noting that inequality "is a universal challenge that the whole world must address."[26] Thus when we consider the causes of increasing income inequality (in the next section) we will need to focus not just on the United States, but on broader changes occurring across the world.

Just as with income inequality, the United States has the highest degree of wealth inequality of any developed nation, with one report referring to the "Unequal States of America."[27] Wealth inequality in the U.S. is higher than in many countries with very high income inequality, including Lesotho, Colombia, and Brazil.

Finally, economic mobility appears to be lower in the United States than in nearly all other developed nations, except for the United Kingdom and Italy, based on the strength of the relationship between fathers' and sons' earnings.[28] Analysis by the OECD finds a negative correlation between income inequality and economic mobility – those countries with higher income inequality tend to have lower economic mobility.[29] The study finds that this relationship may be linked to differences in educational opportunities. Specifically, low-income groups in societies with high inequality tend to underinvest in education, reducing their mobility and perpetuating inequalities. Recommended policies focus on improving access to education for low-income groups, not just during youth but access to job-training and formal education throughout one's working life. We'll further consider the role of education in reducing inequality in the last section of this chapter.

3.2 GLOBAL INEQUALITY

Some surprising results are found when we consider economic inequality at the global level. Just as a Gini coefficient can be calculated for an individual nation by constructing a Lorenz curve, some economists have tried to estimate the global Gini coefficient for income. For example, a 2015 paper estimated the global Gini coefficient to be 0.65 based on 2013 data.[30] Obviously, any estimate of the global income distribution must make a number of assumptions due to the lack of complete data, and thus different studies have resulted in slightly different global Gini coefficients. A 2015 World Bank paper estimated the global Gini coefficient to be 0.71 in 2008,[31] while a 2016 analysis produced 9 different estimates (depending on the assumptions) ranging from 0.59 to 0.61 for 2013.[32]

Suppose the global Gini coefficient is around 0.65. If we compare this with the values in Figure 10.10 we notice that the global Gini coefficient is higher than that for any individual country. While you might expect that the global Gini coefficient would be approximately an average of the coefficients for each country, this is clearly not true. How can it be that the global Gini coefficient is higher than the value for any one country?

To resolve this seeming paradox, we must realize that the incomes found in most countries do not cover the full range from the world's poorest to the world's richest. For example, in many developed countries such as Germany and Switzerland there are virtually no people living below the World Bank's measure of absolute poverty of $1.90 per day. The United States is an exception; the World Bank estimates that more than 3 million Americans live below the global poverty line.[33] In Lesotho – the country with the highest income Gini coefficient – about 60% of the population lives in absolute poverty, and income per capita is only about $1,300 per year.[34] So even those with relatively high incomes in Lesotho may not be particularly rich by global standards. But when we calculate the global Gini coefficient we bring together all the world's incomes, comparing the 800 billion living in absolute poverty to the 5 million or so making more than $1 million per year.[35]

Another way to understand the extremely unequal global income distribution is to consider what income is necessary to reach various percentiles. According to the online Global Rich List calculator, an annual income of only about $7,000 is needed to make it

into the top global quintile.[36] And an annual income of only $33,000 puts you in the global top 1%. So an American worker making a median U.S. wage of around $45,000 per year is well into the global top 1%.[37]

In other words, the country in which one is born largely determines one's economic fate.[38] Some scientists refer to a global "birth lottery," whereby:

> If you are lucky enough to be born in a wealthy country, you will more likely enjoy the great fortunes and opportunities that come from being a citizen of that country. Conversely, if you "lose" the birth lottery, and you are born in a poor country, your life chances and circumstances will mostly likely suffer accordingly.[39]

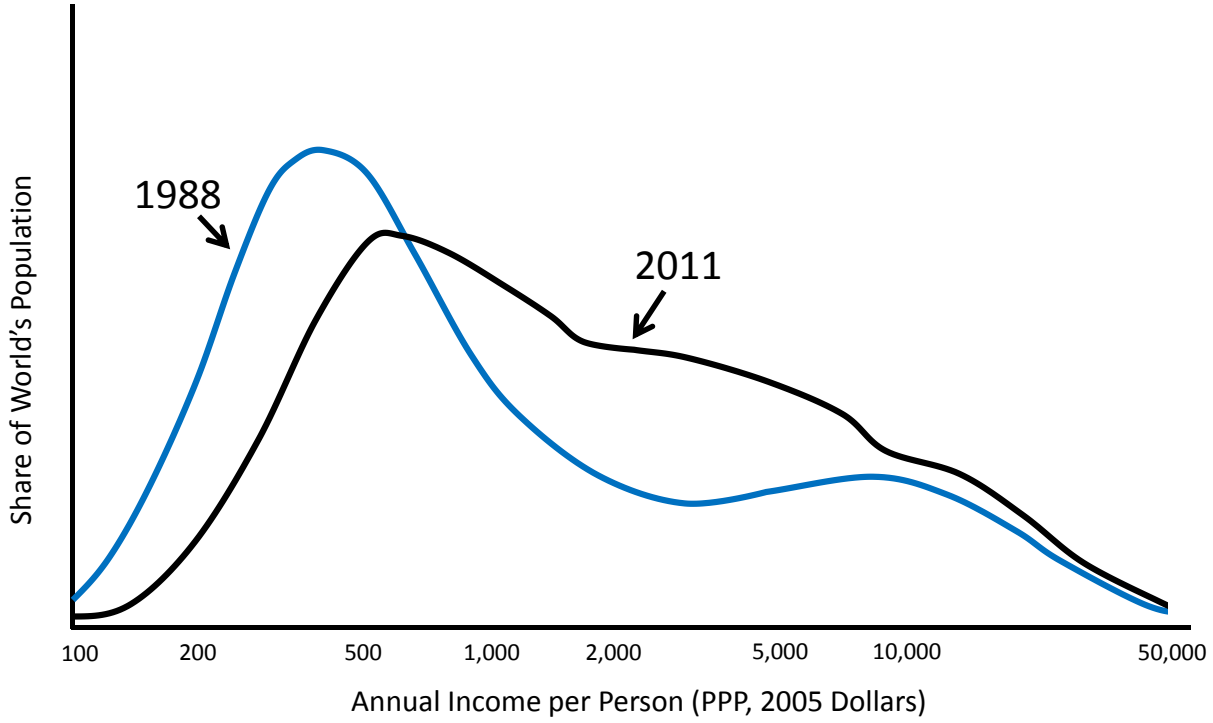
As mentioned previously, income inequality is increasing in most countries, including China, India, and most developed nations. You might then conclude that the global Gini coefficient is also increasing. But we now come to our second surprising result – the global Gini coefficient is actually declining. While the global Gini coefficient rose steadily from the 19th century until about 1990, various studies conclude that global income inequality is decreasing in recent decades.[40]

How can the Gini coefficient for most countries be increasing, while the global Gini coefficient is declining? Essentially, the growth of the global middle class is reducing global inequality even as it increases national-level inequality in many countries. Consider that several decades ago nearly all people in China and India – the world's two most populous countries – had very low incomes by global standards. Recent economic growth in these countries has increased national level inequality, specifically between relatively high incomes in urban areas and the still-low incomes in rural areas. But economic growth in these two countries has led to a surge in the number of people classified in the global middle class. This emerging global middle class is reducing global inequality.

We can see evidence of this shift in Figure 10.11, which shows the global distribution of income in 1988 and 2011. Note that this income distribution graph is different from our Lorenz curve graphs, as the y-axis shows shares of the world's population at various income levels, and the x-axis presents income levels using a nonlinear scale. In 1988 we see a distribution with two "peaks": one around a few hundred dollars per person per year and another around $10,000.

Thus there were two large concentrations of people in 1988 – those who were very poor and those who were relatively well-off, with comparatively few people in the middle. But in 2011 we see that the "valley" has been filled in as the percentage of people with incomes between $1,000 and $5,000 per year has grown. This largely represents the emerging global middle class in China, India, and other rapidly-developing countries.

Figure 10.11 Global Income Distribution, 1988 and 2011

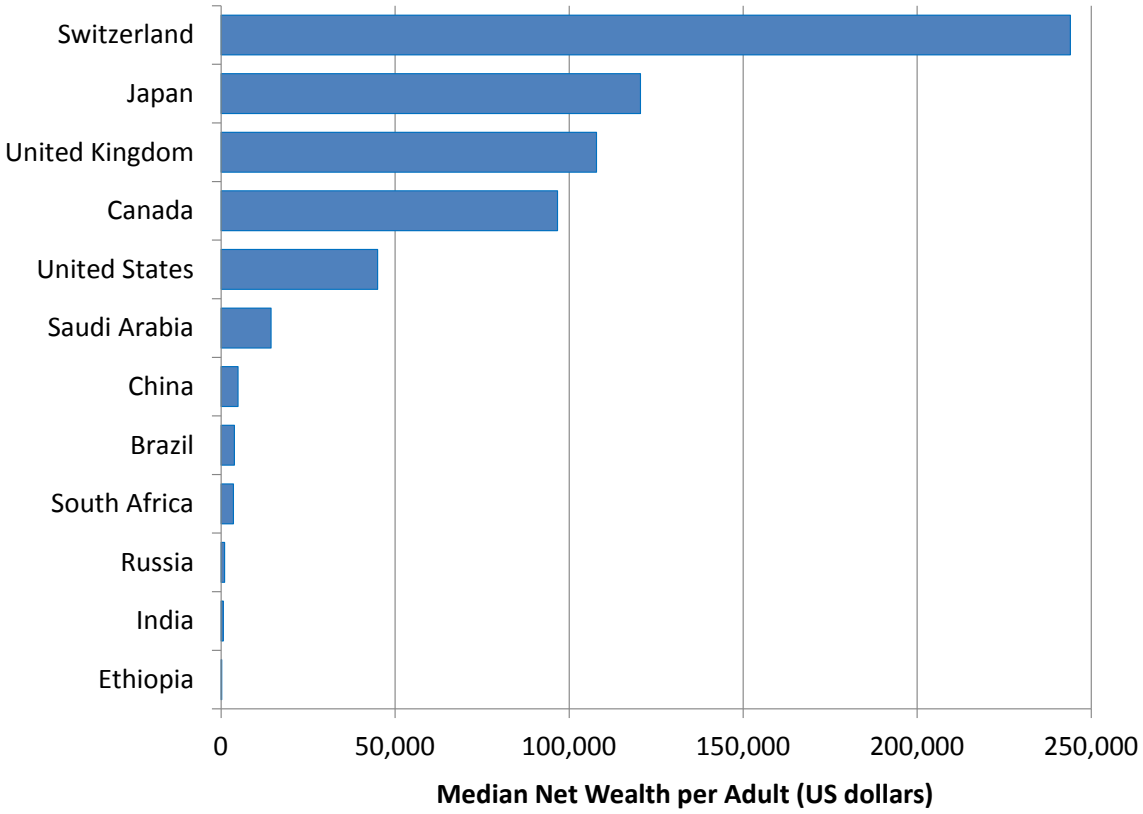


Source: Our World in Data website, https://ourworldindata.org/income-inequality/

Finally, we consider the global distribution of wealth. As you might expect, the global wealth Gini coefficient, around 0.80, is higher than the global income Gini coefficient.[41] About 90% of the world's wealth is held by the richest 10%. Further, the top 1% own half of the world's wealth. Estimates suggest that the world's wealth was becoming less concentrated prior to the global financial crisis, but has risen since then.[42]

Median wealth levels vary considerably across countries, as shown in Figure 10.12. Switzerland has the highest median net worth per adult, at nearly $250,000. The median adult in Japan and the United Kingdom has more than $100,000 in net assets. The United States has a comparatively modest median net worth of just over $100,000, ranking 27th globally behind such countries as Spain, Israel, and Greece. However, the U.S. has a high *average* net worth of about $345,000 per adult, ranking 4th globally. The large difference between median and average net worth in the U.S. further illustrates its high degree of wealth inequality; it indicates that a few very wealthy people raise the average wealth considerably. Median net worth in China is about $5,000 per adult, which more than tripled between 2000 and 2016. Meanwhile, India's median wealth has only grown by about 30% from 2000 to 2016, to $660 per person. Median net worth in the world's poorest countries is only about $100 per person.

Figure 10.12 Median Net Worth per Adult, Select Countries, 2016



Source: Credit Suisse, 2016b.

Discussion Questions

1. What do you think are the reasons that the United States is more unequal than other developed countries, and has lower economic mobility? What policies might be used to address this issue?
2. What are the main trends in global inequality? Do these seem to be positive or negative in terms of human well-being?

4. CAUSES AND CONSEQUENCES OF INEQUALITY

The question of why inequality has been increasing in the United States and many other countries is a source of much debate. We now consider several of the explanations proposed by economists, recognizing that rising inequality is something that cannot be attributed to a single cause. We then turn to a discussion of the consequences of a high degree of inequality in a society.

4.1 CAUSES OF INEQUALITY

Inequality in the United States and Other Developed Countries

One point on which economists appear to agree is that some of the increase in inequality in the United States and other industrialized nations is due to changing demographics. As people worldwide live longer on average, the proportion of the population that is elderly increases. As elderly people tend to have relatively low incomes, this demographic trend pushes incomes down on the low end. Another trend increasing the share of the population with low incomes is an increase in the rate of single parenthood. Single-parent households in the U.S. are much more likely to have low incomes, as we saw in Figure 10.8. At the other end of the income spectrum, the increasing number of women entering the labor force has helped boost the income of married-couple households.

A similar factor separating households is the increase in "assortive mating" – the tendency of people to marry partners who have a similar earning potential to themselves. For example, based on U.S. data men with undergraduate degrees are now about twice as likely to marry women with undergraduate degrees as they were in 1960. A 2014 study concludes that the U.S. Gini coefficient would be significantly lower (0.34 as opposed to 0.43) if people married randomly rather than selecting mates who are similar to themselves in terms of earnings potential.[43]

The recent trend of increased inequality, however, cannot be explained simply by demographic changes. A major factor that helps explain growing inequality is that the wage "share" of the income "pie" has diminished over time. Wages and salaries make up the majority of **labor income**, which includes the implicit value of fringe benefits. **Capital income** includes rents, profits, and interest. "**Rent**," as economists use the term, refers not just to rent for housing but to payments for the use of any capital asset, such as machinery or an e-mail list. (See Box 10.3 on "rent-seeking.") In general, higher-income households receive a larger portion of their total income from capital income. The dramatic increase in concentration of wealth and income is strongly related to patterns of capital ownership, with those who have little or no capital failing to capture economic gains.

labor income: payment to workers, including wages, salaries, and fringe benefits
capital income: rents, profits, and interest
rent: payments for the direct or indirect use of any capital assets

Among developed countries, the labor share of total income has generally been declining since the 1970s.[44] Generally, a declining labor share over time suggests that wage growth, if present, is not keeping up with overall productivity growth. Real median wages in the United States, for example, only grew by 5% from 1979 to 2016 – that's not annual growth, but total growth over 37 years![45] Meanwhile, real GDP per capita in the U.S. grew by 80% over this same time period.[46] In other words, there has been significant economic growth, but virtually none of it is going to the average worker.

BOX 10.3 RENT SEEKING AND INEQUALITY

"Rent seeking" refers to the act of expending money, time, or other resources in the hope of extracting value that already exists somewhere, instead of using those resources to produce new economic value. In other words, a rent seeker will try to bring about redistribution of existing wealth in his or her favor instead of generating new wealth.

One example of rent seeking is when lobbyists try to convince government officials to adopt policies favorable to the interests they represent, at the expense of other economic actors. This is considered rent seeking because, even though such lobbying can produce benefits for the lobbyists' employers, it does not generate new economic value. One could even make the case that it subtracts from value creation in an "opportunity cost" sense: by diverting potentially useful or productive resources (including the effort and intelligence of the lobbyists) for the purpose of some zero-sum gain.

The effect of rent seeking can be to exacerbate inequality, because those who are already rich and powerful are most effective at directing government support and subsidies to themselves. The economist Mancur Olson has proposed a depressing scenario in which countries tend to grow less competitive and efficient over time, as organized interest and lobby groups gain in importance, and are increasingly able to influence government.[47]

Clearly, the motivation of groups who criticize the dominance of the top "1 percent" is based on a perception that much of the wealth of those at the very top is based on rent-seeking activities rather than genuine economic productivity.

The critical question is *why* this has been happening, and on this there is no universal agreement. In what follows, we consider the four most prominent explanations for the increase in income inequality in most developed nations:

1. Globalization and trade
2. Technological changes
3. The declining power of labor unions
4. Domestic policy changes

The first likely factor in increased inequality is globalization and the growth in trade that it produces. Globalization is hypothesized to contribute to both the stagnation of middle-class wages and the loss of middle-class jobs in developed nations. Jobs are lost due to globalization when transnational corporations shift production facilities to developing countries to take advantage of low-cost labor, commonly contracting out production to foreign companies. Trade puts downward pressure on middle-class wages when producers in richer countries face greater competition from imports from poorer countries. In many instances, the price of such imports is significantly lower than that for the domestically-produced good, compelling the producer either to lower prices (and therefore wages, too) or simply leave the business.

Competition from imports has indeed eliminated many industrial jobs—in textiles and automobiles, for example—that formerly fell in the middle of the U.S. wage

distribution. The replacement of such jobs by lower-income service and retail jobs has contributed to the increase in inequality, although economists disagree about the extent to which globalization is responsible for the increase in inequality in developed nations. Even economists who believe the effects are significant, such as Nobel-prize winner Paul Krugman, note that isolating the impact of globalization on inequality is difficult.[48] A recent review of the literature on the relationship between trade and inequality concludes that:

> … the effects of trade on wage inequality are … nuanced and depend on the specific country in question, the nature of trade liberalization and/or the type of trade that countries engage in. Most labour and trade economists agree that trade in final goods … cannot account for the increases in growing wage inequality since the 1980s.[49]

While there is debate about the impact of globalization on middle-class outcomes in developed nations, recent research suggests globalization is a major factor in the growth of top incomes. A 2017 analysis of executive compensation in the United States from 1993-2013 finds that executive salaries have increased at a higher rate in companies more exposed to trade. Further, the rise in salaries cannot be explained based on the executive's talent, but seems to be related to their ability to take advantage of poor-governance settings in developing countries. The researchers conclude that "globalization has played a more central role in the rapid growth of executive compensation and U.S. inequality than previously thought, and that rent capture is an important part of this story."[50]

The second factor accounting for growing inequality has been the advent of rapid technological change. Many economists conclude that technological change is a dominant force driving the increase in inequality in developed nations.[51] New technologies related to computers, biotechnology, and other fields have become more important, increasing the income of skilled workers who understand and use the new techniques and equipment, while leaving behind the less-skilled workers who remain in low-technology occupations. The income of the skilled workers has risen relative to those of the less skilled simply because their skills are relatively scarce. Recalling our discussion of the labor market in Chapter 9, labor resembles other commodities in the sense that the more scarce it is (i.e., there is less supply), the higher its "price." The less-skilled workers are, in contrast, relatively abundant, depressing their average wage or "price." In 1979 those with a college degree in the U.S. earned 35% more than those with just a high school degree. But by 2012 this differential had risen to 50%.[52]

Technological change has also, especially in the long run, led machines to replace human workers for certain types of jobs (especially in services), making ever more workers at the low-skill end of the spectrum redundant. It has contributed substantially to what we defined in Chapter 9 as labor market segmentation, which is a polarization of the labor market into groups of "high-skill" jobs at one end and many more "low-skill" jobs at the other end. A defining feature of a segmented labor market is its inflexibility; it is extremely difficult, if not impossible, to move from one segment to the other.

The third likely cause of rising income inequality is the progressive weakening of labor unions, especially in the United States. Government policy has become decidedly less supportive of unions and low-wage workers, and the rate of union participation has declined markedly, as discussed in Chapter 9. Recall that labor union membership in the United States declined from a peak of around 25% in the 1950s to only about 11% today.[53] Labor union membership has also been falling recently in Germany, Japan, Sweden, Australia, the United Kingdom, and most other wealthy nations.[54] A 2015 analysis by the International Monetary Fund finds that weaker unions increase income inequality, but more by fostering higher incomes at the top rather than depressing wages in the middle.[55]

The final reason proposed to explain rising inequality is that policies have been instituted that, intentionally or unintentionally, have led to higher inequality. There have, for example, been a series of tax cuts—during the 1980s under Ronald Reagan and during the 2000s under George W. Bush—that primarily reduced the tax burden on the wealthiest groups (though some of these tax cuts were reversed during the presidencies of Bill Clinton and Barack Obama). A 2015 study finds that the income share of the top 1% increased the most in those countries that lowered their top marginal tax rates by the most percentage points.[56] The 2017 tax cuts under President Trump follow the same pattern, with the largest benefits going to the higher income earners.[57]

Another policy change has been reduction in support for lower-income workers. The federal minimum wage ($7.25 as of 2017) has fallen significantly behind inflation, lowering the purchasing power of the lowest-income workers. In addition to the negative effect on minimum-wage workers, this trend also adversely affects other workers' bargaining power reducing the "floor" against which other wages are set.

Policy can also serve to reduce inequality. Research has found that a strong public sector, particularly in the provisioning of public goods, can reduce income inequalities.[58] In the United States, the earned income credit, which provides a tax benefit to lower-income workers, helps to reduce overall inequality.

As noted earlier, many of these policy changes have a political as well as an economic component. A major problem associated with increased inequality is that those who gain a greater share of total wealth are able to translate it into greater political power. This plays out, particularly in the U.S., through the system of campaign finance, in which candidates for political office can accept disproportionate donations from wealthy individuals or large corporations with an interest in, say, keeping taxes low for the rich or minimizing regulations on the financial sector. Well-endowed individuals or companies may also hire representatives (or lobbyists) to seek private interviews with influential politicians, in hopes of ensuring favorable legislation. This is another example of "rent-seeking" activity that does not produce any economic value but, rather, redistributes it, accentuating other trends towards greater income inequality.

Policy choices also affect the impact of other changes such as globalization. According to one analysis:

> The standard framing presents globalization, like technological process, as an exogenous force, something that happens *to us*. In reality, globalization is a complex process of integrating capital, product, and labor markets, where almost every characteristic of those newly integrated markets is the subject of, or should

> be the subject of, political and regulatory debate. Over the last 30 years we have indeed "chosen" a particular form of globalization in the United States – a form that benefits corporations and their owners at the expense of workers and their communities. If we had chosen globalization on different terms, however, economic integration would not have required rising inequality.[59]

Thus this perspective suggests that it may be possible to reduce inequality through deliberate policy actions even while accepting an overall trend towards globalization.

Inequality in Developing Countries

As mentioned earlier, while inequality is increasing in most developed countries, the situation in developing nations is more mixed. A 2012 study by the United Nations, which looked at Gini coefficient trends from the early 1990s to 2008, found that inequality increased by 24% in China, 16% in India, and 5% in South Africa, while inequality decreased by 9% in Brazil, along with decreases among other Latin American countries.[60]

As we discussed previously, the emerging global middle class in countries such as China and India has increased national-level inequality even as it contributes to declining global inequality. A lively debate among development economists has focused on whether increasing economic inequality is an inevitable consequence of the initial stage of the development process. Specifically, the **Kuznets curve hypothesis** emerged in the 1950s arguing that inequality initially increases with economic development as industrialization causes a migration of workers away from agriculture into cities, seeking higher-paying jobs. As wages remain low in rural areas, a large urban-rural income gap develops. However, with further economic growth inequality peaks and then declines as a country becomes more democratic and implements welfare state policies. Plotted over time (on the x-axis) as a country develops, a country's Gini coefficient (plotted on the y-axis) would first rise and then fall, creating a curve with an inverted-U shape.

> **Kuznets curve hypothesis:** the theory that economic inequality in a country initially increases during the early stages of economic development, but eventually decreases with further development

The Kuznets curve hypothesis, if valid, carries a rather powerful policy implication – that rising inequality should be tolerated during the initial stages of development and that the key to reducing inequality in the long run is to keep promoting economic growth. Broad acceptance of the Kuznets curve hypothesis, based on early empirical studies, in the 1960s and 1970s led many economists to accept it as an "iron law."[61] Subsequent studies, however, using more sophisticated models and better data have generally refuted the hypothesis as a general rule. Instead of a general pattern of increasing and then decreasing inequality, these studies indicate that inequality changes over time are contextual, dependent upon within-country historical and policy conditions, as well as international factors.[62]

A 2017 analysis of China suggests that inequality may have peaked there around 2010, slightly declining since then.[63] The decline is attributed to various factors including public investment in rural infrastructure, minimum wage laws, and expansion of social programs – factors that are consistent with the Kuznets curve hypothesis. But the recent increase in inequality in most developed countries, linked to international factors and within-county policies, demonstrates that economic growth is no guarantee of declining inequality.

4.2 CONSEQUENCES OF INEQUALITY

Recall from Chapter 8 that consumers' marginal utility from successive units of a good tends to decrease. Economic evidence suggests the same is true of income.[64] For example, an additional $1,000 in income when one is making $20,000 per year tends to provide greater marginal utility than when one is making $100,000 per year. While some economists avoid making interpersonal comparisons of utility, a reasonable implication of this principle is that overall welfare may be lower in a society with a high degree of inequality as opposed to a society with a low degree of inequality, assuming the same amount of total income. So from a social welfare perspective too much inequality may be economically inefficient as well as unfair.

Many researchers have studied the relationship between economic variables such as income and wealth, and other measures of well-being. As mentioned at the start of this chapter, richer Americans have a life expectancy 10-15 years higher than the poorest Americans. Low-income Americans are more likely to suffer from psychological problems such as anxiety, depression, and attention problems.[65]

But going even further, can a high degree of inequality impose broader costs on society—impacts that not only affect the poor, but all members of society? In their 2009 book *The Spirit Level,* Richard Wilkinson and Kate Pickett (both epidemiologists) present data showing that rich countries with greater inequality tend to have lower life expectancy, higher rates of infant mortality, and higher rates of mental illness.[66] They also find that higher inequality is associated with various social problems, including homicide rates, teenage pregnancy, and school dropout rates.

The findings of Wilkinson and Pickett that many social problems are a result of inequality are controversial. For example, an article in the *Wall Street Journal* criticized *The Spirit Level* for presenting selective data.[67] Also, a 2003 journal article by Nobel Prize-winning economist Angus Deaton concluded that "it is not true that income inequality itself is a major determinant of public health."[68]

There seems to be greater acceptance among economists that excessive inequality can lead to reduced economic growth. A 2014 study published by the International Monetary Fund presents perhaps the most comprehensive analysis of the relationship between inequality and economic growth, based on data from 153 countries from 1960 to 2010.[69] The study found that high inequality can indeed result in reduced economic growth and that "it would be a mistake to focus on growth and let inequality take care of itself, not only because inequality may be ethically undesirable but also because the resulting growth may be low and unsustainable,"[70] Further, the authors analyzed the impacts of redistributive policies, such as taxes and transfers. Their results

suggest that redistributive policies can simultaneously reduce inequality and promote higher growth:

> Extreme caution about redistribution—and thus inaction—is unlikely to be appropriate in many cases. On average, across countries and over time, the things that governments have typically done to redistribute do not seem to have led to bad growth outcomes, unless they were extreme. And the resulting narrowing of inequality helped support faster and more durable growth, apart from ethical, political, or broader social considerations.[71]

Finally, excessive economic inequality often fosters concentration of political power and a weakening of democratic institutions. The 2012 book *Affluence and Influence*, by Princeton University professor of politics Martin Gilens, analyzes decades of data on the relationship between the policy preferences of Americans at different income levels (based on opinion surveys) and actual policy outcomes.[72] He concludes that:

> What I find is hard to reconcile with the notion of political equality … The American government does respond to the public's preferences, but that responsiveness is strongly tilted toward the most affluent citizens. Indeed, under most circumstances, the preferences of the vast majority of Americans appear to have essentially no impact on which policies the government does or doesn't adopt.[73]

Discussion Questions

1. If you could change a single one of the "causes" of inequality described above, on which would you choose to focus? Why?
2. Do you think rising inequality in a rapidly developing low-income country is necessarily a problem? How might you approach the issue of high economic inequality differently in a developing versus a developed country?

5. RESPONDING TO INEQUALITY

While there is no consensus regarding the "right" amount of inequality in a society, as we mentioned at the beginning of the chapter, to many people there is something disturbing about the current degree of inequality in the United States and other countries. We now consider what policies might be instituted to respond to inequality.

5.1 TAX AND TRANSFER POLICIES

Inequality needs to be addressed somewhat differently in developed and developing countries. We will mostly focus on inequality policies in developed countries, mainly the United States. But we will briefly consider addressing inequality in developing countries as well. Three basic policy approaches to reducing inequality are considered:

1. Tax and transfer policies
2. Wage policies
3. Public spending and regulatory policies

One way of reversing the trend toward greater inequality is through the tax system. By shifting more of the overall tax burden to high-income households, after-tax income inequality can be reduced. In other words, a more progressive tax system will, *ceteris paribus*, reduce a country's after-tax Gini coefficient.

As we will see in Chapter 11, determining the overall distributive impact of a nation's tax system can be rather complicated. Thus economists disagree about whether the U.S. tax system has become more or less progressive over time. For example, a 2007 analysis concluded that the U.S. tax system had become less progressive since the 1960s for three main reasons: a decline in the federal income tax rates on the highest-income earners, declining corporate taxes as a percent of GDP, and increases in payroll taxes (i.e., taxes funding Social Security and Medicare).[74] But a 2017 study, also looking back to the 1960s, found a "large and steady increase in tax progressivity" in the U.S., primarily due to the expansion of tax credits provided to lower-income households.[75]

Regardless of historical changes in U.S. tax progressivity, you may assume that the United States tax system must be much less progressive than the tax systems in most European countries, as the U.S. has a higher Gini coefficient. Surprisingly, according to analysis by the OECD the United States has one of the *most progressive* tax systems of any industrialized country.[76] While most European countries have high overall taxes relative to the United States, their tax systems are rather proportional, largely due to their reliance on value-added taxes. The tax system in the U.S. is slightly progressive overall, due to a progressive income tax schedule, but this effect is limited by numerous loopholes and deductions available to upper-income taxpayers.

It is also important to note that the U.S.'s Gini coefficient based on **market income** (i.e., income before any taxes or government benefits) isn't unusually high – at essentially the same level as France, Germany, Belgium, and Finland, as shown in Figure 10.13. So why does the United States end up with a higher Gini coefficient than all other industrialized countries?

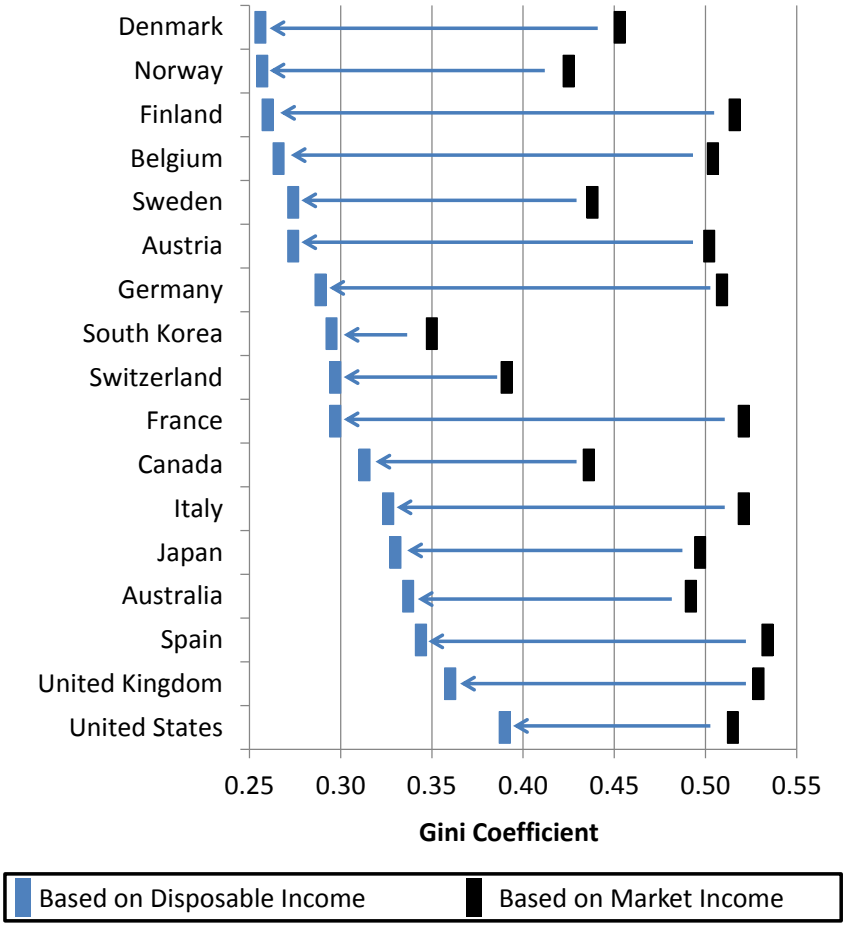
The main answer is that the reduction of income inequality as a result of transfer programs tends to be much greater outside of the United States. Figure 10.13 compares the market-income Gini coefficient in select OECD countries to their **disposable-income** Gini coefficient, where disposable income includes adjustments for both taxes and transfers. Government transfers include social security payments, the monetary value of medical benefits, unemployment insurance, food subsidies, and other cash and non-cash benefits.

We see in Figure 10.13 that only two countries, South Korea and Switzerland, start off with a market-income Gini coefficient below 0.40. Most countries rely upon taxes and transfers (but again, primarily transfers), to substantially lower their final disposable-income Gini coefficient. The length of each country's arrow represents the extent to which taxes and transfers lower their Gini coefficient. Denmark, for example, has a market-income Gini coefficient of 0.44 but then after taxes and transfers its disposable-income Gini coefficient falls to 0.26, a reduction of 0.18 points. The largest

Gini coefficient reduction, 0.25 points, occurs in Finland. The Gini coefficient reduction in the United States of 0.12 points is among the lowest in the figure.

market income: income including wages, salaries, self-employment income, and capital income, but excluding any taxes or transfers
disposable income: income after subtracting all taxes paid from market income, and then adding the monetary value of cash and non-cash transfers

Figure 10.13 Market- and Disposable-Income Gini Coefficients, Select OECD Countries



Source: OECD online statistics database, Income Distribution and Poverty.
Note: Data for most countries are from 2014. Other data are from 2013 or 2015.

The policy implication of this analysis is that the countries with the lowest disposable-income Gini coefficients achieve this not necessarily through an equitable market-income distribution or highly progressive tax systems, but through substantial and progressive transfer systems. For example, cash transfers, including old-age, unemployment, and disability payments, comprise an average of 25% or more of household income in countries such as France, Finland, Sweden, and Denmark, but only about 10% of income in the U.S.[77] Some countries rely heavily on the provision of public services (including health care and education) to lower disposable-income

inequality, particularly Belgium, France, and the United Kingdom.[78] Thus most industrialized countries' success at lowering income inequality can be largely attributed to the use of cash and non-cash transfers. Of course policy makers can seek to reduce disposable-income inequality by making tax systems more progressive, but the evidence demonstrates that industrialized countries reduce inequality mostly by progressive transfer systems rather than progressive tax systems.

5.2 WAGE POLICIES

Raising the minimum wage is often proposed as a way to reduce income inequality. The current federal minimum wage, at $7.25 per hour, has been increased at times over the years but it has not kept up with inflation. If the minimum wage in the late 1960s is adjusted for inflation, in current dollars it comes to approximately $10 per hour. Many believe that the current $7.25/hour minimum wage is insufficient even to provide for the basic necessities of a family. In several U.S. states, "living wage" campaigns have advocated passing legislation at the state or municipal level that requires a minimum wage higher than the federal standard. About 30 states have a higher minimum wage than $7.25, the highest minimum wage as of 2018 being $11.50/hour in Washington state.

While raising the minimum wage can be justified for other reasons, economists generally find that minimum wage increases only slightly reduce overall income inequality.[79] Much more of the increase in income inequality in the U.S. was linked to changes in the top of the income spectrum. Analysis by the OECD found that raising the minimum wage in Europe would have a negligible impact on the income ratio of the 90th to 10th percentiles.[80] One problem is that the benefits of higher minimum wages do not necessarily go primarily to poor households. According to a 2014 study, only 13% of minimum wage earners in the U.S. live in households below the poverty line. Even further, 45% of those making the minimum wage live in households that have a total household income at least three times the federal poverty level, which would place them in the top half of the income spectrum.[81] This implies that a significant share of minimum wage workers are younger workers living in non-poor households, or workers who rely on other family members for the majority of household income.

Other analyses focus on the impact of minimum wage increases on workers that are paid above the minimum wage. Raising the minimum wage creates pressure on employers already paying slightly above the minimum wage to also increase wages, which can lead to further pressure moving up the income scale in a ripple effect. According to analysis by the Brookings Institution, increasing the minimum wage could raise the wages of about 30% of the U.S. workforce, even though only about 3% of American workers are actually paid the minimum wage.[82] A similar 2017 analysis concluded that gradually raising the U.S. federal minimum wage to $15/hour by 2024 would primarily increase wages for full-time adult workers making above the minimum wage, and lead to disproportionate wage increases for women and minority workers.[83]

Raising the minimum wage reduces inequality most effectively when the benefits are targeted toward low-income adult earners, rather than younger non-poor workers. One country that has used a creative approach to target the benefits of minimum wages to adult workers is Australia. For those over 21 years old, the minimum wage is

equivalent to about US$13/hour. But for younger workers, the minimum wage is lower. For example, for workers 18 years old the minimum wage is around US$9/hour.[84]

5.3 PUBLIC SPENDING AND REGULATORY POLICIES

Other proposals for reducing economic inequality focus on public spending priorities. Reducing educational inequalities is often presumed to lead to reductions in earnings inequality. But once again, the results are somewhat mixed. A 2015 study looking at the United States found that about 20% of U.S. income inequality could be linked to differences in education.[85] The authors then considered how income inequality would change if educational attainment increased. In an extreme scenario where *everyone* received a college degree, inequality would be substantially reduced. But under more plausible scenarios where 10% of people achieved higher levels of educational attainment (e.g., going from a high school degree to a college degree), the impact on inequality was found to be "very modest." A similar 2015 analysis also concluded that increasing the share of people who have a college degree by 10% in the U.S. would not significantly impact overall earnings inequality, but that it would reduce inequality in the lower half of the income spectrum.[86] Recent analysis by the IMF based on data from a sample of developed countries also found no relationship between the share of workers with higher education and inequality.[87]

One limitation of these studies is that they do not consider educational inequalities that start well before college. Policies such as universal pre-kindergarten or more effective public schools may have a greater impact on reducing inequalities. A 2014 study based on European data tracked people from primary school over 30 years to identify how educational reforms ultimately led to changes in income inequality.[88] This analysis concluded that "educational policies have an impact on the income and earnings distribution" and that "educational policies can be part of an effective strategy" to reduce economic inequality.

Of course, the issue of public spending is related to our previous discussion of transfers. A country seeking to reduce economic inequality may decide to place a higher priority on transfer spending as opposed to, say, military spending. Other potential ways to use public spending to reduce inequalities include funding career skills training, housing assistance, and health care.

Government policies that provide labor unions with more bargaining power may be successful at reducing income inequality. As mentioned earlier, the declining power of labor unions is generally recognized as one factor that has caused inequality to increase in developed countries. Research by the IMF suggests that stronger labor unions may be able to reduce inequality primarily by restraining the growth of top executive salaries.[89]

Other ideas that have been proposed by economists to reduce inequality focus on employment policies. The Federal Reserve in the United States has traditionally prioritized price stability (i.e., low inflation) over reducing unemployment. Overall, policies that lower unemployment even at the expense of higher inflation will tend to help lower-income households as they are the most likely to be unemployed.[90] Even further, the government could serve as an "employer of last resort" to achieve full

employment, directly hiring people to work on infrastructure projects, natural resource conservation, and other public projects.

Finally, research by the OECD finds that reducing the gap in job protection between regular and temporary workers would be the most effective government policy in reducing inequality – more effective than increasing labor union membership, minimum wages, and educational attainment.[91] Part-time and temporary workers not only tend to receive lower pay and benefits, but have little job stability (recall our discussion of dual labor markets from last chapter). And as more workers shift to jobs in the "gig economy," income unpredictability is likely to become a problem for an increasing share of people, and exacerbate income inequality.[92] In Europe, more than half of all new jobs created since 2010 are based on temporary contracts.[93] Some countries, including Norway, France, and Sweden, have laws mandating that employers must provide equal pay and benefits to temporary workers.[94]

5.4 ADDRESSING INEQUALITY IN DEVELOPING COUNTRIES

As the Kuznets curve hypothesis has fallen out of favor, a consensus has emerged that it is possible for a country to develop economically without increasing inequality. While the Kuznets curve hypothesis posits inequality as an outcome of economic growth (at least in the initial stages of development), a growing body of evidence finds that high levels of inequality actually impede economic development. Further, high levels of inequality reduce the potential for a developing country to lower absolute poverty, given a constant amount of economic growth.[95]

Many of the ways developing countries can address inequality through national policies are the same ones developed countries can use, such as increasing public spending, the bargaining power of labor, and progressive taxation.[96] But certain policies may be more effective in developing countries when starting from an initial lower level of worker protection and public provisioning. Evidence from China suggests that strong minimum wage laws are effective at reducing inequality in the lower end of the income spectrum.[97] In 2004 China mandated that local governments must increase their minimum wages at least every two years, and the real minimum wage nearly doubled from 2004 to 2012. Investments in higher education may also be more effective at reducing inequality in developing countries, as shown in a 2016 study of Africa.[98]

Brazil is often touted as a country that has made significant progress in reducing its inequality. Brazil's Gini coefficient has fallen from about 0.60 in 2000 to around 0.50 now. A central component of Brazil's efforts to reduce inequality has been its Bolsa Familia program, initiated in 2003. The program provides families with cash transfers as long as their children are enrolled in school and receive preventative health care including vaccinations. About one-quarter of Brazil's population is covered by the program. According to the World Bank, Bolsa Familia "is widely seen as a global success story, a reference point for social policy around the world."[99] The program has significantly increased school attendance, particularly for girls. Brazil also significantly increased its minimum wage, which increased over 70% in real terms from 2002 to 2014.[100] The OECD notes Brazil's success in reducing inequality but recommends further progress by increasing the progressivity of taxes, investing more in education, and using the national pension system as a means of redistribution.[101]

5.5 CONCLUDING THOUGHTS

It is evident that income and wealth in the United States and many other countries are increasingly concentrated, with current inequality levels limiting the economic opportunities and well-being of many. In the aftermath of the Great Recession of 2007–2009, much more attention has been focused on inequality, by economists, politicians, and the general public.

Policies can be effective at reducing inequality. These could include a more progressive tax structure, putting more of the tax burden on groups at the top of the income spectrum; higher minimum wages and improved conditions for workers; employment-creating investment in infrastructure; and transfer systems that provide a strong "safety net" for lower-income workers. The robust transfer systems found in many European countries appear to be highly effective in reducing inequality, resulting in some of the world's lowest disposable-income Gini coefficients. Full-employment policies and job protections for temporary and part-time workers also seem important as a policy response to high levels of inequality.

Transfers are much more limited in the United States, where overall tax revenues are lower. Tax increases on higher-income earners could be used to fund expanded transfer programs, but currently the U.S. is moving in the opposite direction. The 2017 Tax Cuts and Jobs Act lowered taxes, particularly for high-income Americans. While its proponents suggested that lower taxes would promote greater economic growth and benefits for all, it is likely that reduced progressivity of the U.S. tax system will directly increase economic inequality, as well as reducing tax revenues for transfer programs or investment in employment creation. (We'll discuss the Tax Cuts and Jobs Act further in the next chapter.)

Thus reducing inequality is as much a political challenge as an economic challenge. High economic inequality tends to foster excessive concentration of political power, which in turn tends to protect the status quo and make reform more difficult. We will consider the challenge posed by the concentration of economic and political power in our conclusion to the book in Chapter 17.

Discussion Questions

1. Do you generally believe that raising taxes on the rich is an appropriate approach for reducing economic inequality? What level of taxation on the rich do you think is fair? (Note that we will also consider this topic in the next chapter.)
2. Do you think the spending priorities of the government should be changed in order to reduce economic inequality? Beyond the suggestions in the text, can you think of any other ways that government spending priorities could be changed?

REVIEW QUESTIONS

1. About what share of aggregate income does each quintile of households receive in the United States?
2. How is a Lorenz curve constructed? What does it measure?
3. What is the Gini coefficient (or ratio)? What does a higher value of the coefficient signify?
4. What effect do taxes and transfer payments have on the distribution of U.S. household income?
5. What tends to be more unequal—the distribution of income or wealth? Why?
6. How has income inequality in the United States changed in recent decades?
7. How does income and wealth vary by race?
8. What is economic mobility?
9. How does economic mobility in the United States compare to that in other industrialized countries?
10. How does economic inequality in the United States compare to other countries?
11. How is it that the global Gini coefficient for income is higher than the Gini coefficient for any single country?
12. How is it that the global Gini coefficient is declining but the Gini coefficients in most countries are increasing?
13. How do median wealth levels in the United States compare to other industrialized countries?
14. What are the four main explanations proposed to explain growing inequality in the United States and other developed countries?
15. What is the Kuznets curve hypothesis? Does research generally support the theory?
16. What are some of the consequences of inequality?
17. How can tax and transfer policies be used to reduce inequality?
18. What is the difference between market and disposable income?
19. Does economic research generally support the view that increasing the minimum wage will reduce income inequality?
20. How can government spending policies and other regulations impact inequality?
21. What are some policies that have been effective at reducing income inequality in developing countries?

EXERCISES

1. Statistics from the World Bank indicate the household income distribution in Vietnam, for 2014, as follows:

Group of Households	Share of Aggregate Income
Poorest quintile	44.6%
Second quintile	22.0%
Third quintile	15.6%
Fourth quintile	11.2%
Richest quintile	6.6%

a. Create a carefully labeled Lorenz curve describing this distribution. (Be precise about the labels on the vertical axis.)
b. Compare this distribution to the distribution in the United States. Would you expect the Gini ratio for Vietnam to be higher or lower or about the same? Why?

2. You can access the World Bank's World Development Indicators database online to download income share data for various countries, and construct Lorenz curves. Choose two countries you are interested in and construct their Lorenz curves on the same graph. Note that the WDI database does not have data for all countries, or for the most recent years. Also, the database provides income shares for the top and bottom 10%, in addition to each quintile – include the data points for the top and bottom 10% in your graph. Which one of your two countries seems to have a more unequal distribution of income?

3. Match each concept in Column A with a definition or example in Column B.

Column A	**Column B**
a. Economic mobility	1. A very unequal income distribution
b. Capital gain	2. Wages, salaries, and fringe benefits
c. Quintile	3. Focuses on the well-being of the least fortunate
d. Labor income	4. Payments for the use of an asset
e. A Gini ratio close to 1	5. A very equal income distribution
f. A Gini ratio close to 0	6. A group containing 20 percent of the total
g. Rent	7. Changes in one's economic status over time
h. Basic needs approach	8. An increase in the value of an asset at the time of sale

REFERENCES

Alderman, Liz. 2017. “Feeling ‘Pressure All the Time’ on Europe’s Treadmill of Temporary Work.” *The New York Times*, February 9, 2017.

Ambrosino, Brandon. 2016. “The Gig Economy Is Coming. You Probably Won’t Like It.” *The Boston Globe Magazine*, April 20, 2016.

Anonymous. 2012. “For Richer, For Poorer.” *The Economist*, October 13, 2012.

Anonymous. 2014. “Why the Rich Now Have Less Leisure Time than the Poor.” *The Economist*, April 18, 2014.

Autor, David H., Alan Manning, and Christopher L. Smith. 2016. “The Contribution of the Minimum Wage to US Wage Inequality over Three Decades: A Reassessment.” *American Economic Journal: Applied Economics*, 8(1):58-99.

Bengali, Leila, and Mary Daly. 2013. “U.S. Economic Mobility: The Dream and the Data.” Federal Reserve Bank of San Francisco Economic Letter, March 4, 2013.

Brandmeir, Kathrin, Michaela Grimm, Michael Heise, and Arne Holzhausen. 2016. Allianz Global Wealth Report 2016.

Breen, Richard, and Inkwan Chung. 2015. “Income Inequality and Education.” *Sociological Science*, 2:454-477.

Burke, Marshall, Solomon M. Hsiang, and Edward Miguel. 2015. “Global Non-linear Effect of Temperature on Economic Production.” *Nature*, 527:235-239.

Carr, Michael D., and Emily E. Wiemers. 2016. “The Decline in Lifetime Earnings Mobility in the U.S.: Evidence from Survey-Linked Administrative Data.” Washington Center for Equitable Growth, May 2016.

Checchi, Daniele, and Herman G. van de Werfhorst. 2014. “Educational Policies and Income Inequality.” IZA Discussion Paper No. 8222, Mat 2014.

Chetty, Raj, David Grusky, Maximilian Hell, Nathaniel Hendren, Robert Manduca, and Jimmy Narang. 2017. “The Fading American Dream: Trends in Absolute Income Mobility since 1940.” *Science*, April 24, 2017, DOI: 10.1126/science.aal4617.

Chetty, Raj, Nathaniel Hendren, Patrick Kline, Emmanuel Saez, and Nicholas Turner. 2014. “Is the United States Still a Land of Opportunity? Recent Trends in Intergenerational Mobility.” National Bureau of Economic Research, Working Paper 19844.

Cooper, David. 2017. "Raising the Minimum Wage to $15 by 2024 Would Lift Wages for 41 Million American Workers." Economic Policy Institute, April 26, 2017.

Corak, Miles. 2016. "Economic Mobility." The Poverty and Inequality Report 2016, The Stanford Center on Poverty and Inequality.

Credit Suisse. 2016a. Global Wealth Report 2016. Credit Suisse Research Institute, November 2016.

Credit Suisse. 2016b. Global Wealth Databook 2016. Credit Suisse Research Institute, November 2016.

Dabla-Norris, Era, Kalpana Kochhar, Nujin Suphaphiphat Frantisek Ricka, and Evridiki Tsounta. 2015. "Causes and Consequences of Income Inquality: A Global Perspective." International Monetary Fund, IMF Staff Discussion Note 15/13, June 2015.

Darvas, Zsolt. 2016. "Some Are More Equal than Others: New Estimates of Global and Regional Inequality." Bruegel Working Paper, Issue 8.

Davies, James B., Susanna Sandström, Anthony Shorrocks, and Edward N. Wolff. 2008. "The World Distribution of Household Wealth." United Nations University Discussion Paper No. 2008/03.

Deaton, Angus. 2018. "The U.S. Can No Longer Hide from Its Deep Poverty Problem." *The New York Times*, January 24, 2018.

Deaton, Angus. 2003. "Health, Inequality, and Economic Development." *Journal of Economic Literature,* 41(1):113-158.

Dickman, Samuel L., David U. Himmelstein, and Steffie Woolhandler. 2017. "Inequality and the Health-care System in the USA." *The Lancet*, 389:1431-1441.

Feenberg, Daniel R., Axelle Ferriere, Gastón Navarro. 2017. "Evolution of Tax Progressivity in the U.S.: New Estimates and Welfare Implications." Editorial Express working paper, February 14, 2017, https://editorialexpress.com/cgi-bin/conference/download.cgi?db_name=SED2017&paper_id=989.

Gilens, Martin. 2012. Affluence and Influence. Princeton University Press, Princeton, NJ.

Godwin, Uyi Ojo, and Nosa Tukunbor. 2016. "Access to Environmental Justice in Nigeria: The Case for a Global Environmental Court of Justice." Environmental Rights Action and Friends of the Earth.

Greenwood, Jeremy, Nezih Guner, Georgi Kocharkov, and Cezar Santos. 2014. "Marry your Like: Assortive Mating and Income Inequality." National Bureau of Economic Research, NBER Working Paper 19829, January 2014.

Hall, Kevin G. 2014. "How Brazil Has Reduced Income Inequality: A Q&A." *The Seattle Times*, February 15, 2014.

Harris, Benjamin H., and Melissa S. Kearney. 2014. "The 'Ripple Effect' of a Minimum Wage Increase on American Workers." The Brookings Institution, January 10, 2014.

Hellebrandt, Tomas, and Paolo Mauro. 2015. "The Future of Worldwide Income Distribution." Peterson Institute for International Economics, Working Paper No. 15-7.

Hershbein, Brad, Melissa S. Kearney, and Lawrence H. Summers. 2015. Increasing Education: What It Will and Will Not Do for Earnings and Earnings Inequality," Brookings Institute, March 31, 2015.

Joumard, Isabelle, Mauro Pisu, and Debbie Bloch. 2012. "Tackling Income Inequality: The Role of Taxes and Transfers." *OECD Journal: Economic Studies*.

Jaumotte, Florence, and Carolina Osorio Buitron. 2015. "Inequality and Labor Market Institutions." International Monetary Fund, IMF Discussion Note 15/14, July 2015.

Kahneman, Daniel, and Angus Deaton. 2010. "High Income Improves Evaluation of Life But Not Emotional Well-Being." *Proceedings of the National Academy of Sciences*, 107(38):16489-16493.

Keller, Woflgang, and William W. Olney. 2017. "Globalization and Executive Compensation." National Bureau of Economic Research, Working Paper 23384, May 2017.

Krugman, Paul. 2008. "Trade and Wages, Reconsidered." *Brookings Papers on Economic Activity*, Spring 2008.

International Monetary Fund. 2017. "World Economic Outlook: Gaining Momentum?" April 2017.

Kanbur, Ravi, Yue Wang, and Xiaobo Zhang. 2017. "The Great Chinese Inequality Turnaround." BOFIT Discussion Papers, 6/2017, Bank of Finland, Institute for Economies in Transition.

Kaufman, Peter. 2015. "The Birth Lottery and Global Inequality." Everyday Sociology Blog, January 13, 2015.

Lakner, Christoph, and Branko Milanovic. 2015. "Global Income Distribution: From the Fall of the Berlin Wall to the Great Recession." *World Bank Economic Review*, August 12, 2015.

Lin, Carl, and Myeong-Su Yun. 2016. "The Effects of the Minimum Wage on Earnings Inequality: Evidence from China." IZA Discussion Paper No. 9715, February 2016.

Matthews, Dylan. 2012. "Ten Ways to Reduce Inequality without Raising Tax Rates." *The Washington Post*, December 6, 2012.

Milanovic, Branko. 2015. "Global Inequality of Opportunity: How Much of our Income Is Determined by Where We Live?" *The Review of Economics and Statistics*, 97(2):452-460.

Moran, Timothy Patrick. 2005. "Kuznet's Inverted U-Curve Hypothesis: The Rise, Demise, and Continued Relevance of a Socioeconomic Law." *Sociological Forum*, 20(2):209-244.

Neumark, David. 2014. "Employment Effects of Minimum Wages." IZA World of Labor paper 2014:6.

Norton, Michael I., and Dan Ariely. 2011. "Building a Better America—One Wealth Quintile at a Time." *Perspectives on Psychological Science* 6(1): 9-12.

Obst, Thomas. 2013. "Income Inequality and the Welfare State – How Redistributive Is the Public Sector?" Institute for International Political Economy Berlin, Berlin School of Economics and Law, Working Paper No. 29/2013.

Olson, Mancur. 1984. The Rise and Decline of Nations. Yale University Press, New Haven, CT.

Organisation for Economic Cooperation and Development (OECD). 2008. Growing Unequal: Income Distribution and Poverty in OECD Countries. OECD Publishing, Paris.

Organisation for Economic Cooperation and Development (OECD). 2011. Divided We Stand: Why Inequality Keeps Rising. OECD Publishing, Paris.

Organisation for Economic Cooperation and Development (OECD). 2012. Economic Policy Reforms: Going for Growth. OECD Publishing, Paris.

Organisation for Economic Cooperation and Development (OECD). 2015a. In It Together: Why Less Inequality Benefits All. OECD Publishing, Paris.

Organisation for Economic Cooperation and Development (OECD). 2015b. "Brazil Policy Brief: Inequality." November 2015.

Ostry, Jonathan D., Andrew Berg, and Charalambos G. Tsangarides. 2014. "Redistribution, Inequality, and Growth." IMF Staff Discussion Note 14/02, April 2014.

Pavcnik, Nina. 2011. "Globalization and Within-country Income Inequality." Chapter 7 of Making Globalization Socially Sustainable (Marc Bacchetta and Marion Jansen, editors). World Trade Organization and International Labour Organization, Geneva.

Piketty, Thomas, and Emmanuel Saez. 2007. "How Progressive is the U.S. Federal Tax System? A Historical and International Perspective." *Journal of Economic Perspectives*, 21(1):3-24.

Proctor, Bernadette D., Jessica L. Semega, and Melissa A. Kollar. 2016. "Income and Poverty in the United States: 2015." Current Population Reports, U.S. Census Bureau, September 2016.

The Pew Charitable Trusts and the Russell Sage Foundation. 2015. Economic Mobility in the United States. July 2015.

Ravallion, Martin. 2014. "Income Inequality in the Developing World." *Science* 344(6186):851-855.

Reardon, Sean F. "The Widening Academic Achievement Gap between the Rich and the Poor." Community Investments, 24(2):19-39.

Rotman, David. 2014. "Technology and Inequality." *MIT Technology Review*, October 21, 2014.

Saez, Emmanuel. 2016. "Striking It Richer: The Evolution of Top Incomes in the United States (Updated with 2015 Preliminary Estimates)." University of California, Berkeley, June 30, 2016.

Saez, Emmanuel, and Gabriel Zucman. 2016. "Wealth Inequality in the United States since 1913: Evidence from Capitalized Income Tax Data." *The Quarterly Journal of Economics*, 131(2):519-578.

Sanandaji, Nima, Tino Sanandaji, Arvid Malm, and Christopher Snowdon. 2010. "Un-Level Ground." *Wall Street Journal*, July 9, 2010.

Santiago, Catherine DeCarlo, Martha E. Wadsworth, and Jessica Stump. 2011. "Socioeconomic Status, Neighborhood Disadvantage, and Poverty-Related Stress: Prospective Effects on Psychological Syndromes among Diverse Low-Income Families." *Journal of Economic Psychology*, 32(2):218-230.

Schmitt, John. 2009. "Inequality as Policy: The United States since 1979." Center for Economic and Policy Research, October 2009.

Shimeles, Abebe. 2016. "Can Higher Education Reduce Inequality in Developing Countries?" IZA World of Labor paper 2016:273.

Tax Policy Center. 2017. "Distributional Analysis of the Conference Agreement for the Tax Cuts and Jobs Act." December 18, 2017.

United Nations Development Programme (UNDP). 2013. Humanity Divided: Confronting Inequality in Developing Countries, United Nations, New York.

United States Bureau of Labor Statistics. 2017a. Economic News Release, April 18, 2017, Table 3.

United States Bureau of Labor Statistics. 2017b. Economic News Release, "Union Members Summary." January 26, 2017.

Vidal, John. 2013. "Climate Change Will Hit Poor Countries Hardest, Study Shows." *The Guardian*, September 27, 2013.

Vieira, Sergio. 2012. "Inequality on the Rise? An Assessment of Current Available Data on Income Inequality, at Global, International, and National Levels." background document for the WESS 2013, United Nations Department of Economic and Social Affairs, December 2012.

Wade, Robert. 2011. "Global Trends in Income Inequality." *Challenge*, 54(5):54-75.

Wilkinson, Richard, and Kate Pickett. 2009. The Spirit Level: Why Greater Equality Makes Societies Stronger. Bloomsbury Press, London.

World Economic Forum. 2016. Global Gender Gap Report 2016.

NOTES

[1] Saez, Emmanuel. 2016.
[2] Dabla-Norris et al., 2015.
[3] Dickman et al., 2017.
[4] Data from the United Nations Development Programme, Human Development Reports database.
[5] Reardon, 2012.
[6] World Economic Forum, 2016.
[7] Godwin and Tokunbor, 2016.
[8] Vidal, 2013.
[9] Burke et al., 2015.
[10] Anonymous, 2014.
[11] Brandmeir et al., 2016.
[12] Saez and Zucman, 2016.
[13] Ibid.
[14] Norton, Michael I., and Dan Ariely. 2011. "Building a Better America—One Wealth Quintile at a Time," *Perspectives on Psychological Science* 6(1): 9-12.
[15] Ibid, p. 12.

[16] Note that the categories presented in Figures 10.8 and 10.9 slightly differ, as the data come from two different U.S. Census Bureau reports.
[17] Bengali and Daly, 2013.
[18] The Pew Charitable Trusts and the Russell Sage Foundation, 2015, p. 5.
[19] Chetty et al. 2014.
[20] Carr and Wiemers, 2016.
[21] Chetty et al., 2017.
[22] Ibid, p. 9.
[23] All Gini coefficients from the CIA World Factbook.
[24] OECD, 2011.
[25] Dabla-Norris et al., 2015.
[26] http://reports.weforum.org/outlook-global-agenda-2015/top-10-trends-of-2015/1-deepening-income-inequality/.
[27] Brandmeir et al., 2016.
[28] Corak, 2016.
[29] OECD, 2015.
[30] Hellebrandt and Mauro, 2015.
[31] Lakner and Milanovic, 2015.
[32] Darvas, 2016.
[33] Deaton, 2018.
[34] http://povertydata.worldbank.org/poverty/country/LSO.
[35] Absolute poverty estimate from the World Bank (http://www.worldbank.org/en/topic/poverty/overview). High-income estimate from the Global Rich List (http://www.globalrichlist.com/).
[36] http://www.globalrichlist.com/.
[37] Median wage data from the U.S. Bureau of Labor Statistics, 2017a.
[38] See Milanovic, 2015.
[39] Kaufman, 2015.
[40] Anonymous, 2012.
[41] Davies et al., 2008.
[42] Credit Suisse, 2016a.
[43] Greenwood et al., 2014.
[44] IMF, 2017.
[45] Federal Reserve Bank of St. Louis online database, https://fred.stlouisfed.org/series/LEU0252881600A.
[46] Federal Reserve Bank of St. Louis online database, https://fred.stlouisfed.org/series/A939RX0Q048SBEA.
[47] Olson,
[48] Krugman, 2008.
[49] Pavcnik, 2011.
[50] Keller and Olney, 2017.
[51] Pavcnik, 2011.
[52] Rotman, 2014.
[53] U.S. Bureau of Labor Statistics, 2017b.
[54] OECD online statistics, trade union density.
[55] Jaumotte and Buitron, 2015.
[56] Dabla-Norris et al., 2015.
[57] Tax Policy Center, 2017.
[58] Obst, 2013.
[59] Schmitt, 2009, p. 3-4.
[60] Vieira, 2012.
[61] Moran, 2005.
[62] Moran, 2005; Wade, 2011.
[63] Kanbur et al., 2017.
[64] For example, Kahneman and Deaton, 2010.
[65] Santiago et al., 2011.
[66] Wilkinson and Pickett, 2009.

[67] Sanandaji et al., 2010.
[68] Deaton, 2003.
[69] Ostry et al., 2014.
[70] Ibid, p. 25.
[71] Ibid, p. 26.
[72] Gilens, 2012.
[73] Ibid, p. 1.
[74] Piketty and Saez, 2007.
[75] Feenberg et al., 2017.
[76] OECD, 2008.
[77] Joumard et al., 2012.
[78] OECD, 2011.
[79] Autor et al., 2016.
[80] OECD, 2012.
[81] Neumark, 2014.
[82] Harris and Kearney, 2014.
[83] Cooper, 2017.
[84] See http://worksite.actu.org.au/youth-entry-level-wages/.
[85] Breen and Chung, 2015.
[86] Hershbein et al., 2015.
[87] Jaumotte and Buitron, 2015.
[88] Checchi and van de Werfhorst, 2014.
[89] Jaumotte and Buitron, 2015.
[90] Matthews, 2012.
[91] OECD, 2012.
[92] Ambrosino, 2016.
[93] Alderman, 2017.
[94] See https://projects.propublica.org/graphics/temps-around-the-world.
[95] Ravallion, 2014.
[96] UNDP, 2013.
[97] Lin and Yun, 2016.
[98] Shimeles, 2016.
[99] See http://www.worldbank.org/en/news/opinion/2013/11/04/bolsa-familia-Brazil-quiet-revolution.
[100] Hall, 2014.
[101] OECD, 2015b.