Monopoly Myths: Are Markets Becoming More Concentrated?

JOE KENNEDY | JUNE 2020

Not really. Despite the measured rise in concentration in some industries, in the vast majority of markets it remains well below the levels that would normally trigger antitrust concerns.

KEY TAKEAWAYS

- Critics claim market concentration is increasing in a wide variety of U.S. industries, leading to reduced competition, which in turn is allowing companies to increase prices at the expense of consumer welfare.

- Standard measures of concentration have many flaws. For example, they don't measure imports and they lump together companies in separate markets.

- In many industries, concentration has not risen from 2002-2012 (the latest available data), and, in most cases where it has, it remains well below thresholds that would call for antitrust action.

- In other cases, nationwide concentration does not reflect the relevant market: when researchers use more detailed industry definitions at the local level, they find concentration has fallen.

INTRODUCTION

Over the past several years, a number of scholars and pundits have alleged that market concentration is rising across the U.S. economy, leading to a decline in competition. A common claim is that much of this concentration is due to lax antitrust enforcement, which has allowed firms to grow through mergers. Increased concentration in turn is blamed for a number of social ills, including slow productivity growth, excess profits, and stagnant wages. These claims have been used by some to call for a radical restructuring of antitrust policy, including imposing much stricter limits on mergers.[1]

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Yet, when looked at more closely, the problem is far less serious than the broad pronouncements would suggest. Despite the measured rise in concentration in some industries, in the vast majority of markets, it remains well below the levels that would normally trigger antitrust concern. But there are measurement issues as well. For one thing, these studies often use an inappropriately broad definition of "the markets," and omit the role of imports that reduce concentration. Second, most look only at national concentration levels, when many markets are local in nature. Recent studies conclude that concentration in most local markets has been steady, or even falling. Finally, a certain degree of concentration may be good. Rather than leading to a decline in competition, it may result in increased competition in which more productive firms increasingly gain market share over their less productive and less innovative rivals.

THE ARGUMENT THAT CONCENTRATION IS INCREASING

The "fact" of rising concentration has been picked up and commented on by a number of pundits and commentators. Brookings analyst David Wessel, while admitting that in some cases concentration can be beneficial, wrote, "There's no question that most industries are becoming more concentrated. Big firms account for higher shares of industry revenue and are reaping historically large profits relative to their investment."[2] And later, "The preponderance of evidence across the proliferating body of research suggests that industry consolidation is causing a troubling decline in competition, limiting the country's capacity to innovate, create jobs, and sustain overall economic health."[3] *The Economist* magazine looked at Census data since 1997 and concluded that two-thirds of the economy's roughly 900 industries had become more concentrated by 2012, the latest year for federal data.[4]

Former chairman of the Council of Economic Advisors Jason Furman testified before a hearing of the Organization for Economic Cooperation and Development that aggregated measures of market concentration have increased since 1997, and other macroeconomic data indicate that this increase is associated with greater market power.[5] He attributed at least part of the increased concentration to policy changes, including lax antitrust enforcement.

Some have pointed to the Internet industry to make this point. Columnist Kara Swisher wrote of the top five Internet companies, "This group now makes up just over 20 percent of the S&P 500, which is a flashing yellow signal for what is to come."[6]

Paul Krugman wrote that "growing monopoly power is a big problem for the U.S. economy."[7] *New York Times* columnist Eduardo Porter stated, "There is plenty of evidence that corporate concentration is on the rise."[8] Liberal economist Joe Stiglitz wrote that a "deeper and more fundamental problem is the growing concentration of market power."[9] The neo-Brandeisian advocacy group Open Markets refers to "America's concentration crisis."[10] And the left-of-center think tank Center for American Progress has written about "America's monopoly problem."[11]

In other words, it has become almost an article of faith, particularly among many on the left and center-left, that concentration has increased to problematic levels. Former member of the Council of Economic Advisors under President Obama, Carl Shapiro, summed up this view in 2017:

> Somehow, over the past two years, the notion that there has been a substantial and widespread decline in competition throughout the American economy has taken root in the popular press. In some circles, this is now the conventional wisdom, the starting point for policy analysis rather than a bold hypothesis that needs to be tested.[12]

A main reason so few advocates and pundits test this hypothesis is it supports their desire to have the U.S. economy be made up of smaller firms.

STUDIES CLAIMING TO SHOW CONCENTRATION IS INCREASING TO ANTICOMPETITIVE LEVELS

Concentration ratios are usually measured according to either the market share (as a portion of the overall sales within the market) of the top X firms (denoted CX) or the Herfindahl-Hirschman Index (HHI). The U.S. Census Bureau's "Business Census" conducts a complete counting of all businesses every 5 years, and publishes concentration ratios for the top 4, 8, 20, and 50 firms, at the 2- through 5-digit North American Industrial Code (NAICS) levels.[13] (Unfortunately, as of June 2020, the latest data was for 2012.) The C4 and C8 ratios are the most useful. The HHI is calculated by taking the square of each firm's market share and then adding them together.[14] It ranges from just above 0 to 10,000 (10,000 represents an industry wherein 1 firm has all the market share; 100 times 100). Antitrust agencies generally regard any market with an HHI less than 1,500 as not concentrated, and markets with an HHI over 2,500 as concentrated.[15]

The belief in a rising concentration is based on a few recent studies. One study, led by Gustavo Grullon, looked at firm-level data from the Center for Research in Security Prices and Compustat between 1972 and 2014 and concluded that since the late 1990s, over 75 percent of U.S. industries experienced an increase in concentration at the three-digit NAICS level.[16] Typical three-digit industry levels would be textile mills and food and beverage stores. Weighting the concentration in each industry by its proportion of sales, the median increase in the HHI between 1997 and 2014 was 41 percent, while the average increase (to roughly 1,650) was 90 percent.[17] They concluded, "[O]ur results suggest that the US product markets have undergone a shift that has potentially weakened competition across the majority of industries" and that this was due to higher price markups and profits.[18]

Simcha Barkai used Census data on industry payrolls, sales, and concentration ratios between 1997 and 2012. The sample consists of 750 six-digit NAICS industries covering between 66 and 76 percent of private sales receipts. He found that the sales share of the four-largest firms

(C4) increased an average of 5.28 percentage points, or 21 percent, from 30.57 percent to 35.85 percent.[19]

 A 2016 report by the Council of Economic Advisors (CEA) indicates that between 1997 and 2012, the revenue share of the top 50 firms increased in 10 of 13 two-digit NAICS industries (e.g., construction, wholesale trade). In the case of both transportation and warehousing, and retail trade, the increase exceeded 11 percentage points. The report cites this increase as one of three indicators pointing toward a decline in competition.

Autor et al. also used Census data to measure concentration in several industries at the four-digit NAICs level, and found "a remarkably consistent upward trend in concentration in each sector."[20] Between 1992 and 2012, the C4 ratio increased by 5 percentage points in manufacturing, 9 percentage points in finance, 4 percentage points in services, and 15 percentage points in retail trade. However, they assert that this reflects *increased* competition in which more efficient firms gained market share.

Finally, Covarrubias, Gutiérrez, and Philippon used data on individual public companies and Census data to measure concentration ratios for the top eight firms at the four- and six-digit NAICS code levels going back to 1980.[21] They found concentration ratios in both manufacturing and nonmanufacturing industries have increased by roughly 4 to 8 percent since 1987, and, during the 1990s, market concentration was driven by tougher price competition, intangible investment, and increased productivity of market leaders. However, they also concluded that, since 2000, concentration reflects decreased competition and rising barriers to entry—a trend they linked to lower investment, higher prices, and lower productivity growth.

PROBLEMS WITH MEASURING CONCENTRATION

There are numerous problems with going from "there has been an increase in concentration ratios in some industries over a particular period of time" to "this is creating a significant number of anticompetitive markets, requiring an overhaul of antitrust rules and enforcement."

One problem with concentration ratios is they can never substitute for the detailed economic analysis of specific markets antitrust law has stressed for the last 40 years. Even the best aggregate measures are not helpful in understanding the dynamics of the broad economy, let alone specific markets. A recent report by the International Monetary Fund stated, "Broad market concentration is generally not a good gauge of market power; it is hard to measure and can be misleading."[22] A recent filing before the U.S. Federal Trade Commission stated, "Aggregate measures of corporate concentration, however, are of little relevance because antitrust policy inferences explicitly require data on markets, not sectors."[23] Finally, Carl Shapiro described the ambiguity in the relationship between concentration and innovation: "We should not expect to see atomistic market structures in industries that have experienced significant technological progress, and we may see high levels of concentration in markets that have recently experienced significant innovation."[24]

To be meaningful, concentration must refer to a specific market, which can sometimes be done using NAICS codes. To be useful, markets should be defined as specifically as possible. Take transportation and warehousing, NAICS sectors 48–49. The CEA report mentions the C50 ratio increased by 11.4 percentage points between 1997 and 2012. But the market includes the Postal Service (NAICS 491), refrigerated warehousing and storage (NAICS 493120), deep sea

freight transportation (NAICS 483111), and taxi service (NAICS 4835). Most firms in these industries only compete with a fraction of the other firms. An overall concentration number for this category says very little about the degree of competition among, say, trucking firms. Some markets within this category may be competitive but stagnant, while others are concentrated but highly innovative, and still others heavily regulated monopolies. Without a detailed investigation of the specific market, we cannot tell.

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Second, raw increases tell us little. Take an industry wherein the C8 ratio in the base year is 16 percent (each of the top 8 firms have an average of 2 percent of the market). In the most current year, it doubles to 24 percent. Now the top 8 firms average a "commanding" 3 percent of the market, still nowhere near market power. So, the issue is not the median or even average increases, it is whether some industries move from being unconcentrated to concentrated—and the evidence suggests that, at least through 2012, the answer was no.

Third, markets also have to be defined geographically. All the previously mentioned studies calculate concentration in national markets. This includes all domestic producers, even those producing for export. However, it does not include imports. In some markets, this can significantly overstate concentration ratios, particularly as the share of gross domestic product (GDP) accounted for by imports grew from 10.6 in 1990 to 17.3 in 2011 (it since declined to 14.6 in 2019).[25] For example, Covarrubias et al. pointed out that the weighted average C8 ratio for high-import manufacturing industries rose by 6.7 percentage points from 1997 to 2012. However, adjusting for imports reduces the rise to 1.6 percentage points.[26]

Fourth, many markets are local in nature. An entrepreneur seeking to establish a new car dealership looks at all car manufacturers—both domestic and foreign. Yet a person buying a car might only look at dealerships within a 25-mile radius of their home. A dealer in Minnesota doesn't really compete for customers with a dealer in Mississippi. When evaluating the degree of competition among dealerships, the national ratios are not as relevant as the ratios in Minnesota and Mississippi. For example, if there were only 20 national dealerships in the country, this would be more concentrated than today. But if all 20 participated in each local market, the effective local competition would likely be higher than it is today. A recent study comparing the size of six-digit NAICS industries with the same definition of markets the government has used to stop mergers and punish uncompetitive behavior argues that the former tend to be 10 to 100 times the size of the latter because the threat to competition affects only a small area of the national market or a specialized product within a narrow market.[27]

Market boundaries are inherently fuzzy. Consumers may search far beyond their area for a bargain. Or they may be relatively insensitive to price differences. A Starbucks in the city may compete with one at the start of your commute, yet you may be unwilling to walk three blocks out of your way to a Caribou Coffee. And to some extent both compete with the local gym. That's why one paper concludes, "Measuring concentration is inherently difficult because economic markets are not observed directly in the data."[28] Carl Shapiro, in a paper calling for stricter antitrust enforcement, stated:

Contrary to many popular views, the case for stronger merger enforcement does *not* rest on evidence showing that various broad US industries have become more concentrated over time. Measures of industry concentration based on data from the US Economic Census are simply not very informative for merger analysis because these data are available only at an aggregated level. The modest increases in concentration observed when using these data confirm that the largest firms are responsible for a greater portion of economic activity in many industries, but they tell us very little about concentration in properly defined relevant antitrust markets.[29]

WHAT IS REALLY GOING ON WITH CONCENTRATION?

Although concentration ratios cited in those papers may seem dramatic, closer scrutiny shows they are less problematic. Moreover, all of them have been subject to criticism.

The weighted average share of the top four firms in each sector in *The Economist* survey rose by an impressive 23 percent. However, the actual increase in concentration was only from 26 percent to 32 percent; in other words, each top firm would have on average just 8 percent of the market.[30] As George Mason University economist, and former FTC Commissioner, Joshua Wright pointed out, the higher concentration ratio found by *The Economist* would correspond to an HHI of 700, far below the level that typically triggers antitrust concerns.[31] A recent report by Barclays also charts rising concentration in markets since 1990, although it finds this concentration has declined in recent years. Still, Barclays' most recent calculation for the average HHI remains well below 1,000—far less than the normal signal for concentration.[32] *The Economist* article also defines markets as being concentrated when the biggest four firms control between one-third and two-thirds of the market—even though this could be the case even if no firm had a market share of over 9 percent. The share of national revenues in these markets increased from 24 percent to 33 percent by 2012. Still, less than 10 percent of national sales were in markets wherein the top 4 firms controlled over two-thirds of revenues.[33]

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The trends in concentration found by Grullon et al. are heavily influenced by the specific time period they researched. Their study starts in 1997, when the HHI was at its lowest level (slightly below 1,000), and the number of public firms in their sample peaked. Had they started the period in 1972, when the HHI was slightly above 1,300, the median increase would have been only about 25 percent instead of over 70 percent, and the number of public firms would have fallen by less than 2,000 instead almost 4,000.[34] Even within the period they studied, higher concentration does not seem to have resulted in excess profits. An earlier paper in this series shows that since 1997, domestic nonfinancial corporate profits actually fell as a percentage of GDP, from 7.0 percent to 5.3 percent in 2019.[35]

With regard to the CEA paper, Joshua Wright pointed out that these concentration ratios are too broad to be useful.[36] To start with, the top 50 share leaves a lot of detail to the imagination. The study shows that concentration in transportation and warehousing (NAICS sectors 48–49) increased by 11.4 percentage points, to 42.1 percent. Thus, the top 50 firms collectively earned 42.1 percent of all industry revenues. But if they are all of equal size, then each has 0.8 percent

of the market—hardly a redoubt of market power. Carl Shapiro raised two other fundamental objections to the CEA data: They look only at two-digit NAICS sectors rather than narrower markets, and they define markets as national rather than local in scope.[37]

Others have made broader criticisms, Robert D. Atkinson and Michael Lind pointed out that it is important to look at the absolute concentration ratios, not just the direction of change.[38] They noted that the C4 ratio for the administrative and support and waste management and remediation services industry increased 32 percent between 2002 and 2012. But the absolute change was from 6 percent to 8 percent of the market, well short of critical levels. They also reported that the majority of increases in C4 ratios were in industries that remained relatively unconcentrated. Only 16 percent of the industries that saw a rise in the C4 ratio had a C4 ratio over 40 percent in 2012.

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A comparison of the Census data from 2002 and 2012 shows 792 six-digit NAICS industries (out of approximately 1,066 total industries) for which we could calculate a percentage change between the two years. Of these, the market share of the top four companies either fell or remained constant in 319 industries (40 percent). Another 116 showed an increase of 10 percent or less. Of the 473 industries where concentration increased, the C4 market share remained less than 20 percent in 142 industries and under 40 percent in 281 industries. Only 95 industries saw an increase in concentration that produced a C4 of 60 percent or more (and even at 60 percent, if each firm held an equal market share this would mean that each firm has just 15 percent of the market) and of these just 45 had increases of more than 10 percentage points.

Moreover, there seems to be no relationship between increases in concentration and increases in profitability. The increases in industry concentration from 2002 to 2012 versus increases in industry profits within 39 industries for which the U.S. Bureau of Economic Analysis publishes detailed annual economic data show a correlation of 0.67. However, this correlation turns to -0.19 once the airline industry is dropped. In other words, industries that got more concentrated on average saw declines in profits. So, the link between the two variables is tenuous.

In regard to Kara Swisher's worry about the S&P 500, it is clear the share of value held by the five largest firms increased over the last decade, although it is well below its level during the 1960s, a period of robust antitrust enforcement (see figure 1).

Figure 1: The market share of the top five firms as a percentage of the S&P 500[39]

Similarly, New York University economists Lawrence White and Jasper Yang looked at Census data as well as the share of employment created by the Fortune 500 and found that, although there has been a moderate but continued increase in aggregate concentration since the mid-1990s, concentration remains below the levels of the early 1980s. They found the level of aggregate concentration in the U.S. economy "has little connection to the state of competition in relevant markets and thus to antitrust policy in the United States."[40]

CONCENTRATION FOR LOCAL-SERVING INDUSTRIES MAY ACTUALLY BE FALLING

This discussion points to the importance of properly defining the market within which competition actually occurs. Industry definitions that are too broad, either by scope of products or geographically, obscure what is really going on. Recent studies show concentration is not increasing—and may even be decreasing—in industries that compete at the local level.

Kevin Rinz of the U.S. Census Bureau used the federal government's Longitudinal Business Database and W-2 Forms to measure concentration in labor markets within four-digit NAICS industries in separate commuting zones from 1976 to 2015, as well as the effect of that concentration on earnings. He concluded that, when individual firms were weighted by employment, national industrial concentration levels declined sharply in the early 1980s but then increased steadily to nearly their original levels beginning around 1990.[41] However, local industrial concentration generally declined by around 25 percent over the same time period. The lower concentration levels were associated with higher earnings and less inequality. After 2005, the local concentration measured by the HHI increased slightly but remained far below its 1976 level.

Rinz concluded that the pattern of declining concentration reflected national chains such as restaurants and retail outlets opening up new stores in local markets. If a national top-four supermarket opens up a store in a new retail market, it increases the C4 concentration ratio at

the national level. However, it also decreases concentration, and increases competition, at the local level.[42]

Another study, led by Esteban Rossi-Hansberg, with Pierre-Daniel Sarte and Nicholas Trachter, looked at product markets in a broad range of industries between 1990 and 2014, and found that the positive trend in national concentration levels became negative when they focused on local concentration levels.[43] This trend was more pronounced when looking at narrower geographic areas, such as counties or zip-code levels, and at industries with narrower Standard Industrial Classification codes. When weighted by employment, markets in which concentration was declining accounted for 78 percent of total employment and 72 percent of sales.

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The authors found that the largest firms, which were the main force behind national concentration, drove local deconcentration by opening more establishments in local areas. These openings did not necessarily put existing firms out of business. The opening of a new establishment by a top firm was associated with a decline in concentration that lasted at least seven years. The authors concluded, "To a large extent, top enterprises expand by adding new establishments in new locations. The new establishments tend to decrease local concentration as they compete with existing establishments in the area, even as the top firm acquires a larger national market share, increasing national concentration."[44]

DIFFERENT INDUSTRIES HAVE DIFFERENT NATURAL RATES OF CONCENTRATION

Economics 101 teaches that perfect competition within a market consists of many firms all producing the same product. Under these conditions, no firm has the power to raise prices even a little bit without losing all of its sales. At the other extreme lies monopoly, wherein firms are able to raise prices and reduce supply in order to increase their profits—which is bad. In reality, markets, especially ones with technologically sophisticated products, may be more innovative, efficient, and even competitive, when firms are larger.

Reduced tariff barriers, lower transportation costs, investments in information technology, large fixed costs (including for research), and network effects all increase the size at which firms operate most efficiently. This is especially true in industries undergoing rapid innovation. Innovation often requires significant fixed costs in the form of investments in new technology and research. Small firms with low profit margins are unable to make such investments. Although larger firms have a greater market share, the constant pressure to reinvest revenues in order to keep up with the pace of innovation keeps them from exercising much market power.

In highly innovative industries, increased firm size and industry concentration mean lower industry-wide costs.[45] A European study showed high-tech firms' capacity to increase the level of technological knowledge depended on their size.[46] In these cases, size did not lead to excessive profit margins. An earlier paper in this series showed that, when properly measured, markups have not been excessive—and, in some cases, are actually the result of higher competition.[47]

Economist William Baumol summarized the evidence:

> Oligopolistic competition among large, high-tech, business firms, with innovation as a prime competitive weapon ensures continued innovative activities, and very plausibly, their growth. In this market form, in which a few giant firms dominate a particular market, innovation has replaced price as the name of the game in a number of important industries.[48]

As Atkinson and Lind pointed out, highly innovative industries and those with large efficiencies of scale or network effects need to be big in order to be efficient. Having 50 car manufacturers in every country would be far less efficient than the current market. And companies in innovative markets need to have some market power in order to recoup their significant investment in research and development. This is especially true for industries with global competition, wherein companies lose out to more efficient rivals.[49]

The only way to determine whether concentration is rising to a dangerous level is a careful economic analysis of the specific market. Aggregated data offers us very little insight into what is happening in individual markets. One reason aggregate measures of concentration have risen could be industries have gotten more technologically sophisticated, with greater economies of scale possible—meaning concentration has increased, rather than reduced, overall economic welfare.

DETERMINING THE LINK BETWEEN CONCENTRATION AND COMPETITION

Another important problem is the link between market concentration and competition is ambiguous: In some cases, concentration can lead to a decline in competition, while in others, increases in concentration may reflect an increase in competition. The most recent Report of the Council of Economic Advisors points out that "different models give different answers about whether higher concentration increases or decreases innovation."[50]

The authors attributed increased concentration to enhanced competition enabled by a rise in new technologies and globalization. Those industries experiencing the fastest concentration also demonstrated faster productivity growth.

Even if large firms are not naturally more efficient, heavy competition can increase concentration. Economist Chad Syverson pointed out that concentration can be associated with either more or less competition. In fact, a large class of commonly used industrial models actually predicts a positive relationship between competition and concentration. When the substitutability of products by different firms rises, the additional competition between the firms reduces profit margins and, by shifting market share to companies that offer lower prices or better quality, increases concentration.[51] Many causal paths can explain a correlation between concentration and market outcomes.[52] Taken as whole, Carl Shapiro found that "observed increases in concentration generally reflect the forces of competition at work in [a] manner that has enhanced productivity."[53]

If a diverse set of causes can be behind changes in market concentration, could rising competition actually be leading to higher concentration in some markets? The answer appears to be yes. The aforementioned Annual Report of the Council of Economic Advisors notes

"concentration may result from market features that are benign or even benefit consumers."[54] The report mentions alternative explanations for a close relationship between high concentration and high markups, including a rise in fixed costs, increased economies of scale, and globalization.[55]

As mentioned, a team led by David Autor found rising concentration in a number of industries. They used four-digit industry codes to calculate concentration within each industry and weighted industries by sales to calculate sector concentration from 1982 to 2012. Although concentration rose in each sector, in no sector did the C4 ratio exceed 44 percent. In services, it rose to about 16 percent. In both retail and wholesale trade, it reached about 30 percent.[56] A study of European markets shows a similar rise in concentration, indicating lax antitrust enforcement was probably not a significant factor.[57] Instead, the authors attributed increased concentration to enhanced competition enabled by a rise in new technologies and globalization. Those industries experiencing the fastest concentration also demonstrated faster productivity growth.[58] Sharat Ganapati of Georgetown University also found that, from 1972 to 2012, industry concentration was positively correlated with productivity and output growth, but not with price changes and overall payroll—the opposite of what one would expect if market power had increased.[59]

Finally, White and Yang concluded, "The level of aggregate concentration in the U.S. economy has little connection to the state of competition in relevant markets and thus to antitrust policy in the U.S."[60]

In summary, evidence about rising concentration provides little justification for a wholesale change in current antitrust policy. Attacking perceived concentration without any evidence of consumer harm is far more likely to harm consumer welfare and innovation than to help it.

ABOUT THIS SERIES

In a series of short reports, the Information Technology and Innovation Foundation (ITIF) is examining many of the key claims behind the argument that a significant change in U.S. antitrust policy is warranted. In most cases, we find that the empirical evidence is weaker than claimed. In other cases, the causal relationships are speculative. Although some of the broader trends, such as a decline in innovation, raise serious social issues, they usually have several causes. Finally, in most cases, it is not clear that antitrust policy is either the cause or an effective cure. Broader social policies need to be enacted for such issues as income inequality and privacy.

Acknowledgments

About the Author

Joe Kennedy is a senior fellow at ITIF. For over 30 years, he has worked as an attorney and economist on a wide variety of public policy issues. His previous positions include chief economist with the U.S. Department of Commerce, and general counsel for the U.S. Senate Permanent Subcommittee on Investigations. He is president of Kennedy Research, LLC, and the author of *Ending Poverty: Changing Behavior, Guaranteeing Income, and Transforming Government* (Rowman & Littlefield, 2008). Kennedy has a law degree and a master's degree in agricultural and applied economics from the University of Minnesota, and a Ph.D. in economics from George Washington University.

About ITIF

The Information Technology and Innovation Foundation (ITIF) is a nonprofit, nonpartisan research and educational institute focusing on the intersection of technological innovation and public policy. Recognized as the world's leading science and technology think tank, ITIF's mission is to formulate and promote policy solutions that accelerate innovation and boost productivity to spur growth, opportunity, and progress.

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ENDNOTES

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12. Carl Shapiro, "Antitrust in a Time of Populism," (October 24, 2017), 2–3. Available at SSRN: https://dx.doi.org/10.2139/ssrn.3058345.

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14. For example, if a market had five firms with market shares of 5 percent, 10 percent, 20 percent, 30 percent, and 35 percent, respectively, the index would equal 2,650 (HHI = $(5)^2+(10)^2+(20)^2+(30)^2+(35)^2 = 2,650$).

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