Concentration and Rising Market Power: Fears and Facts

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Chapter 5

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I. INTRODUCTION

In the Second Industrial Revolution, entrepreneurs invested in new machinery that lowered cost and increased output. Fierce competition among efficient factories then pushed down prices and put substantial investments at risk. To keep prices up, entrepreneurs resorted to output-restricting cooperation and consolidation.[1] Concern about the exercise of market power and fear of large corporations motivated the first antitrust laws in Canada (1889), the United States (1890) and many of individual US states (beginning in 1888).[2]

First-generation antitrust laws did not directly address mergers, and by prohibiting cooperation, they encouraged consolidation.[3] As a great merger wave peaked in 1899,[4] increasing concentration again became a concern,[5] and a grassroots antitrust movement sprang up in the United States. Congress made the first appropriation earmarked for antitrust enforcement in 1903; cases filed in 1906 and 1907 against Standard Oil and American Tobacco resulted in their dissolution in 1911; antitrust was a central issue in the three-way 1912 presidential election campaign; and major antitrust legislation was enacted in 1914.[6]

The Roaring Twenties produced a second merger wave, which ended with a financial crash and the onset of the Great Depression. This merger wave spawned the first systematic studies of economic concentration, beginning with a landmark work of Adolf A. Berle and Gardiner C. Means. They observed that the 200 largest non-financial corporations in the United States accounted for 49 per cent of the assets owned by such companies.[7]

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[1] See, eg HA Marquand, *The Dynamics of Industrial Combination* (Longmans, Green and Co. 1931) 3 ('the offspring of intensified competition was combination').

[2] The 'trust' from which 'antitrust' derived, originally took a particular organizational form with features of cooperation and consolidation. The 1882 Standard Oil Trust was the most prominent example. But the word 'trust' came to embrace all large companies. On the rise of the trusts and the political response, see Gregory J Werden, *The Foundations of Antitrust: Events, Ideas, and Doctrines* (Carolina Academic Press 2020) chs 2–4. The trust movement was not confined to North America. See, eg Herman Levy, *Monopolies, Cartels and Trusts in British Industry* (Macmillan 1927); Henry W Macrosty, *The Trust Movement in British Industry: A Study of Business Organization* (Longmans, Green and Co. 1907).

[3] Economists observed this at the time. See, eg Richard T Ely, *Monopolies and Trusts* (Macmillan 1900) 244.

[4] See Ralph L Nelson, *Merger Movements in American Industry 1895–1956* (1959) ch. 3. Great Britain experienced a less pronounced merger movement at the same time; ibid 128–9.

[5] Speakers at an 1899 conference noted the ongoing wave of consolidations. See Franklin H Head (ed.), *Chicago Conference on Trusts* (Civic Federation of Chicago 1900). See also Luther Conant, Jr, 'Industrial Consolidations in the United States' (1901) 7 Publications of the American Statistical Association 1.

[6] See Werden (n 2) chs 8–12.

[7] Adolf A Berle and Gardiner C Means, *The Modern Corporation and Private Property* (Macmillan 1932, rev. edn, Harcourt, Brace & World 1967) ch. 3. Berle and Means projected that the asset share of the top 200 non-financial corporations would increase to 70 per cent by 1950, but their share did not increase at all. See Joe S Bain, *Industrial Organization* (2nd edn, John Wiley 1968) ch. 4.

President Franklin D. Roosevelt's January 1938 State of the Union Address to a joint session of Congress drew attention to economic and social problems arising 'out of the concentration of economic control'.[8] On the day of the address, Congress received a report by Robert H. Jackson, Assistant Attorney General in charge of the Antitrust Division, providing evidence of 'increasing concentration of business control' 'which eliminates or hampers competition' and promotes inequality 'in the distribution of national income'.[9] Roosevelt relied on Jackson's report in a 29 April 1938 message to Congress declaring that:

> Among us today a concentration of private power without equal in history is growing. This concentration is seriously impairing the economic effectiveness of private enterprise as a way of providing employment for labor and capital and as a way of assuring a more equitable distribution of income and earnings among the people of the nation as a whole.[10]

Congress finally amended US antitrust law to prohibit anticompetitive mergers in 1950, and judicial interpretation of the law in the 1960s rendered horizontal mergers nearly per se illegal. This helped precipitate a wave of conglomerate mergers giving the 200 largest non-financial corporations control of 58 per cent of the assets owned by such companies.[11] On 6 June 1969, Attorney General John N. Mitchell declared, 'The danger that this super-concentration poses to our economic, political and social structure cannot be overestimated.'[12] Richard W. McLaren, Assistant Attorney General in charge of the Antitrust Division, then led a crusade against conglomerate mergers. It failed because he could not convince the courts that conglomerate mergers threatened competition.

Horizontal merger enforcement in the United States was relaxed significantly in the mid-1980s. The courts also became ever more demanding of proof of likely anticompetitive effects. Many twenty-first century mergers would not have been permitted without this evolution in policy and law. Concerns were raised about several large mergers, and the intensity of the concerns grew in recent years. For the fourth time in US history, increasing concentration became a political issue,[13] and this time, it also became an issue in Europe.

A watershed was the 2016 'issue brief' released by the US Council of Economic Advisers (CEA) identifying 'trends that are broadly suggestive of a decline in competition:

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[8] 'Annual Message to Congress' (3 January 1938) <www.presidency.ucsb.edu/documents/annual-message-congress-0> accessed 7 May 2021.

[9] 'Report of Assistant Attorney General Robert H. Jackson' in *Annual Report of the Attorney General of the United States for Fiscal Year 1937* (USGPO 1937). Jackson made similar comments in a 17 September 1937 speech: Robert H Jackson, 'Should the Antitrust Laws Be Revised?' (1937) 71 United States Law Review 575. Jackson worked closely with the president at this time. See William Kolasky, 'Robert H. Jackson: How a "Country Lawyer" Converted Franklin Roosevelt into a Trustbuster' (2013) 27(2) Antitrust 85, 89–90. Jackson became Solicitor General in 1938, Attorney General in 1940, and Justice of the Supreme Court in 1941.

[10] 'Message to Congress on Curbing Monopolies' <www.presidency.ucsb.edu/documents/message-congress-curbing-monopolies> accessed 7 May 2021.

[11] See, eg John M Blair, *Economic Concentration: Structure, Behavior and Public Policy* (Harcourt Brace Jovanovich 1972) ch. 12.

[12] John N Mitchell, 'Address to the Georgia Bar Association' (6 June 1969) <www.justice.gov/sites/default/files/ag/legacy/2011/08/23/06-06-1969b.pdf> accessed 5 April 2021.

[13] As this chapter was finalized in the Summer of 2021, antitrust was a more prominent public issue in the US than it had been during the previous century.

increasing industry concentration, increasing rents accruing to a few firms, and lower levels of firm entry and labor market mobility'.[14] The evidence of increasing concentration was mainly a comparison of 1997 and 2012 data for broad sectors of the economy. The CEA pointed to significant increases in concentration in transportation and warehousing, retail trade, finance and insurance, and wholesale trade. The CEA encouraged alarm despite noting that 'antitrust authorities direct their attention to concentration at the relevant market level' and conceding that the evidence presented was 'neither a necessary nor sufficient condition to indicate an increase in market power'.[15]

To understand the evidence on concentration trends, it is necessary to revisit the history of industrial organization economics. Section II provides essential background information, mainly by reviewing what students were once expected to know on concentration measurement and on how markets naturally concentrate. Section III reviews recent claims of increasing concentration and explains that the cited evidence does not relate to markets, although that is the level at which competition occurs. The available market-level data for the United States does not show increasing concentration, but some evidence of increasing market-level concentration exists for Europe. Section IV explains why other evidence cited by the CEA does not suggest a decline in competition. Section V offers final thoughts, including that the evidence cited in support of increasing concentration reflects mergers that extend geographic or product reach without affecting market concentration.

II. OLD LEARNING ON MARKET CONCENTRATION

A. Concentration Data from the US Bureau of the Census

Industrial organization economists characterize a size distribution of firms with a 'concentration index' reflecting the number of firms and their size inequality.[16] Economists have proposed numerous concentration indexes, beginning in the 1930s when Gardiner C. Means worked with the US Bureau of the Census to construct concentration indexes for 275 manufacturing industries.[17] Census disclosure rules allowed the publication of data only if four or more companies were aggregated, so Means used four-firm and eight-firm concentration ratios to characterize industries.[18] The n-firm concentration ratio, CR_n, is the

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[14] Council of Economic Advisers, 'Benefits of Competition and Indicators of Market Power' (Issue Brief, May 2016) 4 <https://obamawhitehouse.archives.gov/sites/default/files/page/files/20160502_competition_issue_brief_updated_cea.pdf> accessed 1 April 2021.

[15] ibid.

[16] See MA Adelman, 'The Measurement of Industrial Concentration' (1951) 33 Review of Economics and Statistics 269; Gideon Rosenbluth, 'Measures of Concentration' in *Business Concentration and Price Policy: A Conference of the Universities–National Bureau Committee for Economic Research* (Princeton University Press 1955).

[17] National Resources Committee, *The Structure of the American Economy, Pt I. Basic Characteristics* (USGPO 1939) app 7. Grace W. Knott compiled the data. A comparable UK study followed: H Leak and A Maizels, 'The Structure of British Industry' (1945) 108 Journal of the Royal Statistical Society 142. UK industries were more concentrated than those in the US. See Rosenbluth (n 16) 71–77.

[18] Different disclosure rules in other countries led to the use of three-firm and five-firm concentration ratios.

percentage of any measure of firm size, eg turnover, accounted for by the *n* largest firms when ranked by that measure. With shares of 35, 20, 15, 10, 8, 7 and 5, $CR_1 = 35$, $CR_2 = 55$, $CR_4 = 80$ and $CR_8 = 100$.

President Roosevelt's 29 April 1938 message to Congress proposed a 'study of the concentration of economic power in American industry', and Congress responded by creating the Temporary National Economic Committee. It produced 37 volumes of hearings and 43 monographs.[19] One monograph painted a statistical portrait of US industry,[20] including Walter F. Crowder's data on product-level concentration. Crowder stressed that the 'product concept approaches more closely that of the economic commodity as employed in the usual type of economic analysis' and that many non-competing products are produced by the firms in most industries.[21]

Crowder sampled 117 industries from Means's study and found that they contained 1,807 products. He also found that 76 per cent of the products had a CR_4 in excess of 50 (which was a benchmark often used to denote high concentration), and those products accounted for 57 per cent of the total turnover for the industries.[22] In comparison, only 34 per cent of industries in Means's study had a CR_4 in excess of 50.[23] Higher concentration at the product level than at the industry level arises from specialization, and the CR_4 for a properly defined market can be much higher than that for the corresponding industry.

While the foregoing studies were underway, the Census began developing the Standard Industrial Classification (SIC), which divided economic activity into industries represented by four-digit codes. The first SIC manual in book form was published in 1941, and the first SIC data was that for the 1947 Census of Manufacturers.[24] From the outset, the Census published concentration ratios for four-digit manufacturing industries. Concentration ratios for five-digit product classes were added beginning with the 1954 economic census.

The SIC system was supplanted by the North American Free Trade Agreement. It required consistent data for the three signatory countries, although they were permitted to use more refined categories internally. The North American Industry Classification System (NAICS) is much like the SIC system but uses broader groupings.[25] NAICS currently divides the economy into 20 sectors, 99 subsectors, 311 four-digit groups, and 709 five-digit industries. As it is used in the United States, the NAICS also has 1057 six-digit industries, whereas the SIC system had 1530 four-digit industries.

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[19] On the TNEC and its work, see David Lynch, *The Concentration of Economic Power* (Columbia University Press 1946).

[20] TNEC, *Investigation of Concentration of Economic Power, Monograph No 27, The Structure of Industry* (prepared under the direction of Willard L. Thorp and Walter F. Crowder) (USGPO 1941).

[21] Walter F Crowder, 'The Concentration of Production in Manufacturing' pt V of TNEC *Monograph No 27* (n 20) 275. Genevieve Beckwith Wimsatt compiled the data.

[22] ibid 292.

[23] Natural Resources Committee (n 17) 240–48. Although this study did not weight by turnover, it did sort industries by economic importance. Only 29 per cent of the large industries had a CR_4 in excess of 50.

[24] In 1948 the UK introduced a Standard Industrial Classification, which remains in use

[25] The EU adopted the Statistical Classification of Economic Activities in the European Community (NACE, based on the French name) in 1990.

Since 1997 the Census has published CR_4, CR_8, CR_{20} and CR_{50} at each level of the US NAICS and for nearly every sector of the economy. For the manufacturing sector, the Census also has published the Herfindahl-Hirschman Index (HHI), which is the most popular concentration index among industrial organization economists. It is computed by summing the squared shares (expressed as percentages) of all firms in an industry. With shares of 35, 20, 15, 10, 8, 7 and 5, the HHI is 2088.

B. Census Data Do Not Reflect Market Concentration

In the 1970s, SIC data was a mainstay of empirical research in industrial organization economics, and economists knew it had significant limitations.[26] In his 1970 textbook, F.M. Scherer wrote:

> Unfortunately, Census Bureau industry and product class definitions do not always conform consistently to the criteria economists would like to apply. To get its difficult job done at all, the Bureau must use definitions facilitating accurate reporting by business firms, which usually means that they must follow the way firms have grouped or segregated their production operations. Emphasis often is on similarity of production processes, which may not reflect competitive interrelationships.[27]

Much as the decennial census counted people, the quinquennial economic census counted 'establishments'—facilities engaged in economic activity, such as factories, stores and offices.[28] The Census classified establishments based on their primary activity. Many four-digit SIC industries were defined by processes,[29] for example paper mills were in SIC 2621 and steel mills were in SIC 3312. Establishments in these industries produced numerous non-competing products.[30] On the other hand, classification sometimes was done on basis of inputs, so two different industries could produce the same product. Cane sugar refineries were in SIC 2062, while beet sugar refineries were in SIC 2063, and both mainly produced crystalline sucrose.

Problems with SIC data were compounded when firm-based data were forced into the molds of SIC industries by assigning firms to industries based on the plurality of their activity. A tabulation of 1947 data for 23 industries found wide disparity between CR_4 calculated by the Federal Trade Commission using firm-based data and CR_4 calculated by the Census using establishment-based data. The firm-based CR_4 was at least 25 per cent

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[26] See Bain (n 7) 126–33; FM Scherer, *Industrial Market Structure and Economic Performance* (Rand McNally 1970) 52–57.

[27] Scherer (n 26) 53.

[28] The past tense is used here to describe what was known decades ago. The basic methods used by the Census have not changed.

[29] See Maxwell R Conklin and Harold T Goldstein, 'Census Principles of Industry and Product Classification, Manufacturing Industries' in *Business Concentration and Price Policy: A Conference of the Universities– National Bureau Committee for Economic Research* (Princeton University Press 1955) 17–22.

[30] In addition, less-important industries were combined, eg SIC 2869 (industrial organic chemicals, not elsewhere classified) and SIC 3429 (hardware, not elsewhere classified) included thousands of distinct products made with hundreds of distinct processes. Empirical research generally dropped these catchall industries.

greater for eight industries.[31] The largest firms in an industry tended to be the most diverse, so assigning all of their turnover to their primary industry exaggerated industry concentration. The leading old-school industrial organization textbook considered any study using firm-based data to be 'virtually worthless'.[32]

Just as Census industries could be much broader than economic markets in the product dimension, they could be much broader in the geographic dimension. Census concentration data were available only at the level of the entire United States, but some manufacturing industries had regional markets, and some markets were local, as in asphalt, bread[33] and ready-mixed concrete. Local markets were common in non-manufacturing industries, such as construction, personal services and retail trade. Since the 1970s, a serious problem for manufacturing industries has been the failure of Census data to reflect imports.

Long after the focus of empirical research in industrial organization shifted away from Census data, merger filings still provided the US antitrust enforcement agencies with data for four-digit SIC industries. In a 1988 article, the present author examined the utility of SIC data by comparing the scope of cartels prosecuted by the US Department of Justice with the scope of the corresponding four-digit SIC industries.[34] The comparison divided (1) the annual 'volume of commerce' (turnover) affected by a cartel by (2) the annual 'value of shipments' for the corresponding SIC industry. The resulting 'Commerce Quotient' built on the idea that the relevant market in a competition case had the same scope as the optimal cartel,[35] and the insight that actual cartels should not be much narrower than optimal cartels.

Because economists had used SIC data only for manufacturing industries, the study was limited to cases within that sector. For 52 of the 80 manufacturing cases filed during 1970–80, the Commerce Quotient was less than 0.01. Special attention was paid to cases in which the corresponding SIC industry had been thought to comport tolerably well with an economic market. For 16 of those 19 cases, the Commerce Quotient was less than 0.1.

The US Department of Justice promulgated merger guidelines in 1982 incorporating the hypothetical monopolist paradigm for market delineation.[36] A critical insight motivating the paradigm was that relevant markets used to assess market power issues must be delineated on the demand side of the market. Beginning in 1982, the Department of Justice alleged relevant markets for which it was prepared to prove that a hypothetical monopolist

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[31] Conklin and Goldstein (n 29) 32.

[32] FM Scherer and David Ross, *Industrial Market Structure and Economic Performance* (Houghton Mifflin 1990) 418.

[33] A special tabulation for the bread industry found far higher concentration in local markets than indicated by the national Census data. Committee on the Judiciary, United States Senate, 'Administered Prices: Bread' (Senate Report No 1923, 86th Congress) (USGPO 1960) 119–25.

[34] Gregory J Werden, 'The Divergence of SIC Industries from Antitrust Markets: Some Evidence from Price Fixing Cases' (1988) 28 Economics Letters 193.

[35] See eg Kenneth D Boyer, 'Is There a Principle for Defining Industries?' (1984) 51 Southern Economic Journal 761; Gregory J Werden, 'Market Delineation and the Justice Department's Merger Guidelines' [1983] Duke Law Journal 514.

[36] See Werden (n 35); Gregory J Werden, 'Market Delineation under the Merger Guidelines: A Tenth Anniversary Retrospective' (1993) 38 Antitrust Bulletin 517.

would possess significant market power. Application of the hypothetical monopolist paradigm in merger cases provided a second test for how well SIC industries comported with economic markets.

In a 1990 article, Russell W. Pittman and the present author computed Commerce Quotients for Justice Department merger cases filed during the first seven years after release of the 1982 merger guidelines.[37] Those cases alleged violations in 47 relevant markets. The Commerce Quotient was greater than 0.25 for 12 of the 47, and it was less than 0.01 for 26. For 12 of the markets, the corresponding four-digit SIC industry had been thought to comport well with an economic market. For five of those 12, the Commerce Quotient was less than 0.1, and it was greater than 0.25 for just two.

In 2018, when NAICS concentration data were used in support of claims of increasing concentration, Luke M. Froeb and the present author calculated Commerce Quotients for the relevant markets alleged in merger complaints filed by the US Justice Department during fiscal years 2013–15.[38] This study used Census data for six-digit NAICS industries. For 26 of the 44 relevant markets, the Commerce Quotient was less than 0.005, meaning that the finest level of data in the NACIS could aggregate more than 200 distinct markets. The Commerce Quotient was greater than 0.1 for just three of the 44 markets.

The Commerce Quotients were far lower in the 2010s than in the 1980s mainly because the 1980s cases were all in manufacturing, whereas many of the 2010s cases were in non-manufacturing industries with local markets, such as crushed stone, film exhibition, radio advertising and waste management. In addition, six-digit industries under the NAICS are, on average, broader than four-digit SIC industries.

Data for six-digit NAICS industries are as close as the Census now gets to the market level, but the relevant markets in competition cases tend to be far narrower. In most US Justice Department merger cases, the relevant market makes up less than 0.5 per cent of the corresponding six-digit NAICS industry. Higher levels of aggregation are further removed from the market level. The 20 NAICS sectors contain 1057 six-digit industries, so a single sector could aggregate 10,000 distinct markets.

C. Natural Causes of Increasing Market Concentration

In 1931 French engineer Robert Gibrat published the first formal model with firm and market dynamics and observed Gibrat's Law of Proportionate Growth.[39] It holds that the increment to a firm's size over any period of time is proportionate to its initial size. Gibrat's Law implies a skew distribution of firm sizes—in particular, the log-normal distribution. Gibrat's

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[37] Russell W Pittman and Gregory J Werden, 'The Divergence of SIC Industries from Antitrust Markets: Indications from Justice Department Merger Cases' (1990) 33 Economic Letters 283.

[38] Gregory J Werden and Luke M Froeb, 'Don't Panic: A Guide to Claims of Increasing Concentration' (2018) 33(1) Antitrust 74.

[39] Robert Gibrat, *Les Inégalités Économiques; Applications: Aux Inégalités des Richesses, à la Concentration des Entreprises, aux Populations des Villes, aux Statistiques des Familles, etc., d'une Loi Nouvelle, la Loi de l'Effet Proportionnel* (Librairie du Recueil Sirey 1931).

data indicated that firm size was log-normally distributed in French industries, with a few large firms and a long tail of smaller firms.

In the 1950s economists propounded stochastic growth models based on Gibrat's Law and used the models to explain the skew distribution of firm sizes observed in the UK and US.[40] The models featured several different entry processes, producing different long-run distributions of firms, but all were skew distributions implying high concentration. For his 1970 industrial organization textbook, F.M. Scherer illustrated these models by simulating industry evolution in a stochastic growth model calibrated to data for large US firms. He posited an industry initially having 50 identical firms, yielding a CR_4 of just 8. In a series of simulations, the average CR_4 was 27 after 40 years, 42 after 80 years and 53 after 120 years.[41]

The forgoing models were not meant to be realistic.[42] They suppressed things usually of interest to economists—investment, pricing, mergers and the like. But they did usefully demonstrate that increasing market concentration is the natural consequence of a competitive process in which firms have differing degrees of success. In these models, all firms were created equal, and the market evolved through random chance. In real-world industries, firms can be created unequal, and economic forces can speed the process of market concentration. A firm can grow by offering a better product than its rivals, and it can keep growing due to size-related advantages such as economies of scale or network effects. To the extent that market concentration reflects the growth of firms that innovate and develop products to which consumers flock, it should not be a concern for competition policy.[43]

III. EVALUATING RECENT CLAIMS OF INCREASING CONCENTRATION

A. Claims of Increasing Concentration

A March 2016 story in *The Economist* was not the first twenty-first century claim of increasing concentration in the US economy, but it was the first to get much attention. Staff researchers compared the 1997 CR_4 for six-digit NAICS industries to the most recent data—

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[40] PE Hart and SJ Prais, 'The Analysis of Business Concentration: A Statistical Approach' (1956) 119 Journal of the Royal Statistical Society 150; Herbert A Simon and Charles P Bonini, 'The Size Distribution of Business Firms' (1958) 48 American Economic Review 607; Irma G Adelman, 'A Stochastic Analysis of the Size Distribution of Firms' (1958) 53 Journal of the American Statistical Association 893.

[41] Scherer (n 26) 125–27.

[42] For an introduction to more complex models, see John Sutton, 'Gibrat's Legacy' (1997) 35 Journal of Economic Literature 40, 47–48. More recent literature includes Gabriel Y Weintraub, C Lenier Benkard and Benjamin Van Roy, 'Markov Perfect Industry Dynamics with Many Firms' (2008) 76 Econometrica 1375; Richard Ericson and Ariel Pakes, 'Markov-Perfect Industry Dynamics: A Framework for Empirical Work' (1995) 62 Review of Economic Studies 53.

[43] A few scholars argued in the 1970s that the correlation between concentration and profits was generated by efficiency: The most efficient firms were the most profitable and the fastest growing, so profits and concentration increased together. See Harold Demsetz, 'Industry Structure, Market Rivalry, and Public Policy' (1973) 16 Journal of Law and Economics 1; Sam Peltzman, 'The Gains and Losses from Industrial Concentration' (1977) 20 Journal of Law and Economics 229.

2007 data for two sectors and 2012 data for 13 sectors.[44] *The Economist* defined an industry to be 'concentrated' if the CR_4 was between 33.3 and 66.7, and reported that the share of revenue in 'concentrated' industries increased from 24 to 33 per cent. But six-digit NAICS industries are apt to be hundreds of times broader than properly delineated markets, and an industry with a CR_4 of, say, 40 actually is considered unconcentrated.[45]

Subsequent studies using six-digit Census data have found modest increases in concentration. Sharat Ganapati found that the average CR_4 increased about five points between 1997 and 2012.[46] Robert D. Atkinson and Filioe Lage de Sousa, found that the average CR_4 increased by just one point between 2002 and 2017.[47] Finally, Mary Amiti and Sebastian Heise addressed the failure to include firms that sell in the US but manufacture elsewhere. They merged Census shipments data with import-export data, then examined trends in the CR_4, CR_{20} and HHI for five-digit NAICS manufacturing industries. Between 1992 and 2012, they found that the average level of concentration was stable.[48]

The Economist identified three major industries in what it called the 'oligopolistic corner of the economy', with CR_4 greater than 66.7—'telecoms, pharmacies, and credit cards'. Telecoms was an industry with better data because the Federal Communications Commission tracked mobile wireless concentration in local markets, and those data exhibited just a slight upward trend in average concentration.[49] Census concentration data for pharmacies were highly problematic because they omitted more than 10,000 pharmacies operating within larger stores (typically supermarkets) and because the data were national although the relevant markets were local. Credit card processing has been highly concentrated for the entire history of the industry.

Shortly after publication of *The Economist* story, the CEA published the issue brief mentioned in the introduction. The CEA performed much the same analysis as *The Economist* but at the level of NAICS sectors,[50] and the CEA examined CR_{50} rather than

[44] 'Too Much of a Good Thing' *The Economist* (24 March 2016). *The Economist* reported observations for 893 industries, which implies data for six-digit industries. The online version of the article originally had interactive graphics, but the interactions no longer function; see <www.economist.com/news/briefing/21695385-profits-are-too-high-america-needs-giant-dose-competition-too-much-good-thing> accessed 8 April 2021.

[45] The HHI almost certainly would be below 1000, whereas any market with an HHI below 1500 is considered unconcentrated under the US Horizontal Merger Guidelines.

[46] Sharat Ganapati, 'Growing Oligopolies, Prices, Output, and Productivity' (2021) 13 American Economic Journal: Microeconomics 309.

[47] Robert D Atkinson and Filioe Lage de Sousa, 'No, Monopoly Has Not Grown' (Information Technology & Innovation Foundation, June 2021) <https://itif.org/sites/default/files/2021-no-monopoly-has-not-grown.pdf> accessed 1 July 2021.

[48] Mary Amiti and Sebastian Heise, 'U.S. Market Concentration and Import Competition' (Federal Reserve Bank of New York Staff Report, May 2021) <https://www.newyorkfed.org/medialibrary/media/research/staff_reports/sr968.pdf > accessed 29 July 2021.

[49] Federal Communications Commission, 'Annual Report and Analysis of Competitive Market Conditions with Respect to Mobile Wireless, Including Commercial Mobile Services' (2016) 18 <https://docs.fcc.gov/public/attachments/DA-16-0161A1.pdf> accessed 9 April 2021.

[50] CEA chairman, Jason Furman, previously had done a similar analysis, but it was published subsequently: Jason Furman and Peter Orszag, 'A Firm-Level Perspective on the Role of Rents in the Rise in Inequality' in

CR$_4$.[51] The CEA found the largest concentration increases in the transportation and warehousing sector and in the retail trade sector, but those increases are meaningless.

To presume that the individual markets in a sector exhibit the same trends as the sector as a whole is Aristotle's fallacy of division. These two sectors contain 123 six-digit NAICS industries, which generally are much broader than relevant markets. Important retail trade industries—such as automobile dealers, gasoline stations and grocery stores—have local markets. In long-distance transportation industries, like airlines, origin-destination pairs are distinct markets, and in short-distance transportation industries, like taxis, the markets are local. Concentration trends are meaningless when the data are aggregated over hundreds of products and hundreds of locations, as the CEA later acknowledged.[52]

The most widely noted claim of increasing concentration in an academic journal is that of Gustavo Grullon, Yelena Larkin and Roni Michaely, who claimed that 'industry concentration over the last two decades has markedly increased'.[53] Their work is part of the finance literature, although they presented it to competition policy audiences, notably at the Stigler Center conference *Is There a Concentration Problem in America?*[54] As is typical in finance,[55] Grullon, Larkin and Michaely used firm-based data for traded companies, in particular the Compustat data. They sorted the companies into NAICS subsectors, then computed HHIs. Thus measured, concentration increased in 80 per cent of the subsectors, with a median increase of 41 per cent and a mean increase of 90 per cent. The claim of increasing concentration was for the period 1997–2014, even though the study went back to 1972.

Grullon, Larkin and Michaely acknowledged problems with their firm-based data and found reassurance in the fact that the distribution of HHI increases in their data is much

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Martin Guzman (ed.), *Toward a Just Society: Joseph Stiglitz and Twenty-First Century Economics* (Columbia University Press 2018).

[51] The usual CR$_4$ was wrong for the sector level: Suppose a sector consisted of 50 markets of comparable size and no firm operated in more than one market. The sector CR$_{50}$ then would approximate the weighted average CR$_1$ across the markets, while the sector CR$_4$ would approximate the maximum CR$_1$ across the markets.

[52] Due to excessive aggregation at the product and geographic levels, the CEA commented that the data presented in the issue brief 'shed little light on the state of competition'. Council of Economic Advisers, *Economic Report of the President* (USGPO 2020) 210. Jason Furman argued in 2018 that aggregated data were useful despite all the flaws. Jason Furman, 'Antitrust in a Changing Economy and Changing Economics' (*ProMarket*, 30 November 2018) <https://promarket.org/antitrust-in-a-changing-economy-and-changing-economics/> accessed 12 April 2021.

[53] Gustavo Grullon, Yelena Larkin and Roni Michaely, 'Are US Industries Becoming More Concentrated?' (2019) 23 Review of Finance 697, 700. Other academic articles presented data indicating increasing concentration. See eg David Autor and others, 'Concentrating on the Fall of the Labor Share' (2017) 107 American Economic Review (Papers and Proceedings) 180; Simcha Barkai, 'Declining Labor and Capital Shares' (2020) 75 Journal of Finance 2421.

[54] Stigler Center for the Study of the Economy and the State, University of Chicago, Booth School of Business, 'Is There a Concentration Problem in America?' (record of conference) <https://promarket.org/wp-content/uploads/2018/04/Is-There-a-Concentration-Problem-in-America.pdf> accessed 8 April 2021.

[55] See Jan Keil, 'The Trouble with Approximating Industry Concentration from Compustat' (2017) 45 Journal of Corporate Finance 467.

the same in Census manufacturing subsectors. But research discussed above found that concentration increased far less in the Census data at the six-digit level. Grullon, Larkin and Michaely referred to 'market power' throughout their article and purported to find evidence that increasing concentration enhanced or created market power, but they did not look for increases in concentration that plausibly enhanced or created market power, ie increases in concentrated industries or that caused industries to become concentrated. Moreover, an NAICS subsector is apt to aggregate more than a thousand distinct markets, so subsector concentration trends can shed no light on market concentration trends or on market power.

Trends in concentration outside the United States have gotten less attention. Two studies compared sector-level concentration trends in Europe to those in the US. Researchers at the OECD included more and different European countries but examined a shorter time period than researchers at the European Central Bank.[56] The OECD researchers found no concentration trend in Europe, but the European Central Bank researchers found a significant upward trend. Of course, sector-level data cannot reveal market-level concentration trends, and both studies relied on firm-based data, which can bias the trends.

The UK data look very much like the US data. The Competition & Markets Authority (CMA) found sector-level increases in concentration (measured by CR_{10}) like those reported by the CEA issue brief (using CR_{50}).[57] The CMA also examined concentration at the four-digit level of the UK SIC system (comparable to the NAICS five-digit level), while acknowledging that the product dimensions of relevant markets in CMA cases are much narrower.[58] The CMA found that average concentration (CR_{10}) increased somewhat from 1998 to 2012, just as Sharat Ganapati found for the US. The CMA also found that concentration declined after 2012, but not to its prior level.[59]

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[56] The OECD examined 2006–15 and included companies from Austria, Belgium, Denmark, Germany, Finland, France, Hungary, Norway, Portugal and Sweden. Matej Bajgar and others, 'Industry Concentration in Europe and North American' (OECD Productivity Working Papers, January 2019) <www.oecd-ilibrary.org/economics/industry-concentration-in-europe-and-north-america_2ff98246-en> accessed 17 April 2021. The European Central Bank examined 2000–14 and included companies from Germany, France, Italy and Spain. Maria Chiara Cavalleri and others, 'Concentration, Market Power and Dynamism in the Euro Area' (European Central Bank Discussion Paper, March 2019) <www.ecb.europa.eu/pub/pdf/scpwps/ecb.wp2253~cf7b9d7539.en.pdf> accessed 17 April 2021. A less aggregated study of just Germany found no trend. Monopolkommission, 'Trends in Indicators of Marker Power in Germany and Europe' (2018) <www.monopolkommission.de/images/HG22/Main_Report_XXII_Market_Power.pdf> accessed 29 July 2021.

[57] Competition & Markets Authority, 'The State of UK Competition' (30 November 2020) 28–30 <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/939636/State_of_Competition_Report_Nov_2020_Final.pdf > accessed 29 July 2021.

[58] Competition & Markets Authority, 'The State of UK Competition Annexes' (November 2020) 2, 4 <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/939639/State_of_Competition_Report_Nov_2020_-_Annexes.pdf > accessed 29 July 2021.

[59] CMA (n 57) 27. Similar findings were reported by Torsten Bell and Dan Tomlinson, 'Is Everybody Concentrating? Recent Trends in Product and Labour Market Concentration in the UK' (Resolution Foundation, July 2018) <www.resolutionfoundation.org/app/uploads/2018/07/Is-everybody-concentrating_Recent-trends-in-product-and-labour-market-concentration-in-the-UK-.pdf> accessed 29 July 2021.

B. How Industry Dynamics Affect Measured Concentration Trends

Measurement of concentration levels and trends can be highly misleading when the data are not at the market level. Imagine a world in which national champions compete in global markets, but concentration is measured at the national level. Further imagine that competing national champions merge from time to time. In this world, the use of national data when markets are global overstates the level of market concentration and understates the trend in market concentration.

The foregoing illustrates one possible error in measuring levels and trends in economic concentration. A far more common error, however, is excessive aggregation. Excessive aggregation tends to impart a *downward* bias in the *level* of market concentration and an *upward* bias in the *trend* of market concentration. The former bias was explained above. To appreciate how the latter bias arises, consider the following scenarios in which concentration is measured at the industry level but an industry consists of five distinct markets. In each scenario, concentration is measured in the years 2000 and 2020.

First, posit an industry that experienced a huge merger wave in the intervening 20 years: The 2000 data indicate that the industry had 25 equal-sized firms, and the 2020 data indicate that it had just five equal-sized firms. The industry HHI increased from 400 to 2000, but this tells us nothing about the trend in market concentration. The data make all of the mergers appear to have been horizontal. But if they all were horizontal, the measured concentration trend conceals a competition catastrophe, as each market became a monopoly. And if none of the mergers were horizontal, market concentration did not increase at all. In this example, industry-level data simply are uninformative about the trends in market-level concentration.

Second, posit an industry that experienced no mergers, no entry and no exit. Assume five, equal-sized markets in 2000—four markets with five equal-sized firms and one market with a single firm. Suppose that the structure of all markets was the same in 2020, but the single-firm market quadrupled in size between 2000 and 2020, while the other markets experienced no growth. The industry HHI increased from 720 to 2625, and the industry share of the largest firm increased from 20 to 50 per cent, but the true market shares did not change. In this example, industry-level data indicate a sharp upward trend in concentration, but market-level concentration is stable.

Third, suppose the composition of the industry in 2000 was exactly as in the preceding scenario and again assume that the size of the single-firm market quadrupled by 2020. Further suppose that each of the five-firm markets were entered by five new firms that grew to the size of the incumbents by 2020. And suppose that the single-firm market was entered by one new firm that also achieved the size of the incumbent by the year 2020. In every market, the true HHI in 2020 was half what it was in 2000, but the industry HHI increased from 720 to 1313. In this example, industry-level data indicate a sharp upward trend in concentration, but market-level concentration sharply decreased in every market. The fact that entry eliminated a monopoly went unnoticed because no one was looking.

C. How Firm Dynamics Affect Measured Concentration Trends

Measuring concentration at the industry or sector level can cause data to exhibit concentration trends that do not exist at the market level, and using firm-based data can heighted the illusion. The use of firm-based data does not have this effect if firms are no broader in scope than the industries or sectors used to compile the data, but the use of firm-level data can exaggerate bias from excessive aggregation when firms operate in multiple industries or sectors.

Consider the impact of the merger of two multi-industry firms assigned to different industries on the basis of the plurality of their operations, and assume that the successor firm is assigned to the same industry as the larger merging firm. Following the merger, the smaller merging firm disappears from the data, causing an increase in measured concentration for its assigned industry.[60] The turnover of the smaller merging firm is credited to the larger merging firm, causing an increase in measured concentration for its assigned industry.[61] In both affected industries, however, measured concentration increases only because firm-level data is used to measure it.[62]

To illustrate the potential magnitude of distortion of concentration trends, consider an economy with ten industries corresponding to markets. In the year 2000, suppose that all firms were the same size, that each firm operated in a single industry/market, and that each industry had five firms. Now suppose that the only change over time was the birth of a conglomerate formed by merging two firms from one industry and one firm from each of the other nine industries. The actual HHI in the first industry increased from 2000 to 2800, but the measured HHI increased to 6327 because the conglomerate's entire operations were assigned to the industry. In the other nine industries, acquired firms disappeared from the data, so the measured HHI increased to 2500, although the actual HHI remained at 2000. The weighted average measured HHI for the economy increased a whopping 79 per cent, although the weighted average actual market HHI increased just 4 per cent.

The finance literature has recognized that Census concentration measures are not highly correlated with Compustat-based concentration measures but has not identified the all the reasons.[63] The finance literature has identified the problem that Compustat data omits some firms: Compustat includes only companies traded on US exchanges, but some large US companies are not traded, and some companies doing business in the US are based elsewhere and not traded in the US.[64]

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[60] Observed concentration could fall if the smaller merging firm was the largest firm in its assigned market.

[61] Observed concentration could fall if the larger merging firm was a small firm in its assigned market.

[62] The successor firm could be assigned to an industry other than that to which merging firms had been assigned, in which case the merger would increase observed concentration in three industries.

[63] See Keil (n 54); Ashiq Ali, Sandy Klasa and Eric Yeung, 'The Limitations of Industry Concentration Measures Constructed with Compustat Data: Implications for Finance Research' (2009) 22 Review of Financial Studies 3839.

[64] ibid. The largest US non-traded companies are Cargill, Chrysler, Koch Industries and Mars. Many companies based outside the US cross-list their shares on a US exchange, but some foreign companies with large US sales do not, including BMW, Hyundai and Samsung.

D. Available Evidence on Market Concentration

The available evidence on market-level concentration trends is hardly comprehensive, but it does undermine the foundations of claims of increasing concentration in the United States. Researchers can access market-level data for a few US industries that are subject to special government oversight, notably airlines and banking. Despite numerous mergers that increased concentration at the national level, studies consistently find no increases in average market concentration. Economists at the Federal Reserve Board found that more than 10,000 mergers between 1980 and 2010 did not increase average concentration in local banking markets.[65] Over roughly the same time period, academic and government economists found slight decreases in average concentration for airline city-pair markets.[66]

An analysis of the private National Establishment Time Series for the US found declining concentration at an extremely disaggregated level. Esteban Rossi-Hansberg, Pierre-Daniel Sarte and Nicholas Trachter measured concentration at the postal code and eight-digit SIC level.[67] They found pronounced concentration decreases for sectors in which the markets tend to be local, even if not as narrow as postal codes—finance, insurance and real estate; retail trade; and services. C. Lanier Benkard, Ali Yurukoglu and Anthony Lee Zhang used consumer surveys to construct concentration measures at levels approximating markets. They found slightly declining average concentration from 1994 to 2019, with the sharpest decline in the most concentrated markets.[68]

A study of market-level concentration in Europe undermines the foundations of denials of increasing concentration in Europe. Pauline Affeldt and others relied on the markets defined in European Commission merger decisions and constructed lower bounds for the post-merger HHI when the decisions provided sufficient information. Although Commission merger decisions provide a non-random sample, concentration in the sampled markets increased significantly from 1995 to 2014, especially in the service sector.[69]

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[65] Stephen A Rhoades, 'Bank Mergers and Banking Structure in the United States, 1980–98' (Board of Governors of the Federal Reserve System, August 2000) <www.federalreserve.gov/pubs/staffstudies/2000-present/ss174.pdf> accessed May 4, 2021; Robert M Adams, 'Consolidation and Merger Activity in the United States Banking Industry from 2000 Through 2010' (FEDS Working Paper No 2012-51, 8 August 2012) <https://ssrn.com/abstract=2193886> accessed 4 May 2021.

[66] Severin Borenstein, 'The Evolution of U.S. Airline Competition' (1992) 6(3) Journal of Economic Perspectives 45; Kai Hüschelrath and Kathrin Müller, 'Low Cost Carriers and the Evolution of the Domestic U.S. Airline Industry' (2012) 13 Competition and Regulation in Network Industries 133; US Government Accountability Office, 'Airline Competition: The Average Number of Competitors Serving the Majority of Passengers Has Changed Little in Recent Years, But Stakeholders Voice Concerns about Competition' (June 2014).

[67] Esteban Rossi-Hansberg, Pierre-Daniel Sarte and Nicholas Trachter, 'Diverging Trends in National and Local Concentration' (20 April 2020) <www.princeton.edu/~erossi/DTNLC.pdf> accessed 18 April 2021. The seventh and eighth digits are not part of the SIC system as developed by the Census.

[68] C Lanier Benkard, Ali Yurukoglu and Anthony Lee Zhang, 'Concentration in Product Markets' (NBER Working Paper, April 2021) <www.nber.org/system/files/working_papers/w28745/w28745.pdf> accessed 4 May 2021.

[69] Pauline Affeldt and others, 'Market Concentration in Europe: Evidence from Antitrust Markets' (DIW Berlin Working Paper, January 2021) <https://papers.ssrn.com/ abstract_id=3775524> accessed 4 May 2021.

IV. EVALUATING RECENT CLAIMS ON DYNAMISM AND MARGINS

A. The Dynamism of the Economy

Increasing concentration was not the only indicator of declining competition cited by the 2016 CEA issue brief. It also cited decreased dynamism of the economy and increased corporate margins. On dynamism the issue brief presented a graph depicting the entry and exit rates in the Business Dynamics Statistics (BDS) compiled by the US Census Bureau. The data indicated that the entry and exit rates both steadily declined from the inception of the program in 1978 to 2013, the most recent year available to the CEA.[70] Researchers who drew attention to these declines had cited them as evidence of diminishing vigor in the process of creative destruction that drives economic growth.[71] The declines did not continue after 2013, and they appear to reflect a shift in the nature of startups.

The Census BDS program tracks businesses with at least one employee, and as of 2018 the US had 5.3 million such businesses. The Nonemployer Statistics compiled by the Census[72] indicate that, as of 2018, the US had 26.5 million nonemployer businesses with turnover of $1,293 billion. During 1997–2018, the number of nonemployers increased 71.5 per cent, while the number of employers increased just 10.5 per cent. Both the entry and exit rates for nonemployers are far higher than those for employers.[73] During 1997–2010 nonemployers accounted for over 90% of the entry.[74] Combining the BDS data with the Nonemployer Statistics, Pedro Bento and Diego Restuccia found that business dynamism was responsible for more than half of US productivity growth between 1982 and 2014.[75]

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[70] issue brief (n 14) 5. A decline in the entry rate also was observed in Orbis data (provided by Bureau Van Dijk), which includes 28 countries. See Ufuk Akcigit and others, 'Rising Corporate Market Power: Emerging Policy Issues' (IMF Staff Note, March 2021) <www.imf.org/en/Publications/Staff-Discussion-Notes/Issues/2021/03/10/Rising-Corporate-Market-Power-Emerging-Policy-Issues-48619> accessed 29 July 2021.

[71] See, eg Ryan A Decker and others, 'Declining Business Dynamism: What We Know and the Way Forward' (2016) 106 American Economic Review (Papers and Proceedings) 203. Concern about declining dynamism is widespread. See Flavio Calvino, Chiara Criscuolo and Rudy Verlhac, 'Declining Business Dynamism: Structural and Policy Determinants' (OECD Science, Technology and Innovation Papers, Nov. 2020) <www.oecd-ilibrary.org/science-and-technology/declining-business-dynamism_77b92072-en> accessed 25 June 2021. The entry rate declines are much the same for the US and Europe. ibid 61.

[72] See US Census Bureau, 'Nonemployer Statistics' <www.census.gov/programs-surveys/nonemployer-statistics.html> accessed April 15, 2021. The Census provides limited data combining employers and nonemployers. See US Census Bureau, 2018 CBP and NES Combined Report <www.census.gov/data/tables/2018/econ/cbp/2018-combined-report.html> accessed 15 April 2021.

[73] See Steven J Davis and others, 'Measuring the Dynamics of Young and Small Businesses: Integrating the Employer and Nonemployer Universes' in Timothy Dunne, J Bradford Jensen and Mark J Roberts (eds), *Producer Dynamics: New Evidence from Micro Data* (University of Chicago Press 2009) 329.

[74] See Robert Fairlie, Javier Miranda and Nikolas Zolas, 'The Integrated Longitudinal Business Database: Measuring Job Creation among the Universe of Business Entities' (slide presentation 14 October 2016) <www.nationalacademies.org/event/10-14-2019/docs/D2AC137B733A757F2D5940AE5AFB555ED85979DD272E> accessed 15 April 2021.

[75] See Pedro Bento and Diego Restuccia, 'The Role of Nonemployers in Business Dynamism and Aggregate Productivity' (University of Toronto Working Paper 19 January 2021) <www.economics.utoronto.ca/public/workingPapers/tecipa-686.pdf> accessed 7 May 2021.

B. Corporate Margins

Since Abba P. Lerner's 1934 article,[76] economists have looked to price–cost margins as an indicator of exercised market power. The price–cost margin for a product is its price minus its marginal cost, all divided by its price. The price–cost margin is bounded by one from above, and it is zero when price equals marginal cost under perfect competition. In some oligopoly models, price–cost margins are closely related to market concentration.[77] Direct measurement of price–cost margins can be difficult because marginal costs can be poorly reflected in accounting data, but nonpublic, product-level data are routinely used to measure price–cost margins in competition cases.

Markups are closely related to margins. A product's markup is simply the ratio of its price to its marginal cost. The markup is one under perfect competition and unbounded from above. With simple production technology (a single output and homogeneous inputs), the economics of cost minimization allows the inference of markups from firm-level accounting data,[78] and recent studies have taken this approach to track margins over time.

Jan De Loecker, Jan Eeckout and Gabriel Unger found that the weighted average markup of traded US companies increased from 1.21 in 1980 to 1.61 in 2016. Their detailed findings are more revealing, however: They found that the median markup was constant, and the increase in the weighted average markup was due to the growth (and increasing weight) of high-margin firms. When De Loecker, Eeckout and Unger took out the effects of entry, exit, and different rates of grown, the average markup rose from 1.21 in 1980 to about 1.3 in 2000 and then fell. Thus, their data showed that markups were quite stable, except for those of the highest-markup firms. The average markup of the top ten per cent of firms, ranked by markup, rose from 1.5 to 2.5.[79] De Loecker, Eeckout and Unger indicated that the markup trends are much the same in other parts of the world, and studies using the same methods confirm that for Europe.[80]

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[76] A P Lerner, 'The Concept of Monopoly and the Measurement of Monopoly Power' (1934) 1 Review of Economic Studies 157.

[77] Firms in the Cournot model noncooperatively choose the quantities they sell into the market. In equilibrium the weighted average price–cost margin for all firms in the market equals the market HHI divided by the market elasticity of demand. See eg Scherer and Ross (n 32) 200.

[78] See Susanto Basu, 'Are Price-Cost Markups Rising in the United States? A Discussion of the Evidence' (2019) 33(3) Journal of Economic Perspectives 3. The reliability of these methods has been questioned. See Steve Bond and others, 'Some Unpleasant Markup Arithmetic: Production Function Elasticities and their Estimation from Production Data' (2021) 121 Journal of Monetary Economics 1; Devesh Raval, 'Testing the Production Approach to Markup Estimation' (21 October 2020) <https://papers.ssrn.com/abstract_id=3324849> accessed 27 June 2021.

[79] Jan De Loecker, Jan Eeckout and Gabriel Unger, 'The Rise of Market Power and the Macroeconomic Implications' (2020) 135 Quarterly Journal of Economics 561.

[80] See Ufuk Akcigit and others, 'Rising Corporate Market Power: Emerging Policy Issues' (IMF Staff Note, March 2021) <www.imf.org/en/Publications/Staff-Discussion-Notes/Issues/2021/03/10/Rising-Corporate-Market-Power-Emerging-Policy-Issues-48619> accessed 29 July 2021; Tommaso Aquilante and others, 'Market Power and Monetary Policy' (Bank of England Staff Paper, May 2019) <www.bankofengland.co.uk/-/media/boe/files/working-paper/2019/market-power-and-monetary-policy.pdf> accessed 29 July 2021.

David Autor and others used methods similar and made similar findings in trying to explain why the OECD countries have experienced a decline in the share of national income going to labor.[81] They proposed and tested a 'superstar' model, in which network effects and other comparable forces made a small number of firms much more successful than their rivals. The authors tested their model with data for 1982–2012, assigning firms to industries at roughly the SIC four-digit level of aggregation.[82] Autor and others found that the weighted average markup increased from 1.2 in 1982 to 1.8 in 2012, and they found that, 'Rising aggregate (weighted-average) markups are driven by the changing market shares and markups of the largest firms . . .'

A few superstar tech giants can skew the aggregate data but cannot demonstrate a general decline in competition. In any event, the foregoing markups are not high. Markups of 1.61 and 1.8 are equivalent to price–cost margins of 37.9 and 44.4 per cent,[83] which are lower than what typically are observed in competition cases. The markup of 2.5 is equivalent to a price–cost margin of 60 per cent, which is in the range of margins observed in many old economy industries, while new economy industries tend to have higher margins.

While the foregoing studies were circulated as working papers, industrial organization economists Steven Berry, Martin Gaynor and Fiona Scott Morton reviewed them and other evidence, concluding: 'In our opinion, both industry studies and accounting data studies point to the broad category of endogenously increasing fixed and sunk costs as an important, perhaps the most important, source of the apparent pattern of rising global markups.'[84] Rapidly growing new economy industries have higher fixed and sunk costs than old economy industries, so higher margins are required to yield competitive returns.

Claims of increasing margins elicited a call for stricter enforcement in unilateral effects merger cases.[85] But that reaction overlooked two key points: First, unilateral effects analysis already accounted for margins.[86] Second, higher margins have no consistent effect on unilateral anticompetitive effects.[87] Working through a standard model of competition

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[81] David Autor and others, 'The Fall of the Labor Share and the Rise of Superstar Firms' (2020) 135 Quarterly Journal of Economics 645.

[82] The authors observed that measured concentration increased and found that rising concentration correlated with the decline in labor's share of national income. But they measured concentration at too high a level of aggregation and with firm-based data, so they had no reliable evidence of a decline in competition.

[83] It is not possible to translate average markups into average margins because markups and margins have a non-linear relationship. Consider a two-firm economy with an average markup of 1.6. If the individual firms' markups were 1.5 and 1.7, the average margin would be 37.3 per cent, but if the markups were 1.1 and 2.1, the average margin would be 30.7 per cent.

[84] Steven Berry, Martin Gaynor and Fiona Scott Morton, 'Do Increasing Markups Matter? Lessons from Empirical Industrial Organization' (2019) 33(3) Journal of Economic Perspectives 44, 56.

[85] Tommaso Valletti and Hans Zinger, 'Should Profit Margins Play a More Decisive Role in Horizontal Merger Control?—A Rejoinder to Jorge Padilla' (2018) 9 Journal of European Competition Law and Practice 336.

[86] See Gregory J Werden and Luke M Froeb, 'Unilateral Competitive Effects of Horizontal Mergers' in Paolo Buccirossi (ed), *Handbook of Antitrust Economics* (MIT Press 2008).

[87] See Gregory J Werden and Luke M Froeb, 'Increased Margins and Merger Assessment: No Need to Fret' (2018) 9 Journal of European Competition Law and Practice 519.

used to predict unilateral effects also revealed that margins can increase for reasons other than increasing concentration. In particular, stronger brand preference increases margins, all other things being equal.

V. CONCLUSIONS

Recent claims of increasing concentration sounded a false alarm. The claims were not based on measurements of concentration at the market level, although that is the level at which competition takes place, and the available evidence for the US does not indicate increasing market-level concentration. Increasing concentration has been less of a concern in Europe, but there is some evidence of increasing market-level concentration in Europe.

Recent claims of increasing concentration of the US economy rely on excessively aggregated data. Excessive aggregation imparts a substantial *downward* bias in market concentration *levels* and can impart a substantial *upward* bias in market concentration *trends*. The finance literature's reliance on firm-based data exaggerates the upward bias in concentration trends seen in excessively aggregated data.

Census data indicate that the US economy became a bit more concentrated at the industry and sector levels,[88] which can arise from what older literature called market-extension and product-extension mergers. Such mergers combine firms in the same industry or sector but not in the same markets. These mergers do not affect market concentration but can generate synergies by creating regional or national chains or by expanding product lines.

For all the concern about the decline of the US economy, it did not decline. As gauged by total factor productivity (TFP), the US economy performed better than other large industrialized countries between 1989 and 2019. TFP increased 24.7 per cent in the US, as compared with 22.2 per cent in Germany, 18.0 per cent in the UK, 17.7 per cent in Sweden, 11.3 per cent in Canada, 10.0 per cent in France, 5.1 per cent in Japan, and –15.4 per cent in Italy.[89]

Historian Richard Hofstadter lamented in 1964 that: 'The antitrust movement is one of the faded passions of American reform'.[90] He regretted that antitrust became more technocratic than democratic when it became important. He preferred the old populism, and a half-century after his death, the old populism is threatening to make a comeback. The facts about increasing concentration might not matter as much as the fears.

In July 2021 President Biden issued an executive order declaring that: 'We must act now to reverse these dangerous trends, which constrain the growth and dynamism of our economy, impair the creation of high-quality jobs, and threaten America's economic

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[88] Nevertheless, aggregate economic concentration of the US economy did not increase. See Lawrence J White, 'Trends in Aggregate Concentration in the United States' (2002) 16(4) Journal of Economic Perspectives 137; Lawrence J White and Jasper Yang, 'What Has Been Happening to Aggregate Concentration in the US Economy in the Twenty-First Century?' (2020) 38 Contemporary Economic Policy 483.

[89] The raw data are from Penn World Table 10.0, maintained by the Groningen Growth and Development Centre <www.rug.nl/ggdc/productivity/pwt/?lang=en> accessed 12 May 2021.

[90] Richard Hofstadter, 'What Happened to the Antitrust Movement?' in *The Paranoid Style in American Politics and Other Essays* (Alfred A. Knopf 1965).

standing in the world'. Among those trends was that, 'over the last several decades, as industries have consolidated, competition has weakened in too many markets'.[91]

If market concentration were increasing, that still would not be a reason to revamp competition enforcement policy. Market concentration naturally trends up, and the trend can be accelerated by innovation, which drives economic growth. When firms grow because they provide great value to consumers, a sound competition policy does not begrudge their well-earned success, no matter how much market concentration increases. Stopping large horizontal mergers makes sense, but that is a pillar of existing competition policy.

Finally, improving competition enforcement is more difficult than is supposed. Beyond increasing funding for the competition agencies, meaningful reform is not easy to implement, and most reforms could do more harm than good. If there is a serious systemic problem in US antitrust enforcement, it is that the excessive skepticism of judges prevents meritorious cases from succeeding in court, and that problem defies easy solutions.

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[91] 'Promoting Competition in the American Economy' (Executive Order 14036 of 9 July 2021) (2021) 86 Federal Register 36987, 36987.