

**DIRECTORATE FOR FINANCIAL AND ENTERPRISE AFFAIRS
COMPETITION COMMITTEE**

Market Concentration - Note by the United States

Hearing on Market Concentration

7 June 2018

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www.oecd.org/daf/competition/market-concentration.htm

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United States

1. Academics¹ and journalists² recently made claims of increasing concentration throughout the U.S. economy. Two years ago, the U.S. Council of Economic Advisers (CEA) published an “issue brief” pointing to indications of “a decline of competition,” including “increasing industry concentration.”³ All of these claims are based on essentially the same data from the U.S. Census Bureau. The U.S. Department of Justice (Department) and Federal Trade Commission (collectively, the U.S. Agencies) find the claims of increasing concentration are unsupported by data for meaningful markets.

2. The U.S. Agencies and the U.S. courts define relevant markets quite narrowly because they include only goods or services that customers view as close substitutes. As articulated by the U.S. Supreme Court, a “market is composed of products that have reasonable interchangeability for the purposes for which they are produced—price, use and qualities considered.”⁴ The Court also explained that: “[f]or every product, substitutes exist. But a relevant market cannot meaningfully encompass that infinite range. The circle must be drawn narrowly to exclude any other product to which, within reasonable variations in price, only a limited number of buyers will turn”⁵

3. Under the U.S. Agencies’ Horizontal Merger Guidelines and the hypothetical monopolist test, “Market definition focuses solely on demand substitution factors, i.e., on customers’ ability and willingness to substitute away from one product to another in response to a price increase or a corresponding non-price change such as a reduction in product quality or service.”⁶ But the U.S. Census Bureau does not categorize economic activity this way. It places a priority on “facilitating accurate reporting by business firms, which usually means that it must follow the way firms have grouped together or segregated their production operations.”⁷

¹ David Autor et al., Concentrating on the Fall of the Labor Share, 107 *American Economic Review* (Papers & Proceedings) 180 (2017); David Autor et al., *The Fall of the Labor Share and the Rise of Superstar Firms* (May 1, 2017), <https://economics.mit.edu/files/12979>; Gustavo Grullon et al., *Are US Industries Becoming More Concentrated?* (Oct. 2016), https://finance.eller.arizona.edu/sites/finance/files/grullon_11.4.16.pdf.

² Too Much of a Good Thing, *Economist*, Mar. 24, 2016, <https://www.economist.com/news/briefing/21695385-profits-are-too-high-america-needs-giant-dose-competition-too-much-good-thing>.

³ Council of Economic Advisors, *Benefits of Competition and Indicators of Market Power* 4 (Council of Economic Advisors Issue Brief updated May 2016), https://obamawhitehouse.archives.gov/sites/default/files/page/files/20160502_competition_issue_brief_updated_cea.pdf.

⁴ *United States v. E.I. du Pont de Nemours & Co.*, 351 U.S. 377, 404 (1956).

⁵ *Times-Picayune Publishing Co. v. United States*, 345 U.S. 594, 612 n.31 (1953).

⁶ U.S. Department of Justice and Federal Trade Commission, *Horizontal Merger Guidelines* § 4 (2010), <https://www.justice.gov/atr/file/810276/download>.

⁷ F.M. Scherer & David Ross, *Industrial Market Structure and Economic Performance* 74–75 (1990).

4. Concentration never tells the whole story about competition, and the proper delineation of the relevant market is critical if concentration is to tell any part of the story. Concentration is meaningless for competition analysis when measured in an economic sector much narrower or much broader than a relevant market. Take the case of lead writing pencils. Observing that the U.S. had just one producer of yellow lead pencils would not indicate an absence of competition because pencils painted other colors are close substitutes for pencil buyers. Likewise, observing that thousands of companies produce wood products would not indicate the presence of competition in pencils because one cannot write with a set of wooden toy blocks.

5. The U.S. Census Bureau publishes data for broad ranges of economic activity at several levels of aggregation. At no level is the Census data capable of demonstrating increasing concentration of “*relevant markets*” in the antitrust sense, i.e., ranges of economic activity in which competitive processes determine price and quality, and in which the impact of agreements, mergers, and unilateral conduct are evaluated in competition law. The U.S. Agencies agree with Carl Shapiro, a recent member of the CEA, that the evidence on concentration cited by the CEA is “not informative regarding the state of competition.”⁸

6. Industrial organization economists learned long ago that the level of aggregation in Census data is excessive for their research purposes. In the 1960s and 1970s, their research employed Census data for the 4-digit manufacturing industries within the Standard Industrial Classification (SIC) system.⁹ Two studies conducted in the late 1980s compared the breadth of these industries to the scope of relevant markets in the Department’s merger complaints¹⁰ and to the scope of collusion in the Department’s cartel indictments.¹¹ The studies found that SIC 4-digit industries were much broader than relevant markets, often more than a hundred times broader. Therefore, the SIC 4-digit industries were not useful in assessing the degree of competition.

7. SIC 4-digit manufacturing industries frequently were overly broad in their product dimensions because they combined thousands of products with similar production processes. For example, chemicals and pharmaceuticals were divided among just 14 SIC 4-digit industries, with all “drugs” combined in a single industry. In addition, some SIC 4-digit manufacturing industries were overbroad because relevant markets were regional or local, whereas the data were national.

8. The North American Industry Classification System (NAICS), which replaced the SIC system, does not produce less aggregated data. The NAICS divides the economy into 2-digit sectors, which are further divided into 3-digit subsectors, and 6-digit industries. In

⁸ Carl Shapiro, *Antitrust in a Time of Populism*, *International Journal of Industrial Organization* (forthcoming 2018).

⁹ See, e.g., Leonard W. Weiss, *The Concentration-Profit Relationship and Antitrust*, in *Industrial Concentration: The New Learning* 184 (Harvey J. Goldschmid, H. Michael Mann & J. Fred Weston, eds. 1974).

¹⁰ Russell W. Pittman & Gregory J. Werden, *The Divergence of SIC Industries from Antitrust Markets: Some Evidence from Justice Department Merger Cases*, 33 *Economic Letters* 283 (1990).

¹¹ Gregory J. Werden, *The Divergence of SIC Industries from Antitrust Markets: Some Evidence from Price Fixing Cases*, 28 *Economic Letters* 193 (1988).

manufacturing, NAICS 6-digit industries are slightly broader than were SIC 4-digit industries.

9. The narrowest NAICS classifications typically are much broader than antitrust markets. In a forthcoming article, Department economists Gregory Werden and Luke Froeb compare the volume of commerce in the relevant markets alleged in merger complaints filed by the Department during fiscal years 2013–15 to the shipments in the corresponding NAICS 6-digit industries.¹² For 32 of the 44 relevant markets examined, the NAICS industry is more than a hundred times broader.

10. Many of the 32 relevant markets in the merger complaints were single localities within the United States, while NAICS industries span the entire United States. Local markets alleged in the merger complaints include those for crushed stone, film exhibition, radio advertising, and waste management. Because so many non-manufacturing markets are local, NAICS data are not capable of assessing market concentration trends for the whole economy. For example, it tells us nothing about the choices facing a customer of waste management services in Denver to note that two national waste management firms have merged. Either or both of those firms might not have had a premerger presence in Denver.

11. Those claiming increasing concentration do not address the shortcomings of the NAICS data. The *Economist* relied on NAICS 6-digit industry data to plot a graph of the most recent 4-firm concentration ratio (CR_4) against the change in the CR_4 since 1997.¹³ Some recent academic work even more problematically used NAICS 3-digit subsectors,¹⁴ which are ten times as aggregated as NAICS 6-digit industries. The CEA used Census data for 13 of the 24 NAICS 2-digit sectors, which are forty times as aggregated as NAICS 6-digit industries.

12. Excessive aggregation does not merely introduce noise or bias in the concentration measures; it masks actual trends in market concentration. This is explained in three progressively more complex examples built on a common theme. All of the examples assume that concentration is observed for NAICS 3-digit subsectors, that each subsector consists of 10 distinct markets, and that concentration trends are discerned by comparing 2018 observations to 1998 observations.

13. A basic problem with excessive aggregation is that it causes many non-horizontal mergers to produce the same observable effects on concentration as horizontal mergers. Suppose that each market contained 10 equal-sized firms in 1998, yielding market HHIs of 1,000, but we observed only subsectors containing 100 equal-sized firms, yielding subsector HHIs of 100. Suppose that, in 2018, we observed that each subsector consists of just 10 equal-sized firms, yielding a subsector HHI of 1,000. The key insight is that these observations indicate nothing about changes in market concentration. The observations are consistent both with market HHIs increasing from 1,000 to 10,000, and with all of the market HHIs remaining at 1,000. The market HHIs would be 10,000 in 2018 if one firm in each market had acquired every other firm in the market, and the market HHIs would

¹² Gregory J. Werden & Luke Froeb, DON'T PANIC: A Guide to Claims of Increasing Concentration, Antitrust (forthcoming), <https://ssrn.com/abstract=3156912>. Werden and Froeb elaborate many points in this note.

¹³ See note 2.

¹⁴ See Grullon et al., *supra* note 1.

be 1,000 in 2018 if every firm in one market had acquired one firm in every other market. In the former case, all markets have become monopolies, while in the latter, all have remained structurally competitive.

14. Increasing concentration also can be observed at the level of subsectors absent any change in market concentration and any merger activity. Suppose that some of the markets were more concentrated than others in 1998. In particular, half of the markets in each subsector had five equal-sized firms and half had ten equal-sized firms. Further, suppose that the former firms were twice the size of the latter, so all markets initially were of equal size. What we observe for 1998, however, is only that each subsector consisted of 50 firms of size x and 25 firms of size $2x$, yielding HHIs of 150. Suppose that the only thing that changed between 1998 and 2018 was that the five-firm markets grew to twice the size of the ten-firm markets. With market structure unchanged, the market HHIs are unchanged, but the change in subsector composition causes the observed subsector HHIs to increase from 150 to 200.

15. The third example shows that excessive aggregation makes it possible to observe increasing concentration when market concentration has declined in every market in the economy. Suppose everything is just as in the second example except that every market experienced entry between 1998 and 2018, with the five-firm markets both doubling in size and ending up with six equal-sized firms, and the ten-firm markets ending up with twelve equal-sized firms. Every market in the economy is less concentrated in 2018 than in 1998; the market HHIs are 1,667 and 833 rather than 2,000 and 1,000. But the change in subsector composition causes observed concentration, at the subsector level, to increase. The combination of entry with the change in subsector composition causes the subsector HHIs to increase from 150 to 167.

16. Reliable data on concentration at the market level is available for very little of the U.S. economy. It is, however, available for the airline and banking industries, two highly visible sectors in which significant merger activity has occurred and in which there is a common misperception of increased concentration. Despite numerous airline mergers, economists report that route-level concentration has slightly decreased.¹⁵ And despite 10,000 bank mergers, economists at the Board of Governors of the Federal Reserve report that local market concentration did not increase.¹⁶

17. With no reliable data for most of the U.S. economy, it is impossible to know whether market concentration increased significantly in any parts of the economy. But even assuming some significant increases in market concentration have occurred, that

¹⁵ See Severin Borenstein, *The Evolution of U.S. Airline Competition*, *Journal of Economic Perspectives*, Spring 1992, 45 (data for 1984–90); Kai Hüschelrath & Kathrin Müller, *Low Cost Carriers and the Evolution of the Domestic U.S. Airline Industry*, 13 *Competition and Regulation in Network Industries* 133 (2012) (data for 1995–2009); United States 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) (data for 2007–12).

¹⁶ See Stephen A. Rhoades, *Bank Mergers and Banking Structure in the United States, 1980–98* (Board of Governors of the Federal Reserve System, Staff Study 174, Aug. 2000), <https://www.federalreserve.gov/pubs/staffstudies/2000-present/ss174.pdf>; Robert M. Adams, *Consolidation and Merger Activity in the United States Banking Industry from 2000 through 2010* (FEDS Working Paper No. 2012-51, Aug. 8, 2012), <https://ssrn.com/abstract=2193886>.

would not necessarily imply a failure of competition law or enforcement. Increasing concentration is apt to occur as a result of two distinct, albeit similar, natural forces. First, when success and failure are random events, markets become concentrated over time.¹⁷ Second, when success and failure are driven by relative degrees of innovation and efficiency, markets also become more concentrated.¹⁸ Firms that serve their customers' interests much better than rivals can gain substantial market share as a result of a healthy competitive process.

¹⁷ See, e.g., Richard Ericson & Ariel Pakes, Markov-Perfect Industry Dynamics: A Framework for Empirical Work, 62 *Review of Economic Studies* 53 (1995); Hugo A. Hopenhayn, Entry, Exit, and Firm Dynamics in Long Run Equilibrium, 60 *Econometrica* 1127 (1992); Uriel G. Rosenblum & Sidney G. Winter, Asymptotic Behavior of Market Shares for a Stochastic Growth Model, 26 *Journal of Economic Theory* 353 (1985); Herbert A. Simon & Charles P. Bonini, The Size Distribution of Business Firms, 48 *American Economic Review* 607 (1958).

¹⁸ See Harold Demsetz, Industry Structure, Market Rivalry, and Public Policy, 16 *Journal of Law & Economics* 1 (1973); Sam Peltzman, The Gains and Losses from Industrial Concentration, 20 *Journal of Law & Economics* 229 (1977).