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A PRIVATE REVOLUTION: MARKOVITS AND MARKETS

IAN AYRES*

Although the title of Professor Markovits' article begins with the words “International Competition” and “Market Definition,” the thrust of his article is not about the effect of international competition on market definition. Indeed, Markovits believes that the presence of foreign competitors should not influence the way in which markets should be defined, because, in Markovits' words, “markets should never be defined at all.”

For Markovits, the judicial and academic interpreters of the Clayton Act have erred in assessing whether a merger will tend to lessen competition by calculating the market shares and market concentration. Markovits' major thesis is clearly that the traditional market-oriented approach to competitive-impact analysis is not cost-effective, and should be replaced by his own non-market approach. His minor thesis, and the article's nexus with this Symposium, is that “the presence of international competition makes the market-oriented approach even more conventionally cost-ineffective” and therefore the internationalization of the economy militates even more in favor of his non-market approach.

This is not Markovits' first attack on the market-oriented approach. For the uninitiated, the article is likely to be hard going as Markovits "elaborates, refines, and summarizes" the theoretical framework of his previous works. The piece relies on a broad array of terms which Markovits coined in earlier pieces. In the interest of readership comprehen-

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1. Markovits, International Competition, Market Definition, and the Appropriate Way to Analyze the Legality of Horizontal Mergers Under the Clayton Act: A Positive Analysis and Critique of both the Traditional Market-Oriented Approach and the Justice Department's Horizontal Merger Guidelines, 64 Chi.-Kent L. Rev. 745 (1988) (Professor Markovits' article appears in this Symposium issue.)
2. Id. at 858.
4. Markovits, supra note 1, at 760 (emphasis added).
In this Comment, I intend to follow Markovits' lead and, notwithstanding the Symposium's title, bypass many issues of international competition. Like Markovits, I see few theoretical reasons why the increasing importance of international competition should change our "meta-theory" of merger analysis. To be sure, we must resist the temptation to draw geographical markets by political borders if we are interested in uncovering the economic realities. Applying one's meta-theory to the international context may raise issues without domestic antitrust counterparts. For example, in estimating the ease of entry or the elasticity of foreign supply, special attention needs to be paid to tariffs, quotas and idiosyncratic aspects of international trade (such as monetary exchange risks).

In this Comment, I will respond to Markovits' attack on the market-oriented approach and, in brief, sketch an economic defense for defining markets and caring about market concentration. In the first section, I contrast traditional methods of defining markets with the Justice Department Merger Guidelines. The Guidelines' approach to market defi-

6. After drafting this acronym glossary, I found that a similar summary appears in Markovits, Monopolistic Competition, supra note 5, at 576-77.
7. Some of these concerns are codified in Justice Department Guidelines. See 1984 Merger Guidelines, 49 Fed. Reg. 26,823 (1984) [hereinafter Guidelines]. Substantial quotas or tariffs provide a counter-example where the political borders will coincide with the economically defined geographic market.
8. Id.
nition is a significant advance over the traditional criteria for market definition and, contra to Markovits' thesis, makes market definition less arbitrary. The second section apologizes for assessing competitive impact with *inter alia* concentration figures such as the Herfindahl-Hirschman Index. The final section embeds market definition and concentration analysis within the larger structural approach to identifying the likelihood of collusion.

I. **MAKING MARKETS LESS ARBITRARY**

Both economists and antitrust courts traditionally have defined antitrust markets on the basis of substitutability in demand and supply. Since substitutes compete, questions of market definition devolved to questions of whether particular goods were considered substitutes by consumers or whether producers could substitute toward supplying a particular good. Substitutability in turn was defined by cross-price elasticities of demand or supply: if raising the price of good A caused consumers to increase significantly their demand for good B or caused the producer of good B to shift significantly production toward good A, then economists traditionally said that goods A and B are in the same market. But much turned on what one deemed to be a "significant" increase in demand or a "significant" increase in production. Economists didn't have a natural theory of how much substitutability was enough. Joan Robinson, for example, suggested that markets should be defined by "searching for a marketed qualitative gap in the chain of substitutes."

Markovits, as well as others, have criticized the arbitrariness of this approach to market definition. By arbitrarily defining all goods as being either "in" or "out" of the relevant market, the substitutability standard seems to err doubly by saying that outside goods have no competitive effect and that inside goods have equal competitive effect. Markovits' aversion to market definition is even evinced linguistically in his

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9. The Herfindahl-Hirschman Index of concentration ("Herfindahl" or "HHI") is the sum of squared market shares. See F. Scherer, Industrial Market Structure and Economic Performance 56 (2d ed. 1980).

10. See, e.g., Brown Shoe Co. v. United States, 370 U.S. 294, 325 n.42 (1962) ("cross-elasticity of production facilities may also be an important factor in defining a product market"). Antitrust courts at times, however, have been willing to define "cluster markets" of non-substituting and untied products to be the relevant line of commerce. United States v. E.I. du Pont de Nemours & Co., 351 U.S. 377, 395 (1956) (goods that are "reasonably interchangeable by consumers" should be placed in the same market); F. Scherer, supra note 9, at 60. See Ayres, Rationalizing Antitrust Cluster Markets, 95 Yale L.J. 109 (1985).

11. F. Scherer, supra note 9, at 60 (citing J. Robinson, The Economics of Imperfect Competition 5 (1934)).

article as he eschews the term "market" in favor of his own locution "ARDEPPS"—arbitrarily designated portion of product space. Markovits rationalizes the acronym "because, in our monopolistically competitive world, markets (or at least their breadth) cannot be defined non-arbitrarily."\(^{13}\)

Even though Markovits' criticism of the traditional substitutability approach is compelling, his analysis becomes much less forceful when applied to the Justice Department Guidelines. In 1982, the Justice Department announced a new approach to antitrust market definition that represented a significant improvement over the substitutability approach both in theory and, I would argue, in practice. The key analytic breakthrough of the Guidelines' approach is that it ties the process of market definition to the purpose of antitrust law. Unlike the substitutability approach which sought to define markets for all or any abstract purposes, the Guidelines tailor market definition to an important goal of antitrust law—discouraging collusion.

In a nutshell, the Guidelines define the relevant market to be the "minimum collusive group" of producers that the merging firms would have to include in a profitable cartel agreement.\(^{14}\) The Guidelines mandate "In general, the Department will include in the product market a group of products such that a hypothetical firm that was the only present and future seller of those products (monopolist) could profitably impose a small but significant and nontransitory increase in price."\(^{15}\) The minimum collusive group approach substantially reduces the arbitrariness of market definition: the producers included in a market are in an important sense identical because the agreement of each is a necessary "input" for any cartel agreement; the producers excluded from the market are irrelevant in the important sense that a profitable cartel can be organized without their cooperation. Defining a market in this manner gains fundamental support from the time-honored proposition that it will be harder to collude if more people have to agree. The minimum collusive group identifies the minimum number of producers that have to sign off on a collusive agreement and, therefore, ties market definition directly to the central question of likelihood of collusion.\(^{16}\)

\(^{13}\) Markovits, supra note 1, at 760.

\(^{14}\) This concept of a minimum collusive group seems to have been proposed first by Kenneth Boyer and has been extended by Gregory J. Werden of the Justice Department's Antitrust Division. Boyer, Industry Boundaries, in ECONOMIC ANALYSIS AND ANTITRUST LAW 88 (1979). See Werden, A Closer Analysis of Antitrust Markets, 62 WASH. U.L.Q. 647 (1985); Werden, Market Delineation and the Justice Department's Merger Guidelines, 1983 DUKE L.J. 514.

\(^{15}\) Guidelines, supra note 7, at 26,828.

\(^{16}\) The minimum collusive group approach has an important relation to the traditional sub-
The Guidelines' approach, however, is not without ambiguity, arbitrariness, or error. In practice, for example, the Justice Department has arbitrarily used a 5% price increase as its surrogate for a "'small but significant and nontransitory' increase in price." The 5% criterion does not derive from any economic theory of "significance" and indeed market definition under the Guidelines remains an imprecise, counterfactual exercise.\(^{17}\)

But even with its inherent imprecision, the fact remains that the Guidelines seem to be asking the right question and represent a major advance in the economic theory of markets. Markovits borders on being disingenuous by concluding that it is "unfortunate that advocates and practitioners of the traditional market-oriented approach to predicting the competitive impact of horizontal mergers (or of any other business act or practice) have never been explicit about their assumptions about markets."\(^{18}\) In doing so, Markovits overlooks the solid consensus about the Guidelines' approach to market definition.\(^{19}\)

II. CONCENTRATION AND COLLUSION

Markovits' analysis of the Guidelines' treatment of market concentration is no less scathing. He finds them equally "arbitrary" and "mindless."\(^{20}\) Markovits summarizes the "crude, unqualified HHI-oriented rules":

\[\text{T}he \text{ Guidelines state (1) that a horizontal merger that leaves the market in which it occurred with an HHI below 1000 will not be challenged "except in extraordinary circumstances"; (2) that a horizontal merger that leaves the market in which it occurred with an HHI between 1000 and 1800 is unlikely to be challenged if it raised the HHI by fewer than 100 points and is likely to be challenged if it raised the substitutability approach. Firms that are demand substitutes with the products of the merging firm must be included in any profitable cartel or consumers will simply switch to the lower uncartelized products.}\]

\(^{17}\) For examples of its application, see Spiller & Huang, \textit{On the Extent of the Market: Wholesale Gasoline in the Northeastern United States}, 35 J. INDUS. ECON. 131 (1986). Moreover, commentators have criticized the Guidelines for focusing on incremental collusion beyond the current pre-merger prices. \textit{See} Schmalensee, \textit{Horizontal Merger Policy: Problems and Changes}, 1 J. ECON. PERSP. 41 (1987); \textit{Note}, \textit{The Cellophane Fallacy and the Justice Department’s Guidelines for Horizontal Mergers}, 94 YALE L.J. 670 (1985). The Guidelines, in searching for the minimum collusive group, also fail to account for possible reactions from outside firms, which, while not necessary for collusion, might be sufficiently passive that they follow the price increases of the inside members. \textit{See} Ayres, \textit{supra} note 10, at 118 n.44.

\(^{18}\) \textit{Markovits, supra} note 1, at 786-87.


\(^{20}\) \textit{Markovits, supra} note 1, at 749.
HHI by more than 1800 points; and (3) that a horizontal merger in a
given market that leaves the market in which it occurred with an HHI
of more than 1800 is unlikely to be challenged if it increased the HHI
by fewer than 50 points, is likely to be challenged if it increased the
HHI by 50-100 points, and will virtually always be challenged (regard-
less of the presence of any "qualifying" factors) if it raised the HHI by
more than 100 points.\(^2\)

Although Markovits is correct that the specific numbers are arbi-
trarily selected and not derived from an explicit model of oligopoly, he
comes far short of showing that these rules "cannot bear scrutiny."\(^2\)\(^2\) In
many other areas of law, courts and legislatures have recognized the uti-
ity of brightlines even if the particular, or indeed any, brightline is arbi-
trarily chosen. Here, the implicit (non-arbitrary) rationale for choosing
brightlines "in the neighborhood"\(^2\)\(^3\) of the Guidelines, HHI demarcation
can be seen if we reinterpret the Herfindahl Index in a more intuitive
form—representing the "effective number of firms in an industry."\(^2\)\(^4\)

In a market with \(N\) firms where each firm produces the same
number of goods, the market share, \(S_i\), of each firm will be \(1/N\) and the
Herfindahl index will equal:

\[
(1) \text{HHI} = \sum_{i=1}^{N} (S_i)^2 = \sum_{i=1}^{N} \left(\frac{1}{N}\right)^2 = N \left(\frac{1}{N}\right)^2 = \frac{1}{N}
\]

So that the reciprocal of the Herfindahl Index yields a rough proxy for
the effective number of competitors in the market. For example, if a
market consists of a dominant firm with 60% of the market and four
fringe firms each having a 10% market share, then the Herfindahl would
be .4. Since the reciprocal of .4 is 2.5, we can think of the market as
having the equivalent concentration of two and a half equally sized firms.
The Guidelines calculate Herfindahl Indexes using the raw market shares
instead of percentage (\(S_i\), for example, would equal 50 instead of .5), so
that equation (1) becomes:

\[
(2) \text{HHI} = \sum_{i=1}^{N} (S_i)^2 = \sum_{i=1}^{N} (100/N)^2 = N (100/N)^2 = \frac{10,000}{N}
\]

With this heuristic equivalence in hand, the Guidelines' "crude, unquali-
fied" rules become less arbitrary. The safe harbor rule for mergers that
leave the market with an HHI below 1000 can now be interpreted to
immunize mergers that leave at least ten effective competitors (10,000/

\(^{21}\) Markovits, supra note 1, at 808-09 (citations omitted).
\(^{22}\) Id. at 809.
\(^{23}\) This is a somewhat indeterminate phrase. But partial indeterminacy and complete indeter-
minacy are distinguishable concepts. See Weinrib, Legal Formalism: On the Imminent Rationality of
\(^{24}\) Ordover, Sykes & Willig, Herfindahl Concentration, Rivalry and Mergers, 95 HARV. L.
REV. 1857, 1866 (1982).
10) in the market. Again, there is nothing magical about ten as a bright line. But creating a safe harbor in this neighborhood accords with commonly held perceptions and empirical evidence\textsuperscript{25} that it is extremely difficult for more than ten competitors to get together and successfully collude.

The Guidelines' approach to mergers that leave the market with an HHI between 1000 and 1800 corresponds to mergers that leave the market with between 10 (10,000/1000) and roughly 5.56 (10,000/1800) effective competitors. The Guidelines' intention to challenge these mergers if the HHI increases by more than 100 can also be given an "effective competitors" interpretation. The increase in HHI caused by the merger translates into a decrease of effective competitors. For example, if the pre-merger HHI is 1700 and the post-merger 1800, then the merger causes the market to change from having 5.89 effective competitors pre-merger (10,000/1700) to 5.56 effective competitors (10,000/1800) post-merger. Under this interpretation, when there are between five and ten effective competitors in a market, the Guidelines prohibit mergers that have the effect of removing even less than one effective competitor. In the above example, the Justice Department's announced intention is to challenge even a merger that removed only a third of one effective competitor from the market (5.89 - 5.56 = .33). While it may be conceptually difficult to think about the effect of removing a third of the competitor from a market, I suggest that we can intuitively think about how hard it is for three versus five or ten firms to collude and that the "effective competitor" interpretation of the HHI brightlines illuminates their genesis. Although it is harder, even with this interpretation, to justify specifically the 100 point increase rule, it is equally hard for Markovits to argue that such a rule actually conflicts with the Congress' intention in the Clayton Act to prevent incipient forms of market power from being created.\textsuperscript{26}

While extolling the virtues of Herfindahl analysis, I would like to acknowledge a seeming tension within the Guidelines' analyses of market definition and market concentration. As argued above, the Guidelines

\textsuperscript{25} Relating oligopolistic collusion to the number of firms in the market dates back to the classic studies by George Hay and Daniel Kelley and by George Stigler. Hay & Kelley, \textit{An Empirical Survey of Price Fixing Conspiracies}, 17 J.L. & ECON. 13 (1974); Stigler, \textit{A Theory of Oligopoly}, 72 J. POL. ECON. 44 (1964). See also infra text accompanying note 40 for a discussion of empirical literature.

\textsuperscript{26} Use of the Herfindahl Index is also supported by the standard result of many industrial organization models of oligopoly that relate the Lerner Index of market power to the Herfindahl Index of concentration. See Ayres, \textit{Determinants of Airline Carrier Conduct}, 8 INT'L REV. L. & ECON. 187, 199 nn.13 & 17; Ordover, Sykes & Willig, \textit{supra} note 24, at 1865.
define a market to be the minimum collusive group—so that all included in the market are necessary to make collusion profitable. Yet, if the firms included in the market are necessary “signatories” to any collusive agreement, then the need to conduct any analysis of concentration of market sales is unclear. In other words, once you know that three or four firms have to be included in any cartel agreement, why does it help us predict the likelihood of collusion if we know the concentration of those firms?

Answering this question requires an understanding of the structural approach to oligopoly. The Guidelines’ approach to market definition is consonant with the structural approach because it identifies the necessary parties to collusion. As stated above, the primordial structural hypothesis is that it will be harder to reach agreement the more people that have to sign off. This hypothesis has been generally applied to contract settings and falls under a larger class of “holdout” problems.27 If this “number of parties to the contract” hypothesis were the only structural theory, then undertaking an analysis of concentration after the market was defined would add little information for a court assessing the likelihood of collusion.

The structural approach of assessing the likelihood of collusion, however, is much richer.28 To collude successfully, the minimum collusive group needs to be able to (1) reach agreement; (2) detect breaches of the agreement; and (3) punish sufficiently breaching firms (so as to deter the breach).29 Structural theories posit relationships between structural variables, such as the number of firms in the minimum collusive group and the three prerequisites for collusion.30 Analyzing market concentration can independently inform our assessment of the likelihood of collusion because ceteris paribus it may be easier to cartelize markets that are more concentrated. For example, in a minimum collusive group of four firms, it may be easier to reach agreement if one of the firms is the dominant producer and may become in some sense the natural cartel leader.31

27. See R. Posner, Economic Analysis of Law 55 (3d ed. 1986). For example, if a developer wants to build the Chicago Bears a new stadium, the difficulty of reaching a land deal will rise (some would say exponentially) as the number of landowners increases.


30. Other variables which economists have suggested that enhance the ability to reach agreement include: large number of buyers, similar buyers, inelastic demand at the competitive price, homogeneous product, price competition, and similar cost structure. Structural variables that enhance a cartel’s ability to detect breach include: sealed bidding, frequent small orders, static or predictable demand, and sale of products separately. See Ayres, supra note 29, at 296 n.6.

31. See R. Posner, Antitrust Law: An Economic Perspective 55 (1976). Concentration might also enhance a cartel’s ability to detect and punish breaches of the agreement. The concentra-
III. MARKOVITS’ COMPETING STRUCTURAL THEORY

It is important to stress that Markovits’ non-market proposal fits well within the structural framework. The difference is that Markovits proposes that courts focus on structural variables that are disaggregated and non-market in nature to assess the effect of a merger on competition. For example, Markovits suggests that a merger is more likely to be anti-competitive “the greater the frequency with which the MPs are respectively best-placed and second-best-placed and the larger the amount by which the second-best-placed MP is better-placed than the third-best-placed supplier of the buyers in question.”

Markovits is to be congratulated for his theoretical imagination. After all, it takes a theory to beat a theory. But in the dismal science of economics, one theory beats another by predicting better. Indeed, Markovits subtitles his work “A Positive Analysis.” But I was disappointed to find the article devoid of any empirical citations.

His article is awash with empirical pronouncements without cited empirical support. For example, Markovits’ criticism of the market-oriented approach hinges crucially on his assertion that “a merger’s impact on the profitability of contrived oligopolistic pricing is unlikely to be strongly and positively correlated with its effect on the relevant market’s HHI.” In essence, Markovits claims that the market-oriented approach will not predict well whether a merger will increase the markups in a market. But here, Markovits ignores legions of empirical studies assessing the effects of concentration on markups. Econometricians have produced literally scores of papers regressing profits or markups measures on structural variables such as concentration and the like. And while the issue is not beyond debate, the studies as a whole reveal a
rather robust positive correlation between market concentration and either markups or profitability measures of competitive performance.\textsuperscript{36}

This is not to say that the traditional structural approach (which embraces many other structural predictors of collusion besides concentration) is unproblematic. While academics like Judge Posner have championed its use by "identifying those markets in which conditions are propitious for the emergence of collusion,"\textsuperscript{37} other academics have empirically questioned its predictive accuracy. For example, Frederick Scherer, a former Director of the Federal Trade Commission's Bureau of Economics and author of the leading textbook in Industrial Organization Economics,\textsuperscript{38} has shunned the use of structural variables:

While I was with the FTC, we had an active effort to identify potential price-fixing cases using only structural evidence. The kindest thing I can say about the effort is that it was a resounding flop."\textsuperscript{39}

Although it might be hard for Markovits to report comparative data of the market and non-market approaches, there is data which refutes his claim that the structural market variables poorly predict the likelihood of collusion. If, as the studies indicate, market concentration is positively correlated with collusion, then Markovits must abandon his claim that the market approach is "mindless" and retreat to his more minimalist thesis that his non-market approach is more "cost effective." But surely comparing the cost effectiveness of these competing structural approaches deserves some empirical attention.\textsuperscript{40}

\section*{IV. Conclusion}

Professor Markovits fails to cite not only empirical work in the field, but also related theory. In this copious work, he refers to only a handful of other academics. Particularly conspicuous by its absence is William Landes and Richard Posner's article, \textit{Market Power in Antitrust Cases}.\textsuperscript{41} The omission is especially surprising because the work is generally supportive of Markovits' thrust. Landes and Posner believe that focusing on "market share alone is misleading."\textsuperscript{42} And the authors suggest reinte-
preting market shares so as to de-emphasize the question of market definiti
43 and to put greater emphasis on firm-specific variables.44 In
general, the thrust of their article is to stay within the structural para
digm but to lower the weights given to market definition and market
concentration in the structural calculus. While admittedly Markovits
wants to go further and eliminate any consideration of market variables,
it is illuminating that he doesn’t cite to academics who are sympathetic
to his enterprise.

In part, Markovits may be eschewing such mainstream literature be
cause he disagrees with Landes and Posner’s narrower focus on the
markup as the exclusive indicator of market power.45 But I have the
lingering fear that Markovits is purposefully writing for a small and se
lect group. Markovits’ challenge to readers is that in order to accept him
they must reject all other theory that has come before. There is no at
tempt at building on or harmonizing with prior literature. He is willing,
if necessary, to stand alone.

Markovits has proposed a revolutionary theory that deserves more
analytic and empirical attention. I believe that its main strength lies in
supplementing and refining our current structural approach, not in sup
planting it completely. But Markovits’ insistent use of idiosyncratic ter
minology and his disassociation from the past, significantly raises the
reader’s barriers to entering his intellectual scheme. The greatest danger
may be that his glorious revolution will remain private.

43. Id. at 958.
44. For example, Landes and Posner suggest that a firm’s specific elasticity of demand should
be the crucial indicator of market power. And although the Landes and Posner piece does not focus
on issues of collusion, their framework could be readily extended to assess the impact of a merger.
45. Markovits also considers changes in QV investment an important determinant of competi
tive impact. Markovits, supra note 1, at 754.