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Harm to Competition Under the 2010 Horizontal Merger Guidelines

Herbert J. Hovenkamp
University of Pennsylvania Law School

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Introduction

In August, 2010, the Antitrust Division and the Federal Trade Commission issued new Guidelines for the assessment of mergers between competitors under the antitrust laws.[1] These Guidelines were long awaited not merely because of the lengthy interval between them and earlier Guidelines,[2] but also because enforcement policy had drifted far from the standards articulated in the previous Guidelines.

The 2010 Guidelines are distinctive manly for two things. One is notably briefer and less detailed treatment of market delineation. The other is an expanded set of theories of harm that justify preventing mergers or reversing mergers that have already occurred. These are both positive developments. Older Guidelines were overly technocratic and excessively wed to methodologies that were at the forefront of applied merger analysis when they were drafted, but that tended to make the Guidelines obsolete as new methodologies became available. Not only do methodologies change, they are also specific to the situation (Carlton, 2010). They also tend to be well developed in the literature and accessible to experts consulted by those defending a merger as well as government economists. As a result, detailed treatment of the technological methodologies that will be used is generally unnecessary. The 2010 Guidelines are more flexible than previous Guidelines and also more catholic about the types of harms that mergers might cause and the techniques that can be used to assess them (Shapiro, 2010).

To be sure, there is a tradeoff between flexibility and guidance. Often we can have more of one only by giving up some of the other, and that tradeoff is clearly present in the 2010 Guidelines. In general, however, they seem to have struck the balance in about the right place. One hesitates to compare the 2010 Merger Guidelines to the 1968 Guidelines, given that the 1968 Guidelines are so strongly identified with the excesses of a bygone era. Even so, at the time the 1968 Guidelines were a considerable improvement over the then existing case law (Lande, 2010; Baker & Blumenthal, 1983; Leary, 2002). Further, the concerns expressed in the 2010

* Ben V. & Dorothy Willie Professor of Law, University of Iowa.

[1] United States Department of Justice and Federal Trade Commission, Horizontal Merber Guidelines (August 2010), available at http://www.justice.gov/atr/public/guidelines/hmg-2010.html.

[2] Previous Guidelines were issued in 1968, 1982 (revised in 1984), and 1992. The Agencies also revised the 1992 Guidelines in 1997 with an updated statement on efficiencies, and in 2006 they issued a "Commentary" on the 1992 Guidelines. The 2010 Guidelines state in a footnote that the Commentary "remains a valuable supplement" to the 2010 Guidelines. The Commentary is available at http://www.justice.gov/atr/public/guidelines/215247.htm.

Guidelines are fundamentally very different from those discussed in the 1968 Guidelines. Nevertheless, to a large extent the 2010 Guidelines end a trend toward defining the scope of antitrust concern with mergers more narrowly and more technically. The 1968 Guidelines were also more eclectic in their approach, although they were also very ambiguous. They never spoke of "collusion" as such, or even of "coordinated interaction" or "oligopoly." In this sense the theory of the 1968 Guidelines was pure structuralism. They did not insist on a high degree of specification of the possible modes of anticompetitive behavior, but only proof of a structure that was deemed to be anticompetitive in and of itself because it led automatically to these behaviors.[3] The 2010 Guidelines are equally eclectic, but they have departed from the structuralism of the 1960s further than any intervening set of Guidelines.

The 2010 Guidelines reflect a growing belief that in markets where product differentiation is minimal competition tends to be robust, and the structural presumptions stated in all the previous Guidelines were too harsh. By contrast, where product differentiation is substantial the approach in the previous Guidelines' tended to define markets too broadly, overlooking significantly anticompetitive possibilities.

This essay looks very briefly at four substantive merger concerns that are addressed in the 2010 Guidelines: exclusion, restraints on innovation, unilateral effects, and coordinated effects. It concludes with a few observations about market definition and post-acquisition assessment under the Guidelines.

Mergers and Exclusion

The 2010 Guidelines state that the relevant statutory provisions covered include not only the antimerger provision, §7 of the Clayton Act, but also sections 1 and 2 of the Sherman Act, and Section 5 of the Federal Trade Commission Act.[4] Section 2 of the Sherman Act reaches only "exclusionary" practices. The 2010 Guidelines contain an opening statement to the effect that "Enhanced market power may also make it more likely that the merged entity can profitably and effectively engage in exclusionary conduct" (2010 Guidelines, §1).

Consideration of exclusionary practices as a rationale for condemning mergers is not particularly well developed in the 2010 Guidelines, but it was not present at all in the 1992 Guidelines. Exclusionary practices were mentioned briefly in the much more

[3] See, e.g., Kaysen and Turner, 1959 (arguing that anticompetitive performance is inherent in concentrated markets).

[4] 15 U.S.C. §18, 15 U.S.C. §§ 1 and 2, and 15 U.S.C. §45. The Statement about §5 of the Federal Trade Commission Act, which is enforceable only by the Federal Trade Commission, is interesting. In this case the FTC has authority to enforce the Clayton Act directly, so it is also unclear that adding §5 of the FTCA does anything unless there is a basis for thinking that §5 reaches merger conduct that neither the Sherman Act nor §7 of the Clayton Act reaches.

aggressive 1968 Merger Guidelines, issued when Donald F. Turner was head of the Antitrust Division.[5] One of the stated concerns of horizontal merger policy was "preventing any company or small group of companies from obtaining a position of dominance in a market" (1968 Merger Guidelines, I.4.). The 1968 Guidelines elaborated that "the larger the market share held by the acquiring firm, the more likely it is that an acquisition will move it toward, or further entrench it in, a position of dominance or of shared market power." However, the 1968 Guidelines went on to state thresholds that would prohibit acquisitions creating post-merger firms with minimum market shares as little as 8% to 16%, provided that the market was regarded as "highly concentrated," which meant a CR4 of 75 or more.[6] Those Guidelines also required elevated scrutiny of markets exhibiting a "trend toward concentration." (§I,7) The 1968 Guidelines also expressed concern about the acquisitions of competitors who had been particularly "disruptive" in the market, as well as acquisitions of firms that possessed "an unusual competitive potential" or "an asset that confers an unusual competitive advantage," which included "a patent on a significantly improved product or production process." (I,8)

While renewing this concern about mergers facilitating exclusionary conduct, the 2010 Guidelines do not suggest a broad mandate for using §2 of the Sherman Act to prohibit mergers simply because they increase the likelihood of exclusionary practices.[7] The Sherman Act does not contain the incipiency "may substantially lessen competition" language of §7 of the Clayton Act and presumably requires an actual or at least intended exclusionary practice, not the mere creation of a structure that is conducive to one. On the other hand, §7 of the Clayton Act can be brought to bear. The theory would be that an acquisition could be the means by which a firm attempts to acquire or perhaps to maintain a dominant position.[8] The 2010 Guidelines give this example:

> Merging Firms A and B operate in a market in which network effects are significant, implying that any firm's product is significantly more valuable if it commands a large market share or if it is interconnected with others that in aggregate command such a share. Prior to the merger, they and their rivals voluntarily interconnect with one another. The merger would create an entity with

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[5] They were drafted while Turner was Head of the Antitrust Division, but released on the day that he left office. See Hovenkamp, 2010a. These Guidelines are available at http://www.justice.gov/atr/hmerger/11247.pdf.

[6] Id., I.5. The CR4, or four firm concentration ratio that was used in the 1968 Guidelines, is the sum of the market shares of the largest four firms in the market.

[7] Cf. *Cargill, Inc. v. Monfort, Inc.*, 479 U.S. 104 (1986) (refusing to enjoin merger at request of private plaintiff claiming that merger would enable post-merger firm to engage in aggressive anticompetitive pricing). See Areeda & Hovenkamp (2007).

[8] Section 6 the 2010 Guidelines also speaks of "exclusionary unilateral effects," although without adding any substance to that concern. 2010 Guidelines, §6.

> a large enough share that a strategy of ending voluntary interconnection would have a dangerous probability of creating monopoly power in this market. The interests of rivals and of consumers would be broadly aligned in preventing such a merger (2010 Horizontal Merger Guidelines, §2).

This suggested application to networks and dominance is novel in the Merger Guidelines, but hardly unwarranted. As a general matter nondominant firms in networks require compatibility in order to compete. By contrast, dominant firms may be in a position to profit from incompatibility (Areeda and Hovenkamp, 2008).[9] As the Guidelines observe, the interests of consumers are almost always aligned with compatibility, which tends to make networked markets larger overall and more competitive internally.

Restraints on Innovation

Practices that restrain innovation can be both collusive[10] and exclusionary[11] or sometimes both.[12] The 1968 Guidelines contained a statement on innovation to the effect that:

> the Department has used Section 7 to prevent mergers which may diminish long-run possibilities of enhanced competition resulting from technological developments that may increase inter-product competition between industries whose products are presently relatively imperfect substitutes (1968 Merger Guidelines, III, 20).[13]

The 1984 Guidelines noted briefly that market share figures might overstate a firm's competitive significance if rivals had access to a technology that the firm in question did not (1984 Guidelines, §3.2.1). The 1992 guidelines treatment of innovation was limited to a single footnote in its opening statement on market power, to the effect that "[s]ellers with market power also may lessen competition on dimensions other than price, such as product quality, service, or innovation" (1992 Guidelines, §0.1, n.6.).[14]

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[9] See also Areeda & Hovenkamp, 2010 (refusal to deal in dominated networks); Hovenkamp, H. (2010b). The concern is expanded and specifically related to innovation intensive markets in Bohanan and Hovenkamp, 2011b.

[10] See, e.g., *United States v. Automobile Mfrs. Ass'n*, 307 F. Supp. 617 (C.D. Cal 1969), appeal dismissed sub nom. *City of New York v. United States*, 397 U.S. 248 (1970), modified sub nom. *United States v. Motor Vehicle Mfrs. Ass'n*, 1982-83 Trade Cas. (CCH) ¶ 65,088 (C.D. Cal. 1982) (cartel to restrain development of automobile air pollution control equipment).

[11] E.g., *United States v. Microsoft Corp.*, 253 F.3d 34, 77-78 (D.C.Cir. 2001), cert. denied, 534 U.S. 952 (2001) (Microsoft pressure on Intel to abandon development of multiplatform chip).

[12] E.g., *Allied Tube & Conduit Corp. v. Indian Head*, 486 U.S. 492, 496-497 (1988) (standard setting organization captured by manufacturers of steel conduit boycotts maker of technologically superior PVC conduit). See Bohannan & Hovenkamp, 2011b.

[13] The 1968 Guidelines also indicated that traditional market definition criteria might not be used in markets subject to rapid technological change, but did not provide details. See id., 1.

[14] These Guidelines are available at http://www.ftc.gov/bc/docs/horizmer.shtm.

They never returned to the subject. However, the Guidelines for the Licensing of Intellectual Property, which were issued in1995, focused a great deal of attention on licensing practices in innovation intensive markets and occasionally referenced situations where the nature of a license or joint venture entailed that the transaction should be treated more like a merger than a contract.[15] The licensing Guidelines also developed the idea of an "innovation market," a concept that the 2010 Horizontal Merger Guidelines do not repeat. The 2006 Commentary on the 1992 Merger Guidelines also speak in several places about the relevance of innovation, although they also do not return to the subject of innovation markets.[16]

Restraints on innovation are addressed in the 2010 Horizontal Merger Guidelines mainly in the category of unilateral effects. The Guidelines have a separate section on mergers limiting "innovation and product variety" (2010 Guidelines, §6.4) which is concerned with "unilateral effects arising from diminished innovation or reduced product variety." As the Guidelines state:

> The Agencies may consider whether a merger is likely to diminish innovation competition by encouraging the merged firm to curtail its innovative efforts below the level that would prevail in the absence of the merger. That curtailment of innovation could take the form of reduced incentive to continue with an existing product-development effort or reduced incentive to initiate development of new products.
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> The first of these effects is most likely to occur if at least one of the merging firms is engaging in efforts to introduce new products that would capture substantial revenues from the other merging firm. The second, longer-run effect is most likely to occur if at least one of the merging firms has capabilities that are likely to lead it to develop new products in the future that would capture substantial revenues from the other merging firm. The Agencies therefore also consider whether a merger will diminish innovation competition by combining two of a very small number of firms with the strongest capabilities to successfully innovate in a specific direction.
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> The Agencies evaluate the extent to which successful innovation by one merging firm is likely to take sales from the other, and the extent to which post-merger incentives for future innovation will be lower than those that would prevail in the absence of the merger.

In sum, the story closely resembles that of diverted sales on the demand side, except that in this case the emphasis is on diversion of supply through innovation. The

[15] Department of Justice and Federal Trade Commission, (1995) Antitrust Guidelines for the Licensing of Intellectual Property, §3.2.3, available at http://www.justice.gov/atr/public/guidelines/0558.htm.

[16] *See* Commentary, Introduction (noting that market power may be exercised by slowing down innovation and that reduced innovation is an anticompetitive effect). See also id., §4 (innovation and efficiencies defense).

concern is hardly fanciful and some version of it has been known in antitrust since the beginning of the twentieth century. For example, in the *Paper Bag* patent litigation, which reached the Supreme Court in 1908, the dominant firm had acquired a patent in a technology that competed with technology it was already using. It did not use the patent at all, preferring to stick with its existing technology, but also refused to license it to others and filed a successful infringement action against a rival firm that apparently independently developed technology that infringed the acquired patent.[17]

A similar concern is also expressed in the *Antitrust Law* treatise, which argues that an appropriate remedy in most such cases is to permit dominant firms to acquire *non*exclusive licenses in patents that lie at the heart of their power, but not exclusive licenses (Areeda and Hovenkamp, 2008). Prohibiting such acquisitions altogether often precludes firms from keeping their own technology up to date. In order to accomplish this, however, they do not need the patent's power to exclude; they need only access to patented technology developed by others. As a result, permitting the acquisition of nonexclusive licenses strikes about the right balance between denying a dominant firm access to essential technology and permitting it to exclude others from its market.

Both the acquisition and the nonuse of a patent are lawful acts in and of themselves.[18] However, the combination of acquisition and nonuse represents a different concern – a practice that is not authorized by the Patent Act and that can result in the suppression of competition. Indeed, the acquisition and nonuse of patent can be far more threatening to competition than the acquisition of a production facility, whether or not it is shut down. When an acquired plant or other productive facility is taken off the market or out of production by a merger, others can build a rival plant depending on the height of entry barriers and other market factors. But a patent forecloses all technologies covered by its claims whether or not it is actually being practiced. For example, if a dominant firm with Alpha technology sees a close rival with incipient Beta technology that threatens to compete with Alpha, acquisition of the firm with the Beta technology eliminates not only that firm as a competitive threat but also takes the Beta technology and any technology covered by the Beta patent claims off the market altogether (Bohannan and Hovenkamp, 2011a). In the *Paper Bag* decision discussed above the patentee acquired the competing technology and did not practice the patent at all. Further, the rival was guilty of infringement under the doctrine of equivalents,

[17] *Continental Paper Bag Co. v. Eastern Paper Bag Co.*, 210 U.S. 405, 429 (1908). For more on the litigation, see Bohannan and Hovenkamp, 2011b.

[18] Patents are freely assignable. 35 U.S.C. §261. Under the *Paper Bag* case, (Continental Paper Bag Co. v. Eastern Paper Bag Co., 210 U.S. 405, 429 (1908)), a patentee need not practice it in order to bring an infringement action. However, under the Supreme Court's decision in *eBay, Inc. v. MercExchange, LLC*, (547 U.S. 388, 392-393 (2006)), nonpracticing patentees may see their remedies limited to damages rather than an injunction. See Hovenkamp (2010 c).

which in that case meant that his technology did not literally infringe the acquired patent at all but merely reached the same result.

Patents are unquestionably "assets" reachable by §7 (Areeda and Hovenkamp, 2009). At the time a patent is acquired neither the government nor anyone else may know whether the acquiring firm intends to practice it. But the exclusive or nonexclusive nature of the assignment is knowable and exclusive assignments in areas subject to dominance should be regarded as suspicious. Further, exclusivity is almost never essential to protect any legitimate interest of the acquiring firm. Its legitimate interest is to be able to practice the best technology itself, but not to prevent others from using technology that it did not develop itself.

Of course, a nonexclusive license may be worth less to the acquirer than an exclusive license, and this may injure the inventor/assignor of the patent. An exclusive right to the patent in the hands of the dominant firm who does not intend to use it could be worth more than a nonexclusive right held by that firm or others. But patents do not create entitlements to market monopolies any more than ownership of a production plant entitles one to a monopoly in its product market, or to sell it subject to a an anticompetitive noncompetition agreement. That is, the general rule that assets can be freely transferred to the highest bidder clearly applies to patents, but it is just as clearly subject to the constraint that anticompetitive transactions can be enjoined within they fall within the prohibitions of the antitrust laws.

Product Differentiation and Unilateral Effects

The ideas of product differentiation and heightened scrutiny for mergers of more "adjacent" firms in product differentiated markets have been around at least since Harold Hotelling's work in the late 1920s on spatially differentiated markets and the output responses that firms make to closer and more remote rivals (Hoteling,1929; Areeda and Hovenkamp, 2009; Hovenkamp, 2011; Coate, 2008)[19] Already in its 1948 *Columbia Steel* decision the Supreme Court noted its significance. The merging firms, United States Steel and Consolidated Steel, were rivals in the highly differentiated market for steel fabrications. The market was divided into structural and plate fabrication. The former included materials for steel frame buildings, bridges, towers, and the like. The latter included such things as pressure tanks and pipes. Finally, the industry was divided into light and heavy fabrication, depending on the size and weight of the parts to be made. One critical component in the Court's decision was evidence that during a ten year period the acquiring firm had bid on 2409 jobs and the acquired firm on 6377 jobs. However, both companies bid on only 166 of these jobs. The Court noted that while "such figures are not conclusive of lack of competition," the fact was

[19] See also Werden & Froeb, 2008; Baker & Bresnahan, 1985.

that the list of structural components sold by one of the firms was quite different from the list sold by the other. It agreed with the district court that the amount of competition between the two firms was "not substantial." [20] To express this in today's parlance, the diversion ratio from United States Steel to Consolidated was so small that a merger of the two would not materially affect the post-merger firm's ability to impose a small but significant and nontransitory increase in price.

Every set of Merger Guidelines has acknowledged product differentiation, but they have expressed different views about how the presence of differentiated products should affect the analysis of mergers. In the 1968 Guidelines product differentiation was an exacerbating factor, as it was in most of the structuralist analysis from the 1930s through the 1960s. For example, the Guidelines expressed concern about vertical mergers that might "facilitat[e] promotional product differentiation" at the retail level (1968 Merger Guidelines, II, 11). With respect to conglomerate mergers the 1968 Guidelines were concerned about mergers that "may enhance the ability of the merged firm to increase product differentiation in the relevant markets" (1968 Merger Guidelines, III, 20).[21]

At the other extreme, the 1982/1984 Guidelines, which were heavily concerned with coordinated interaction, largely regarded product differentiation as a mitigating factor. As those Guidelines explained, "with a homogeneous and undifferentiated product a cartel need establish only a single price – a circumstance that facilitates reaching consensus and detecting deviation." However, when products are differentiated problems of coordination become more complex. As a result, "when the relevant product is completely homogeneous and undifferentiated, the Department is more likely to challenge the merger," but less likely to challenge it if the product is "sold subject to complex configuration options or customized production…" (1984 Merger Guidelines, §3.411). The 1984 Guidelines did acknowledge in a later section that a characteristic of product differentiation is closer and more distant substitutes, and that the Department would look more closely at mergers of closer substitutes (1984 Merger Guidelines, §3.413). The 1992 Guidelines developed the problem of unilateral effects in product differentiated markets at somewhat greater length, but not as expansively as it is treated in the 2010 Guidelines (1992 Guidelines, §2.2).

The theory of unilateral effects is intuitively simple. In product differentiated markets firms are not price takers. Rather, they have at least limited power over price

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[20] *United States v. Columbia Steel Co.*, 334 U.S. 495, 499-500, 516 & n.3 (1948).

[21] However, the Guidelines added this caveat: "Generally speaking, the conglomerate merger area involves novel problems that have not yet been subjected to as extensive or sustained analysis as those presented by horizontal and vertical mergers. It is for this reason that the Department's enforcement policy regarding the foregoing category of conglomerate mergers cannot be set forth with greater specificity" (1968 Merger Guidelines, III, 20).

depending on the degree of difference between their own product and that of rivals, including factors such as rivals' ability to expand output or reconfigure their products so as to move more closely into the primary firm's product space. Further, the differences exist on a continuum. More adjacent rivals offer more competition. When a firm unilaterally increases its price while costs remain constant it will lose some but not all sales. More adjacent rivals (in either product or geographic space) will divert more sales, while remote rivals will divert fewer. As a result a merger with a relatively adjacent partner – say, among the two or three closest rivals – will enable the post-merger firm to lose fewer sales because at least a portion of the sales that are diverted to this particular rival will then be retained within the post-merger firm.

Analysis of unilateral anticompetitive effects requires considering whether the amount of net lost output in response to a given price increase is sufficiently diminished by a merger so as to make that price increase profitable. For example, a firm producing 500 units might lose 25 units of output in response to a 5% price increase. Assume that an output reduction of this magnitude would make the price increase unprofitable. Suppose that the 25 units went 10 units to firm A, 8 units to firm B, and 7 units to firm C. In that case, if the firm in question should acquire firm B, it might suffer a loss of only 17 units in response to its 5% price increase, and this increase might be profitable.[22]

This analysis is "static," in the sense that it compares two "output snapshots" of the firm's position before and after the merger, and assumes that other firms will not change their price or output behavior significantly in response to the price increase (Ordover, 2008; Carlton, 2010; Kovacic et al., 2009).[23] To the extent that other firms can readily reposition themselves closer to the product space occupied by the post-merger firm, the price increase will be lower.[24] To the extent other firms "coordinate" by playing follow the leader and increasing their own prices it might be higher. By and large the Guidelines make neither assumption.[25]

The unilateral effects analysis provisions in the 2010 Guidelines certainly do not reflect any more speculation or uncertainty than is present in the more traditional

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[22] Using a technique called critical loss analysis the Agencies' economists may try to identify how many sales must be lost in response to a price increase of a given magnitude, and then consider whether the actual loss is greater than or less than the critical loss. See, e.g., *City of New York v. Group Health, Inc*., 2008 WL 4974578 (S.D.N.Y. Nov. 21, 2008) (critical loss analysis relevant to determination of amount of price increase that would likely occur subsequent to a merger); *Delco LLC v. Giant of Maryland*, LLC, 2007 WL 3307018 (D.N.J. Nov. 8, 2008) (similar). See Shapiro, 2010; Farrell & Shapiro, 2008).

[23] See also Werden & Froeb, 2006.

[24] See Gurrea & Owen, 2003 (criticizing unilateral effects analysis for not taking dynamic response possibilities into account).

[25] ***See e.g., United States v. Oracle Corp.***, 331 F.Supp.2d 1098, 1121-1122 (N.D.Cal. 2004) (criticizing the government for not considering extent to which third party firms might respond to post-merger firm's attempted unilateral price increase).

analysis depending on coordinated interaction, notwithstanding that the latter has been in use far longer. While the HHI may add an appearance of scientific rigor to coordinated effects analysis, that index actually incorporates many conjectures about firm behavior and rival responses that may or may not apply in any given situation. In general, unilateral effects are easier to model precisely because there are not so many behavioral assumptions to be taken into account (Ordover, 2007).

As the Guidelines indicate, traditional market definition plays a smaller role in unilateral effects analysis. The 2010 Guidelines indicate that the Agencies will look for direct evidence of upward pricing pressure that is likely to result in post-merger price increases.[26] As the conclusion to this paper suggests, while reliance on a traditional market definition has been standard in merger analysis the statutes do not appear to compel it and the "substantially lessen competition" formulation of §7 of the Clayton Act would appear to permit it.

Coordinated Interaction

Coordinated effects analysis of mergers requires a prediction about how a merger might change firms' incentives to coordinate their behavior. In part this analysis is structural, relating to the number of firms in the market, their size distribution, ease of entry, degree of product differentiation, whether transactions are transparent or secret, ratios of fixed to variable costs, to name a few (Shapiro, 1989). But the query is also substantially "behavioral," in the sense that it relates to assumptions about how firms respond to the behavior of other firms. In general, neither structural nor behavioral assumptions make much difference in very unconcentrated and homogeneous markets,

[26] See 2010 Horizontal Merger Guidelines, §6.1:

> Adverse unilateral price effects can arise when the merger gives the merged entity an incentive to raise the price of a product previously sold by one merging firm and thereby divert sales to products previously sold by the other merging firm, boosting the profits on the latter products. Taking as given other prices and product offerings, that boost to profits is equal to the value to the merged firm of the sales diverted to those products. The value of sales diverted to a product is equal to the number of units diverted to that product multiplied by the margin between price and incremental cost on that product. In some cases, where sufficient information is available, the Agencies assess the value of diverted sales, which can serve as an indicator of the upward pricing pressure on the first product resulting from the merger. Diagnosing unilateral price effects based on the value of diverted sales need not rely on market definition or the calculation of market shares and concentration. The Agencies rely much more on the value of diverted sales than on the level of the HHI for diagnosing unilateral price effects in markets with differentiated products. If the value of diverted sales is proportionately small, significant unilateral price effects are unlikely.

On upward pricing pressure, or UPP, see. Farrell and Shapiro, 2010. Briefly, the UPP index asks whether the upward pressure resulting from the elimination of competition between two firms (a function of the diversion ratio and price-cost margins) exceeds any downward pricing pressure resulting from cost savings. Formally, application requires knowledge of the diversion ratio and price cost margins as well as efficiency gains, but not market definition (Das Varma, 2009).

where firms have little power to set output or price strategically vis-à-vis other firms except by collusion. But the assumptions can become critical in the relevant range of analysis, most typically where markets have between three and seven or eight firms.

Indeed, one defense of increased use of unilateral effects analysis is that coordinated effects analysis is sensitive to many assumptions about firm's reactions that cannot practicably be tested in any rigorous fashion. The HHI, particularly as used in the in the Merger Guidelines from 1982 to 1992, belied much of this complexity by focusing so strongly on two issues, market definition and concentration measures. The HHI itself is directly derived from Cournot assumptions (Stigler, 1964).[27] Although the assumptions are rational, particularly when products are homogenous, they are empirically not clearly more reliable than a much simpler index, such as the CR4, which is easier to use.[28]

For the most part, what happened during the 1990s and a little after is that the "other factors" portions of the Guidelines ended up doing much more of the work, and the importance of the Guidelines' structural presumptions became much less important. Indeed, during the first decade of this century the HHI structural indicators expressed in the 1992 Guidelines proved to be very poor predictors of merger challenges.

The de-emphasis on structure is a good thing, but one must query whether it has gone far enough. The fact is that the HHI expresses a rigid Cournot formulation about output setting in undifferentiated markets. In that sense it is pure structuralism, and its use is consistent with only a few of the alternative behavioral assumptions that go into the analysis of coordinated interaction. Even internally, the Guidelines reflect diverse behavioral assumptions, indulging an assumption of no response at all in unilateral effects analysis, but of Cournot-style optimization of output in coordinated effects analysis.

Consider one set of situations where the HHI can throw merger analysis off course. For any given number of firms the HHI is minimized when they are all of equal size. The greater are the disparities in size, the higher the HHI.[29] In an undifferentiated market this result is directly derived from an orthodox Cournot assumption that each firm takes the other firms' output as given and maximizes from that point (Stigler, 1964; Gans, 2007; Carlton, 2004). But that is only one among a number of quite reasonable behavioral assumptions. For example, if the firms are colluding and the market is subject to scale economies, larger firms could have lower per unit costs, and this could

[27] See Baker, 2010, noting that under Stigler's analysis the HHI is a predictor of cartel stability.

[28] Cohen & Sullivan, 1983 (HHI generally no better); Kwoka, 1979; Kwoka, 1985 (same). Jon Baker more recently concluded that "empirical literature does not provide a strong basis for choosing any particular measure of market concentration, though it is not inconsistent with the common modern antitrust practice of using the HHI to represent concentration."

[29] For example, four 25% firms have an HHI of 2500, bringing the market just to the bottom edge of highly concentrated. However, if this market has firms of 30, 25, 25, and 20, then the HHI is 2550. If it has two 30 percent firms the HHI is 3050.

serve to undermine rather than support the cartel. Indeed, the 1984 Merger Guidelines took such disparities into account and considered them as a mitigating factor to the extent that they tended to destabilize a cartel (1984 Guidelines, §3.411).[30]

Whether these variations matter depends largely on how closely one follows the HHI numbers. The answer under the 1992 Guidelines was not very closely. The 2010 Guidelines respond by increasing the thresholds, which certainly brings them into closer alignment with enforcement policy. That nevertheless leaves the question of how much *independent* useful information the HHI itself provides. The Guidelines suggest strong concern with post merger markets that contain the "equivalent" of four equal size firms. But equivalency here is a big word and reflects a wide range of structures as well as a range of quite plausible assumptions about behavior. The Government might do well simply to abandon the HHI and state its concerns in terms of the number of significant players that have the ability to appropriate one another's output.

Conclusion: Market Delineation and the Importance of Post-Merger Review

One result of unilateral effects analysis in the Guidelines is that in the presence of product differentiation the "relevant market" can be quite small, often limited to three or four firms and excluding other firms whose products are in some general sense substitutes for the products of the post-merger firm. Unlike the 2010 Guidelines, the 1992 Guidelines applied coordinated effects analysis only when the post-merger firm's market share exceeded 35% (1992 Guidelines, §2.211). This section in turn was borrowed from the "leading firm proviso" in the 1984 Merger Guidelines, which was concerned with situations where a "leading firm" – one with a market share of 35% or more – acquired a small firm. The 1984 Guidelines indicated that the concern in this situation was with unilateral rather than multilateral price increases (1984 Guidelines, §3.12). By abandoning this limitation the 2010 Guidelines make it possible to analyze a merger without defining the broader "market" at all. There is nothing wrong with such an approach, provided that it takes realistic account of likely customer behavior and rival responses (see Carlton, 2010).

Section 7 of the Clayton Act condemns mergers whose effects are felt in some "line of commerce" and in some "section of the country." Intuitively these descriptions seem to be related to geographic and product market definition, respectively and the Supreme Court has stated that "the proper definition of the market is a 'necessary predicate' to an examination of the competition that may be affected by the horizontal aspects of the merger."[31] However, they certainly do not suggest antitrust market

[30] Often in differentiated markets the firms could not set a single cartel price but would have to establish a schedule of prices. On size disparities as a destabilizing factor in cartels, see Porter, 2005; Cave & Salant, 1995.

[31] *Brown Shoe Co. v. U.S.*, 370 U.S. 294,322 n 38. The Court borrowed the formulation from *United States v. E.I. du Pont de Nemours & Co.*, 353 U.S. 586, 593 (1957); and also *United States v. Columbia Steel Co.*, 334 U.S. 495, 527 (1948), which first used the term "relevant market" and related market shares to illegality. See Werden, G.J. (2009); Werden, G. J. (1997).

definition as it has been applied since the second half of the twentieth century[32] and historically they almost certainly were not meant to require a formal market definition at all. Outside of the Clayton Act context the phrase "line of commerce" was very commonly used more generically to refer to a particular "line" of business or a set of products that a casual observer would view as competing with one another in the sense of rivalry. For example, referring to the pigment industry the Supreme Court stated in 1875 that oxides and zinc are "staples of trade in that line of commerce."[33] Business of a certain type, such as women's clothing or groceries, was commonly referred to as a "line." Thus courts interpreted commercial contracts by looking to customs and usages of trade in that "line of commerce."[34]

Nothing in the legislative history of the Clayton Act suggests that Congress meant any more than to make the provision reach mergers that threatened to be anticompetitive in some "line." By the same token, the phrase "section of the country" was almost certainly intended to be jurisdictional. That is, Congress wanted to make clear that it was concerned about mergers whose impact was felt in some part of the United States rather than abroad. This is bolstered by the fact that the other substantive provisions of the Clayton Act contained similar limitations that obvious did not pertain to market definition. For example, original §2 of the Clayton Act, which condemned a form of predatory pricing, reached only commodities destined for use, sale or consumption in the United States.[35] Section 3 of the Clayton Act, which pertains to tying and exclusive dealing, contains a similar limitation.[36]

Markets in merger analysis are not defined for their own sake, but rather in order to ascertain whether a particular alteration in market structure covered by the merger provisions will be likely to facilitate a price increase. The triggering event for antitrust

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[32] Beginning mainly with *United States v. Aluminum Co. of Amer., Inc.* (Alcoa), 148 F.2d 416 (2d Cir. 1945).

[33] *Meyer v. Arthur*, 91 U.S. 570, 573 (1875). See also *Bowles v. Gulf Refining Co.*, 61 F.Supp. 149 (D.Ohio 1945) (provisions of Emergency Price Control act designed not to affect the way that business is conducted in any particular "line of commerce");

[34] See, e.g., *Gilbert v. Citizens' Nat. Bank of Chickasha*, 61 Okla. 112, 160 P. 635 (Okla. 1916) (contract interpretation depends upon the customs or usage of trade of "those engaged in that line of commerce"); *Dixon v. Dunham*, 14 Il. 324, 324 (1853) (a usage of trade that is indispensable in a particular "line of commerce" is an allowable interpretation); *Mobile Fruit & Trading Co. v. J.H. Judy & Son.*, 91 Ill.App. 82 (Ill.App. 1900) ("The rule is well recognized that where a commercial contract is in any respect ambiguous, and the necessities of the particular line of commerce render a particular custom or usage so indispensably necessary as to commend itself," that usage will be presumed).

[35] *See* 15 U.S.C. §13(a) "…where either or any of the purchases involved in such discrimination are in commerce, where such commodities are sold for use, consumption, or resale within the United States or any Territory thereof or the District of Columbia or any insular possession or other place under the jurisdiction of the United States….").

[36] 15 U.S.C. §14 ("…for use, consumption, or resale within the United States or any Territory thereof or the District of Columbia or any insular possession or other place under the jurisdiction of the United States….").

merger analysis is an acquisition that restricts the easiest avenues of substitution just enough to permit a price increase that merger policy should condemn.[37]

Nevertheless, old habits die hard. Particularly in situations where the acquired firm is not the closest rival, the tendency on the part of those defending a merger to pursue broader market definitions under traditional criteria. Those criteria generally identify as "in the market" all firms to whom there is some substantial amount of substitution in response to a SSNIP, without considering the relative amounts of substitution to each firm. The fact is, however, that the diversion ratio analysis is much better suited for assessing market power in product differentiated markets than are traditional market definition criteria. Under the latter, once firms are counted as in the market they are more-or-less treated as if they were perfect competitors with one another.

The 2010 Guidelines recognition that merger analysis remains a highly diverse exercise also suggests the continuing importance of post-acquisition review.[38] Indeed, the 2010 Guidelines include a separate section on evidence of actual competitive effects observed in the case of consummated mergers (§2.1.1), The 1982/1984 and 1992 Guidelines largely ignored the issue and analyzed mergers as if they were prospective, as contemplated by the premerger notification process. The 1968 Guidelines were issued before the Hart-Scott-Rodino premerger notification process was in place (15 U.S.C. §18a (enacted in 1976)).

All the theory aside, the fact remains that predicting the past is still easier than predicting the future. The social and private costs of undoing a completed merger are considerable. Nevertheless, the proper thing for the Agencies to do is to be cautious about mergers that are very close to the margin, but then challenge those that appear to be anticompetitive after the fact. No matter how much information an Agency collects in analyzing a merger they never get everything. The firms themselves always know more than the Agencies know. As a result, in one very strong sense the social cost of a post-merger challenge is self-inflicted.

Or to say it differently, the merger review process proceeds in two stages, a relatively low cost pre-acquisition process that is designed to catch most of the troublesome cases in advance, and to this end greatly reduces the cost of post-acquisition disentanglements. But the price we pay for the cost savings that attend pre-merger review is necessarily a few cases that will slip by and require more costly intervention later.[39]

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[37] See *United States v. Oracle Corp.*, 331 F.Supp.2d 1098 (N.D.Cal. 2004) (rejecting the government's attempt to focus on this question). For fairly extreme doubt about the usefulness of market definition in antitrust cases generally, see Kaplow, 2010.

[38] On the use, relevance, and limitations of post-acquisition evidence, see Areeda and Hovenkamp, 2009.

[39] E.g., *Chicago Bridge & Iron Co. v. FTC*, 534 F.3d 410 (5th Cir. 2008) (post-acquisition condemnation of merger; discussing usefulness of post-acquisition evidence); *in re Evanston*, 2007 WL 2286195 (FTC #9315, Aug. 6, 2007).

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