April 23, 2009

VIA ECFS ***EX PARTE***

Marlene H. Dortch
Office of the Secretary
Federal Communications Commission
445 12th Street, SW
Suite TW-A325
Washington, DC 20554

Re: ***Petition of Verizon New England for Forbearance Pursuant to 47 U.S.C. § 160(c) in Rhode Island,*** **WC Dkt. No. 08-24;**
Petition of the Verizon Telephone Companies for Forbearance Pursuant to 47 U.S.C. § 160(c) in Cox's Service Territory in the Virginia Beach Metropolitan Statistical Area, **WC Dkt. No. 08-49**

Dear Ms. Dortch:

The undersigned parties, by their counsel, hereby submit the attached Declaration of Dr. Stanley M. Besen ("Declaration") in which Dr. Besen explains that the theoretical and empirical literature support a presumption that duopolists will *not* price competitively and that the entry of a third firm of substantial size will result in prices that are closer to competitive levels. Dr. Besen's analysis provides further support for the proposed standard for FCC consideration of UNE forbearance petitions submitted by a group of competitive carriers in the above-referenced proceedings on March 26, 2009.[1] The undersigned parties will discuss the relevance of the attached Declaration to the Proposed Standard in further detail in separate filings in the above-referenced proceedings.

Please do not hesitate to contact the undersigned if you have any questions or concerns about this submission.

[1] *See* Letter from A. Lipman et al., Counsel for Alpheus Communications, L.P. et al. to Marlene H. Dortch, Secretary, FCC, *In re Petition of Verizon New England for Forbearance Pursuant to 47 U.S.C. § 160(c) in Rhode Island*, WC Dkt. No. 08-24; *In re Petition of the Verizon Telephone Companies for Forbearance Pursuant to 47 U.S.C. § 160(c) in Cox's Service Territory in the Virginia Beach Metropolitan Statistical Area*, WC Dkt. No. 08-49 (filed Mar. 26, 2009).

Respectfully submitted,

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ATTACHMENT:

DECLARATION OF STANLEY M. BESEN

DECLARATION OF DR. STANLEY M. BESEN

Qualifications

My name is Stanley M. Besen. I am a Senior Consultant at CRA International, Washington, D.C. I previously served as a Brookings Economic Policy Fellow, Office of Telecommunications Policy, Executive Office of the President; Co-director, Network Inquiry Special Staff, Federal Communications Commission; Coeditor, *RAND Journal of Economics*; and a Senior Economist at the RAND Corporation. I currently serve as a member of the Editorial Board of *Economics of Innovation and New Technology*. I have taught at Rice University, where I was the Allyn M. and Gladys R. Cline Professor of Economics and Finance; at Columbia University, where I was the Visiting Henley Professor of Law and Business; and at the Georgetown University Law Center, where I was Visiting Professor of Law and Economics. I have published widely on telecommunications economics and policy, intellectual property, and the economics of standards, and have consulted to many companies in the telecommunications and information industries. I hold a Ph.D. in Economics from Yale University. My curriculum vitae is attached to this report as Appendix A.

Assignment and Conclusions

I have been asked by Cbeyond, Inc., TDS Metrocom, LLC, One Communications Corp., tw telecom inc., and PAETEC Communications, Inc. to describe lessons from the theoretical and empirical economics literatures concerning whether one can presume that there will be competitive pricing when there are only two substantial competitors in a market.[1] As described below, the answer is that one cannot.

[1] I understand that these firms have filed a response to *Petition of Verizon New England for Forbearance Pursuant to 47 U.S.C.* § *160 in Rhode Island,* WC Dkt. No. 08-24 (filed Feb. 14, 2008).

First, although it is possible in theory that duopoly will lead to fully competitive pricing, so that the entry of a third firm, or additional firms, will not lead to a reduction in prices, this is an extreme and special case. Indeed, this prediction is known as the "Bertrand paradox," correctly suggesting that industrial organization economists view it as highly unlikely to occur in most cases. By contrast, a wide variety of theoretical models recognize, and even predict, that duopoly more typically leads to higher prices than would prevail in a market with a larger number of firms and that the entry of additional firms would result in lower prices. Salinger states the point succinctly: "In virtually any oligopoly model, a merger of two firms [such as one that reduces the number of competitors from three to two] makes the market less competitive."[2]

Second, a substantial body of empirical work in, and across, varying industries confirms that high concentration often leads to higher prices and markups. Although these studies are not definitive, and some studies find little or no relationship between concentration and prices,[3] the preponderance of the evidence is that markets with a small number of firms, or markets in which a few firms have very large market shares, tend to have higher prices than where concentration is lower. A number of these studies identify critical levels of concentration above which prices tend to increase or suggest that entry

[2] M. Salinger, "The Concentration-Margins Relationship Reconsidered," *Brookings Papers on Economic Activity, Microeconomics*, 1990, p. 319. J.T. Scott, "The Price-Concentration Hypothesis and Horizontal Merger Policy," March 24, 2006, p.6, makes a similar point when he notes that "many different theoretical models – both game theoretic models with their mathematical formality and older descriptions of mutual dependence recognized among concentrated sellers – generate the price-concentration hypothesis."

[3] See, e.g., P.S. Clyde and J.D. Reitzes, *The Effectiveness of Collusion Under Antitrust Immunity, The Case of Liner Shipping Conferences*, Bureau of Economics Staff Report, Federal Trade Commission, December 1995 (increases in market concentration are associated with statistically significant, but economically small, increases in freight rates); and O. Ashenfelter and D. Hosken, "The Effect of Mergers on Consumer Prices: Evidence from Five Selected Case Studies," CEPS Working Paper No. 160, February 2008 (estimated price increases might be considered "relatively modest"). At some level, the Ashenfelter-Hosken result is not surprising, however, since the mergers that they analyzed had previously been approved by the antitrust agencies although, of course, that is no guarantee that a merger will not result in an increase in prices.

leads to lower prices when the number of firms in the market is small. In particular, a common finding is that the presence of three or more significant competitors tends to result in lower prices than those that prevail in duopoly.

None of this shows that duopolies never price, or perform, in a fully competitive manner. As a result, antitrust policy goes beyond the *presumption* that high concentration leads to higher prices and investigates specific markets in detail. At the same time, however, economic analysis provides no support for the presumption that duopoly leads to fully competitive outcomes, so that the presence of additional competitors does not result in lower prices. Indeed, the opposite is the case.

Theory

Although there is a theory under which duopolists will charge the same prices as those that would be charged by perfectly competitive firms, one cannot presume that the conditions under which this "Bertrand paradox"[4] will result are present in any real world setting. In the model that leads to this result, two firms can produce at c, where c is the constant unit (marginal and average) cost. They set prices simultaneously; if their prices differ, the lower-priced firm serves all customers while if they set equal prices, each gets half the market. In this model, an equilibrium is for each firm to set its price equal to c. This is also the fully competitive outcome. However, more realistic models that include, for example, product differentiation and pricing dynamics, strongly suggest that duopolies are likely to be able to maintain prices above cost and, therefore, above fully competitive levels.

[4] See J. Tirole, *The Theory of Industrial Organization*, MIT Press, 1988, pp. 209-211 for a discussion of the paradox and pp. 211-212 for a discussion of various ways to resolve it. Tirole concludes (p. 212) that "oligopoly pricing will lead to an outcome intermediate between the Bertrand one and the outcome of the other polar case (the monopoly situation)."

Suppose for example that firm 1 can command a pricing premium among a subset of buyers. This might be the result of "simple" product differentiation, as in many modern models of competition in consumer goods, or it might be of a more subtle kind. For example, some buyers in an intermediate-goods market may be reluctant to rely on firm 2 for their inputs because their downstream business plans threaten firm 2's own legacy downstream business, whereas this issue is less severe (for them) if they purchase from firm 1. In either case, even if firm 2 were to set its price equal to c, firm 1 would not find it profitable simply to do likewise because it would retain some customers even at a higher price. In response, firm 2 could be expected to increase its price. Equilibrium conduct might be complex, even unstable, but, in these situations, both firms typically will end up setting prices above c.

When firms respond to one another's price changes, as is normal in oligopolistic or moderately competitive markets, each firm has an additional incentive to raise its price. In a duopoly market, for example, a firm that raises its prices may reasonably expect that its rival will do so as well. Similarly, a duopolist may be reluctant to reduce its price from a supra-competitive level even if it could capture the entire market at a point in time by doing so if it recognizes that its rival is likely to respond by lowering its prices in the future. In short, merely a recognition that firms will respond to the prices that are being charged by their rivals—even with no suggestion that the firms are colluding —may be sufficient to sustain prices above competitive levels. In addition, of course, more familiar models that fit more naturally into a framework of tacit, or explicit, collusion also indicate that small numbers of significant players may be able to achieve the same result.

The clear implication of this theoretical literature is that entry of a third competitor, or competitors beyond that, will generally lead to lower prices. The empirical economic literature, discussed next, attempts to identify the magnitude of these effects.

Empirical Evidence

Economists have examined three types of evidence in order to quantify the effects of the entry of additional firms on the prices charged by firms in concentrated industries. First, they have compared price-cost margins in different industries with different levels of concentration. Second, they have analyzed how prices in different geographic markets in the same industry vary with the level of concentration in those markets. Finally, they have examined how prices change, or are expected to change, as a result of a merger that significantly reduces the number of competing firms.

The econometric literature on inter-industry comparisons of profits and price-cost margins, on the one hand, and market concentration, on the other, generally shows that higher margins are associated with higher levels of concentration. Although this literature is relatively old, and is subject to a number of criticisms, it is important not to downplay its importance. First, while the literature is out of fashion, this is not because it has been shown to be mistaken. My position on the value of inter-industry studies is close to that of Schmalensee. He observes that these studies "rarely if ever yield consistent estimates of structural parameters, but they can produce useful stylized facts to guide theory construction and analysis of particular industries…..Inter-industry research can complement industry studies by describing robust relations that hold across large samples of markets."[5]

[5] R. Schmalensee, "Inter-Industry Studies of Structure and Performance," *Handbook of Industrial Organization*, Vol. II, R. Schmalensee and R.D. Willig (Editors), Amsterdam: North-Holland, 1989, p. 952.

Second, some of the most compelling criticisms of the literature consist of econometric issues[6] that could well explain "false negatives"— that is, explain why some studies could well have exhibited relatively low explanatory power,[7] unstable results,[8] and small estimated coefficients[9]— even if, in fact, there is a strong relationship between concentration and price. That is, these factors can just as easily lead to a conclusion that there is no link between concentration and prices when one exists as to a conclusion that there is a link when one does not exist.

Criticisms that suggest "false positives"—that is, explain why some studies would find such strong relationships even if no such relationship truly exists—are less in evidence. Moreover, the results of these older studies are generally consistent with those of newer studies that compare prices (e.g., in different geographic markets or over time) within an industry rather than compare price-cost margins across industries.[10]

Schmalensee summarizes the results of this newer literature with the following "Stylized Fact": "In cross-section comparisons involving markets in the same industry,

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[6] Among the criticisms of such studies are: (1) it may be difficult to obtain the quality-adjusted prices that are needed to assess the relationship between prices and concentration across markets; (2) markets with small numbers of firms may also be high cost markets, so that at least some of the higher prices in those markets may inappropriately be attributed to high concentration if such differences are not accounted for; (3) market structure may be affected by prices, so that statistical estimates may be subject to simultaneous equations bias; and (4) the market may be incorrectly defined, so that the numbers and identities of competing firms are mis-specified.

[7] The explanatory power of a model is measured by the proportion of the variation in a (dependent) variable, in this case price, that is "explained" by, or associated with, the variations in other (independent or explanatory) variables, one of which in this case is a measure of market concentration.

[8] Results are unstable when they are sensitive to changes in, for example, the identities of the explanatory variables that are included in the model, the way in which the variables are defined, the mathematical form of the assumed relationship between the dependent and explanatory variables, and/or the time period covered by the analysis.

[9] A coefficient measures the estimated effect of a change in the dependent variable that results from a one unit change in an independent variable holding constant the effects of the other independent variables. A coefficient can be small in a statistical sense, if the estimated effect of a change in an independent variable cannot be distinguished from no effect, or it can be small in an economic sense, if the estimated effect is not quantitatively important.

[10] For a discussion of some of these issues, including an explanation of why one popular criticism is somewhat misplaced, see M. Salinger, op. cit.

seller concentration is positively related to the level of prices."[11] Similarly, Bresnahan observes that "these studies confirm the existence of a relationship between price and concentration, which is at least suggestive of market power increasing with concentration."[12] Pautler reports that "Several studies of price/concentration relationships indicate that prices are higher where concentration is higher or the number of sellers is lower."[13] More recently, Coates and Hubbard report that: "Empirical studies of auction markets and various industries, such as airlines, railroads, books, and pharmaceuticals, show prices declining as the number of bidders or rivals increases and as concentration of sales in a few firms declines."[14] Finally, Sutton states: "that a fall in concentration will lead to a fall in prices and price-cost margins is well supported both theoretically and empirically."[15]

Other studies seek to go beyond this general conclusion in two ways. Some attempt to identify a "critical" level of concentration above which prices tend to rise, on the plausible hypothesis, consistent with leading theoretical models, that there may be little difference in prices between markets that have different but fairly low levels of concentration. Others analyze whether, and how, prices vary with the distribution of market shares among firms even with the same level of measured market concentration.

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[11] Id., p. 988.
[12] T.F. Bresnahan, "Empirical Studies of Industries with Market Power," *Handbook of Industrial Organization*, Vol. II, op. cit., p. 1043. Bresnahan identifies studies in industries such as banking, food retailing, gasoline supply, airlines, and cement.
[13] See P.A. Pautler, "Evidence on Mergers and Acquisitions," *The Antitrust Bulletin*, 2003, pp. 188-89. Pautler identifies studies in industries such as banking, airlines, food retailing, gasoline retailing, ocean shipping, hospitals, and natural gas transportation.
[14] J.C. Coates and R.G. Hubbard, Competition in the Mutual Fund Industry: Evidence and Implications for Policy, John M. Olin Center for Law, Economics, and Business, Harvard University, Discussion Paper No. 592, August 2007, p.11, http://www.law.harvard.edu/programs/olin_center/papers/pdf/Coates_592.pdf.
[15] J. Sutton, "Market Structure: Theory and Evidence," in *Handbook of Industrial Organization*, Vol. III, M. Armstrong and R.H. Porter (editors), North-Holland, 2007, p. 2307. Sutton describes this claim as "uncontroversial".

Finally, there have been a number of studies of the price effects of horizontal mergers that reduced an already small number of competing firms.

An early study by Kwoka found that "Large market shares for the two leading firms seem most decisive for industry price-cost margins, with a depressing effect from a sufficiently large third share."[16] His results suggest that duopolists are likely to have high price-cost margins, and that the presence of a third substantial firm would reduce these margins, although a third firm with only a small market share might have little effect.[17]

Bresnahan and Reiss examined the relationship between prices and the number of firms in geographically isolated markets in the Western United States.[18] Studying markets for tires, for example, they found that "markets with three or more dealers have lower prices than monopolists or duopolists."[19] Bresnahan and Reiss obtain similar results for the entry of firms beyond two in markets for doctors, dentists, druggists, and plumbers.

Thus, these studies suggest that, at least in some industries, the presence of a third substantial competitor results in a significant reduction in prices. This implies that duopoly does not bring prices all the way to fully competitive levels, because otherwise the entry of the third foresighted competitor would have no effect.[20] Of course, the presence of additional firms might lead to *even lower* prices. Indeed, as noted, a number of studies suggest that, in some markets, it does so.

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[16] See J.E. Kwoka, "The Effect of Market Share Distribution on Industry Performance," *The Review of Economics and Statistics*, 1979, p. 108. Kwoka finds that the shares of firms beyond the largest three do not have a significant effect on price-cost margins.

[17] Kwoka estimates that the presence of a third competitor affects prices once its share is greater than or equal to 16 percent (Id., p. 107), which appears to be his definition of "large".

[18] See T.F. Bresnahan and P.C. Reiss, "Entry and Competition in Concentrated Markets," *Journal of Political Economy*, 1991.

[19] Id. p. 1006.

[20] By foresighted, I mean that the third firm would not enter if it recognized that it would experience losses if it were to do so.

Moreover, even if the presence of a third firm does not have a significant effect on prices in a particular industry, that need not imply that duopoly (two firms) achieves a fully competitive outcome. It could still be the case that the presence of a fourth, fifth, or more firms would lead to lower prices. Thus, for example, Bresnahan and Reiss found that tire prices in markets with three to five dealers "are higher than unconcentrated market prices," leading them to conclude that "it appears that there are other intermediate ranges of concentration in which entry increases competition and lowers prices."[21]

Somewhat similarly, although Kwoka's analysis suggested that the addition of firms beyond the three largest has little or no effect on prices, this conclusion has been subject to some criticism on the grounds that his model was biased against finding an effect for the entry of firms beyond the third. For example, Mueller and Greer re-analyzed Kwoka's data, and claim that "the fourth firm as well as groups of firms below the top two possess characteristics similar to that of the third firm."[22] That is, they find that firms beyond the third exert an additional downward effect on prices, i.e., that three substantial firms are still not enough for fully competitive pricing.

Parker and Roller compare U.S. cellular prices between the monopoly (ILEC only) and duopoly periods.[23] They find that prices fell with the entry of the second firm but not to competitive levels. They conclude: "a duopolistic industry structure is…not competitive and prices are not equal to marginal costs. On the other hand, the hypothesis that the duopoly's pricing behavior is consistent with cartel is also rejected....The

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[21] Id.
[22] See W.F. Mueller and D.F. Greer, "The Effect of Market Share Distribution on Industry Performance: Re-Examined," *The Review of Economics and Statistics*, 1984, p. 357. For a response see J.E. Kwoka, "The Effect of Market Share Distribution on Industry Performance: Reply," *The Review of Economics and Statistics*, 1984.
[23] P.M. Parker and L-H. Roller, "Collusive Conduct in Duopolies: Multimarket Contact and Cross-ownership in the Mobile Telephone Industry," *RAND Journal of Economics*, 1997.

hypothesis consistent with noncooperative behavior...is also rejected….We therefore conclude that the industry on average is more collusive than noncooperative duopoly after the second firm enters the market."[24]

Examining a somewhat later period, Hausman reports that "price fell significantly in 1995-96 when the new entry of PCS [Personal Communications Service] occurred. Thus, as expected, new entry along with deregulation of prices by the FCC led to a faster decrease in prices than had previously occurred."[25] In an analysis of an even later period, Hausman reports that "the effect of …competition on wireless rates in the U.S. has been significant. Throughout the 1984-1995 period, real, inflation-adjusted cellular rates had fallen at a rate of 4 percent to 5 percent per year. Between 1995 and 1999, however, real cellular rates fell at a rate of 17 percent per year as PCS service providers offered service at prices per minute in bucket plans that were more than 50 percent lower than existing cellular rates."[26] Notably, the authorization of PCS service meant that most U.S. households could receive service from at least three mobile service providers, where previously they could receive service from at most two.[27]

Penard provides a striking example of how the entry of a third mobile telephone firm into a market previously served by a duopoly can affect prices.[28] He compares the prices

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[24] Id., p. 317.
[25] J. Hausman, "Mobile Telephone," in M.E. Cave, S.K. Majumdar, and I. Vogelsang (editors), *Handbook of Telecommunications Economics*, Volume 1, Elsevier, 2002, p. 579.
[26] Id., p. 580, p. 582.
[27] Federal Communications Commission, *In the Matter of Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Radio Services*, Third Report, 13 FCC Rcd. 19746, Adopted: May 14, 1998; Released: June 11, 1998 noted (p. 3): "There are at least three mobile telephone providers in each of the 50 largest Basic Trading Areas ("BTAs") and 97 of the 100 largest BTAs. Currently, three or more mobile telephone operators are providing service in BTAs containing approximately 219 million people."
[28] T. Penard, "Competition and Strategy on the Mobile Telephony Market: a Look at the GSM Business Model in France," *Communications and Strategies*, 2002.

charged by, the entrant, Bouygues Telecom for mobile telephone service in France to the prices offered by the incumbents, France Telecom and SFR prior to the time at which Bouygues was authorized to provide service. He reports that "The cost of the flat rates marketed by Bouygues starting in 1996 was well below that of the existing offers: close to 70% less than the prices charged by the existing operators for an equivalent call volume…[29] Here, the entry of a third competitor clearly had a dramatic effect on prices.

Indeed, the FCC itself has recognized that duopolies cannot be expected to price competitively and that the entry of additional firms could be expected to lead to lower prices. For example, in the Commission's First Report on competition in mobile telephone service, it noted:

> The duopoly nature of cellular service made it less than fully competitive…. Therefore, in the early 1990s, the Commission allocated 143 MegaHertz ("MHz") of spectrum, almost three times the spectrum allocation for cellular service, to create Personal Communications Services ("PCS")…. Already, the approach of broadband PCS appears to be influencing incumbent wireless providers to lower prices and increase features.[30]

In food retailing, Lamm finds that "it is clear that growth in the 3 largest firms' shares have a significant positive effect on prices with growth in the second largest firm's share dominating. In contrast, an increase in the market share of the *fourth largest firm* causes a reduction in food prices."[31] Thus, whereas Kwoka finds that it takes a third significant firm to lower prices, Lamm finds that moderation in prices requires the presence of a fourth significant firm.

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[29] Id., p. 65.
[30] Federal Communications Commission, *In the Matter of Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Radio Services*, First Report, 10 FCC Rcd. 8844, Adopted: July 28, 1995; Released: August 18, 1995, para. 4.
[31] R.M. Lamm, "Prices and Concentration in the Food Retailing Industry," *Journal of Industrial Economics*, 1981, p. 75, emphasis added.

Studying auction markets, Brannman, Klein, and Weiss analyzed the effect of an increase in the number of bidders on tax exempt underwriting fees, bonus bids for offshore oil leases, and bids for National Forest Service timber sales.[32] They estimate how winning bids with 1, 2, …., 11 bidders compare versus winning bids when there are 12 or more bidders. They find "a systematic tendency for the winning bid to decline as the number of bidders increases" (underwriting fees),[33] "leases with greater competition [larger numbers of bidders] are won with higher bids for tracts of equal quality" (offshore oil leases),[34] and that "winning bids increase with the number of bidders" (timber sales).[35] Interestingly, an increase in the number of bidders seems to affect prices whether the increase is, say, from 3 to 4, or from, say, 8 to 9, although the magnitude of the effect is smaller the larger is the number of bidders.[36]

Finally, Geithman, Marvel, and Weiss attempted to identify a "critical" level of concentration at which prices begin to increase, in municipal bond underwriting, gasoline retailing, and supermarkets.[37] In gasoline retailing they find a critical two-firm concentration ratio of about 35 and a critical four-firm ratio of about 50.[38] They find a four firm concentration ratio (assuming equal sized firms) at about 50 for general obligation bond underwriting and about 80 for revenue bond underwriting.[39] At least for

[32] L. Brannman, J.D. Klein, and L.W. Weiss, "The Price Effects of Increased Competition in Auction Markets," *Review of Economics and Statistics*, 1987. Note that increased competition is reflected in *lower* bids for bond underwriting fees and *higher* bids for offshore oil leases and timber sales.
[33] Id., p. 27.
[34] Id., p. 28.
[35] Id.
[36] Id., Table 1, p. 27.
[37] F.E. Geithman, H.P. Marvel, and L.W. Weiss, "Concentration, Price, and Critical Concentration Ratios," *Review of Economics and Statistics*, 1981.
[38] Id., p. 349, p. 352. The two-firm concentration ratio is the proportion of total industry output that is produced by the two largest firms. The four-firm concentration ratio is the proportion produced by the four largest firms.
[39] Id., p. 348. For supermarkets, they estimated a critical four firm concentration of about 40, but the results did not appear to be robust.

these industries, their estimates suggest that duopolies would result in prices above competitive levels.

Mergers provide an additional source of information about the effect of concentration and the number of substantial competitors on prices. In some cases this evidence takes the form of analyzing the results of *consummated* mergers; in other cases it consists of evidence developed to aid antitrust agencies and courts in evaluating a *proposed* merger. The latter is by definition counterfactual and is therefore often indirect, but sometimes direct evidence is also available.

For instance, relatively direct evidence was developed in the proposed merger between Staples and Office Depot. The Federal Trade Commission opposed the proposed merger, based in part on an analysis of the prices charged by "Superstores", the two merging parties and Office Max, when only one of these firms was present in a market, when only two were present, and when all three were present.[40] It found, for example, that prices were more than 11 percent higher in markets where only Staples was present than in markets with both Staples and Office Depot stores. Similarly, the FTC found that prices were almost 5 percent higher in markets where only Staples and Office Max were present than in markets with all three "Superstores."[41] This result suggests that the presence of a third major firm had a moderating effect on prices even though (as Staples and Office Depot argued) other retail outlets for stationery were present in all of

[40] S. Dalkir and F.R. Warren-Boulton, "Prices, Market Definition, and the Effects of Merger: Staples-Office-Depot (1997)", in *The Antitrust Revolution: Economics, Competition and Policy* (J.E. Kwoka and L.J. White, eds.), Oxford University Press, 4th edition, p. 62, summarizes these results. The FTC also provided an econometric analysis in support of this conclusion. See O. Ashenfelter, D. Ashmore, J.B. Baker, S. Gleason, and D.S. Hosken, "Econometric Methods in *Staples*," for a detailed discussion of this analysis.

[41] Prices were 2.5% higher in markets in which Office Depot and Office Max were present than were all three "superstores" were present.

these markets, so that, from an economic point of view, the "duopoly" markets included what one might reasonably consider to be (at least) additional fringe firms.

In addition to showing a difference between prices in markets with two and three major firms present, the Staples evidence suggests that, without further analysis, one should not be too quick to count fringe or differentiated players as being fully equivalent to major direct competitors. As the *Staples* Court concluded:

> The evidence shows that the defendants change their price zones when faced with entry of another superstore, but do not do so for other retailers. … There are numerous … examples of zones being changed and prices falling as a result of superstore entry. There is no evidence that zones change and prices fall when another non-superstore retailer enters a geographic market.[42]

Retrospective analysis of consummated mergers has been an important recent source of information on the effects of concentration and the number of (significant) firms.[43] For example, analyzing the merger of Northwest Airlines and Republic Airlines, Borenstein found that "only…where both of the merging carriers competed along with one other airline…was there a significant average price increase" shortly after the merger occurred.[44] In his interpretation, the fact that prices increased on routes where Northwest and Republic competed with one other carrier before the merger, leaving a duopoly thereafter, supports the conclusion "that airlines find it much more difficult to tacitly collude in markets with three carriers than in markets with two carriers."[45]

Studying the more or less contemporaneous merger of Trans World Airlines and Ozark Airlines, Borenstein concludes that the merger did not increase prices but that on

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[42] *Federal Trade Commission v. Staples, Inc.*, 970 F. Supp. 1066, 1078 (D.D.C. 1997).
[43] See, e.g., P.A. Pautler, "Evidence on Mergers and Acquisitions," op. cit., pp. 145-184, for a survey of these studies.
[44] S. Borenstein, "Airline Mergers, Airport Dominance, and Market Power," *American Economic Review*, 1990, p. 402.
[45] Id.

routes where the merging parties (pre-merger) operated as a duopoly, "prices were consistently and substantially above industry average," consistent with the presumption that the presence of a third competitor would have resulted in lower prices.[46]

Policy Reflecting Theory and Evidence

The *Horizontal Merger Guidelines* of the U.S. Department of Justice and the Federal Trade Commission characterize markets with an HHI above 1800 as "highly concentrated."[47] The Guidelines go on to state that "Mergers producing an increase in the HHI of more than 50 points in highly concentrated markets post-merger potentially raise significant competitive concerns…."[48]

The HHI threshold for "highly concentrated" is inevitably met and exceeded in markets with five or fewer firms. For instance, an industry with three equal size firms would have an HHI of 3333, well above the threshold of 1800. With only two firms, the smallest possible HHI would be 5000, which would occur if the firms were of equal size. While the Guidelines fully recognize that high concentration (and, for mergers, large increases in concentration) is not proof of weak (or weakened) competition, their fundamental analytical structure depends on such levels of concentration raising concerns that must be carefully evaluated and rebutted before a highly concentrating merger is allowed to proceed. Translating from the merger context to the question at hand, this indicates that there is a presumption, though not a final conclusion, that a

[46] Id., pp. 401-402. He does find, however, that "these prices fell relative to the industry average around the time of the merger, significantly so for the routes that had been served by only one of the merging airlines. (Id., p. 402).

[47] Horizontal Merger Guidelines, U.S. Department of Justice and the Federal Trade Commission, Issued: April 2, 1992, Revised: April 8, 1997, p. 16. The HHI is the sum of the squared market shares of the firms in an industry. The HHI thus takes the value 10,000 (100^2) if there is a single firm, 5,000 (50^2+50^2) if there are two equal size firms, 3750 ($50^2+25^2+25^2$) if one firm has a 50 percent market share and two other firms each have a 25 percent market share, etc.

[48] Id.

market with only two firms will have higher prices than a market with three or more competitors.

Illustrating this, a former Chairman of the Federal Trade Commission has noted, "2-to-1 or 3-to-2 mergers in well-defined markets protected from entry are likely to pass the anticompetitive theory test simply because of the very low number of competitors."[49] Similarly, commenting on possible perceptions that the Department of Justice would not oppose mergers that left more than two firms in a market, a Deputy Assistant Attorney General in the Antitrust Division of the U.S. Department of Justice noted: "…some [have] speculate[d] that we have lost confidence in our ability to predict when a merger, other than a 3-to-2 merger, will increase the likelihood of coordination or to win such cases in court. Standing here today, I want to disabuse you all of that view."[50] He apparently saw no need to respond to speculation about how the Department would respond to 3-to-2 mergers. Very recently, a former Assistant Attorney General in the Antitrust Division is quoted as saying that "Any 'three to two merger' to my mind would require a significant investigation."[51]

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[49] Timothy J. Muris, Understanding Mergers: Strategy and Planning, Implementation, and Outcomes, December 9, 2002, http://www.ftc.gov/speeches/muris/mergers021209.shtm. The Office of Fair Trading in the United Kingdom, Revision to *Mergers – substantive assessment guidance*, Exception to the duty to refer: markets of insufficient importance, OFT516b, November 2007, reaches a similar conclusion: "…where the OFT considers each merging party to be the *only* significant competitor to the other (a '2 to 1' merger) or one of only two (a '3 to 2' merger), the merger would typically lead to large price increases and/or quality or innovation cutbacks, which will endure into the medium term and potentially beyond…." (emphasis in original). Although the language is from a document that considers "markets of insufficient importance," the point is clearly more general.
http://www.oft.gov.uk/shared_oft/business_leaflets/enterprise_act/oft516b.pdfand/or.

[50] William J. Kolasky, Coordinated Effects in Merger Review: From Dead Frenchman to Beautiful Minds and Mavericks, April 24, 2002, http://www.usdoj.gov/atr/public/speeches/11050.htm.

[51] See Thomas Barnett, Ex-Antitrust Chief: Yahoo!/Microsoft Deal Hard Call**,** Yahoo! Press Room, February 6, 2009, http://yhoo.client.shareholder.com/PRESS/inthenews.cfm?ArchiveWeek=20090206. As noted above, modern antitrust authorities would not always oppose a highly concentrating merger. Among ameliorating factors might be product heterogeneity, difficulty in detecting and punishing deviations from coordinated behavior, the presence of a maverick firm, the ability of rival firms to expand output or reposition their products, the ease of entry, and efficiencies that are likely to result from the merger.

Conclusion

Virtually all theoretical models of oligopoly predict that highly concentrated industries will not exhibit competitive behavior. Moreover, a substantial body of empirical evidence indicates that concentration often leads to higher prices even in markets with low entry barriers. Together, these are sufficient to justify the presumption that duopolies will *not* price competitively. Without further detailed analysis, therefore, the FCC cannot conclude that the presence of only two firms is sufficient to achieve a competitive outcome and they can reasonably presume that the entry of a third firm is likely to result in prices that are closer to competitive levels.

Moreover, in some cases, the combination of two weak competitors could actually increase the competition faced by a dominant firm. My point rather is that it would be a startling departure from consensus policy to *presume* that a three to two merger would not result in higher prices.

I hereby declare under penalty of perjury that the foregoing is true and accurate to the best of my knowledge and belief.

Executed on April 22, 2009

Stanley M. Besen

Stanley M. Besen

APPENDIX A

STANLEY M. BESEN

EDUCATION

City College of New York
B.B.A., Economics (1958)
Yale University
M.A., Economics (1960)
Ph.D., Economics (1964)

PROFESSIONAL EXPERIENCE

2008- Senior Consultant, CRA International, Inc.

1992-2008 - Vice-President, CRA International, Inc.

1980-1992 - Senior Economist, The Rand Corporation, Washington, D.C.

1990-1991 - Visiting Professor of Law and Economics, Georgetown University Law Center

1988-1989 - Visiting Henley Professor of Law and Business, Columbia University

1985-1988 - Coeditor, Rand Journal of Economics

1978-1980 - Co-Director, Network Inquiry Special Staff, Federal Communications Commission

1971-1972 - Brookings Economic Policy Fellow, Office of Telecommunications Policy, Executive Office of the President

1965-1980 - Assistant Professor, Associate Professor, Professor of Economics, Allyn R. and Gladys M. Cline Professor of Economics and Finance, Rice University

1963-1965 - Economist, Institute for Defense Analyses

1962-1963 - Acting Assistant Professor of Economics, University of California, Santa Barbara

CONSULTANCIES

The Rand Corporation, 1972-1978

Office of Telecommunications Policy, Executive Office of the President, 1972-1977

Department of Defense, 1967

PROFESSIONAL ACTIVITIES/HONORS

Member, National Research Council Board on Earth Sciences and Resources, Division on Earth and Life Studies, Committee on Licensing Geographic Data and Services, 2002-2004

Member, The National Academies Computer Science and Telecommunications Board Committee on Internet Searching and the Domain Name System, 2001-2004

Member, Editorial Board, Economics of Innovation and New Technology, 1989-present

Member, Editorial Board, Information Economics and Policy, 1992-2004

Member, U.S. National Committee on Data for Science and Technology (CODATA), National Academy of Sciences/National Research Council, 1993-1996

Member, Office of Technology Assessment Advisory Panel on Communications Systems for an Information Age, 1986-1988

Member, Regional Telecommunications Planning Advisory Committee, City of Cincinnati, 1985

Member, Office of Technology Assessment Advisory Panel on Intellectual Property Rights in an Age of Electronics and Information, 1984-1985

Expert, World Intellectual Property Organization/UNESCO Meeting on Unauthorized Private Copying of Recordings, Broadcasts and Printed Matter, 1984

Who's Who in America, 1982-1983, 1984-1985, 1986-1987, 1988-1989, 1990-1991, 1992-1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008

Member, Editorial Board, Southern Economic Journal, 1979-1981

Member, Task Force on National Telecommunications Policy Making, Aspen Institute Program on Communications and Society, 1977

Brookings Economic Policy Fellow, 1971-1972

Member, Technical Advisory Committee on Business Development, Model City Program, City of Houston, 1969-1971

Wilson University Fellow, 1959-1961

Overbrook Fellow, 1958-1959

Beta Gamma Sigma, 1958

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