

**UNILATERAL EFFECTS, DIRECT PRICE ESTIMATES, AND EFFICIENCIES  
IN ANTITRUST MERGER ENFORCEMENT: FTC vs. STAPLES (1997)**

Frederick R. Warren-Boulton and Serdar Dalkir<sup>\*</sup>

Abstract

The first and the second-largest office superstore chains in the United States, Office Depot and Staples, announced their decision to merge in September 1996. In April 1997, the Federal Trade Commission (FTC) found probable violation of Section 7 of the Clayton Act. In June 1997, a U.S. District Court agreed with the FTC. *Staples* spotlighted the potential for a merger to have “unilateral effects,” a shift in focus first signaled by the 1992 [Department of Justice and FTC Merger Guidelines](#). Another new practice first introduced in *Staples* was FTC’s primary reliance on direct estimates of the mergers’ effect on prices, rather than inferring price increases from the change in market structure. We first illustrate the difference between the unilateral effects approach from the structural approach. We then describe how the methodology of the 1992 [Guidelines](#) was applied in *Staples*, focusing on the direct price effects and the efficiency claims, which we see as the defining elements of the case.

JEL Classification Code: L41--horizontal anticompetitive practices.

---

<sup>\*</sup> Principal and Associate, respectively, of Micra Microeconomic Consulting and Research Associates, Inc. Frederick R. Warren-Boulton served as an expert witness for the FTC in this case. The views represented do not necessarily reflect those of the employer.

The first and the second-largest office superstore (OSS) chains in the United States, Office Depot and Staples, announced their decision to merge on September 4, 1996. On April 4, 1997, the Federal Trade Commission (FTC) voted to file for a preliminary injunction for probable violation of Section 7 of the Clayton Act. On June 30, 1997, to the horror of Wall Street arbitrageurs who were betting heavily on the consummation of the merger, a U.S. District Court for the District of Columbia agreed with the FTC and granted a preliminary injunction.

*Staples* broke ground in terms of both the economic theory and the type of evidence presented at trial in an antitrust case. The antitrust enforcement agencies had traditionally focused on the increased probability of collusion following a merger as the primary theoretical underpinning for merger policy. In contrast, *Staples* spotlighted the potential for a merger to have “unilateral effects,” a shift in focus first signaled by the 1992 revision of the [Department of Justice and FTC Merger Guidelines](#).<sup>(1)</sup> Focusing on the characteristics of individual suppliers, the FTC argued that Staples, Office Depot, and OfficeMax were sufficiently different from other suppliers of office products, and sufficiently close competitors to each other, that the sale of office supplies “through office superstores” could be defined as a market separate from the sale of office supplies in general. In another departure, for evidence of the likely anticompetitive effect of the merger, the FTC relied primarily on direct estimates of the mergers’ effect on prices, rather than on a change in market structure to infer price increases. In addition to internal documents describing pricing policies and simple (but powerful) price comparisons between cities where Office Depot and Staples currently competed and those where they did not, the FTC’s evidence on the price effect included a large-scale econometric model that simulated the effect of the merger on prices. FTC experts also relied on an [event study](#) that used stock market data to calculate both the effect of the merger on shareholders and the financial market’s implicit estimate of the effect of the merger on the prices charged by office superstores.<sup>(2)</sup>

The [Guidelines](#) identify two broad categories of potential adverse effects of mergers.<sup>(3)</sup> The first category is coordinated interaction, defined as “actions by a group of firms that are profitable for each of them only as a result of the accommodating reactions of the others.”<sup>(4)</sup> A merger may facilitate coordinated interaction, which is of

particular concern in homogeneous product markets, where all firms must charge very similar prices. In oligopolistic markets, each firm recognizes that if it lowers its price, the other firms may respond in kind, leaving each firm with the same share of sales, but lower prices. In essence, the firms may develop a live-and-let-live attitude, preferring “coordinated” higher prices to vigorous competition. The higher the concentration in the market, all else equal, the more likely it is that this live-and-let-live attitude will develop.

The second type of anticompetitive effect is unilateral. Unilateral effects are of particular concern when the products or services supplied by the merging firms are much closer substitutes for each other than for those of other suppliers. A merger between two such close competitors may result in price increases even though competition from other firms remains just as intense.[\(5\)](#)

To analyze the likelihood of “coordinated interaction,” the antitrust authorities typically seek to determine the “smallest market” in which “a hypothetical monopolist could profitably impose a small but nontransitory increase in price.”[\(6\)](#) They then infer the likely effect of the merger on prices, due to increased coordinated action, from the change in the Herfindahl-Hirschman index (HHI), a market concentration measure. In contrast, a “unilateral effects” analysis ideally seeks to evaluate the potential for anticompetitive harm through direct estimates of the merger-related price effects.

A hypothetical example helps to illustrate the difference between the two approaches. Suppose that there are three widget producers, A, B, and C, with equal shares; also suppose that a merger between all three (but not a merger between any two) would raise the price of widgets 5% indefinitely. Under the [Guidelines](#), widgets constitute a market. The current HHI -- the sum of squared market shares -- is  $3 \times (100/3)^2 = 10,000/3 = 3,333$ . If two of these producers were to merge, the change in concentration can be used to infer a merger-related price increase *if the relationship between concentration and the percent price change is known*. Here we will assume a linear relationship. Specifically the post-merger HHI is  $(100/3)^2 + (200/3)^2 = 50,000/9 = 5,556$ . The difference in concentration due to the merger is  $5,556 - 3,333 = 2,223$ . Since a merger to monopoly would raise the HHI 6,667 points to 10,000, and price 5%, a merger between two firms would raise price 1.67% ( $= 2,223/6,667 \times 5\%$ ).[\(7\)](#) Critically, this approach is based on

two implicit assumptions: that widgets are a homogenous good, and that competition is uniform: hence the only thing that matters is the firms' market shares, not their identities.

Alternatively, suppose that consumers do not view all widget producers as identical. Instead, consumers regard widgets produced by A and B as much closer substitutes for each other than for widgets produced by C. The likely price increase from a merger between A and B would then be much higher than the increase estimated using the approach outlined in the previous paragraph. This is because when competition is localized, A and B have a set of consumers to whom they can profitably raise their prices by a percentage amount significantly larger than the one suggested under a homogenous goods analysis. If the necessary price data are available, the price effects from a merger between any two, and all three, producers can be estimated. These direct estimates can then be used to test both the hypothesis that A, B, and C together constitute an antitrust market, and the hypothesis that a merger between A and B alone would harm consumers.

If either of the foregoing analyses raises significant concerns, the next step under the [Guidelines](#) is to check to determine whether entry sufficient to deter a price increase or to return prices to their pre-merger levels could be expected to occur within two years.<sup>(8)</sup> The [Guidelines](#) (also see [Revised Section 4](#)) also ask whether efficiencies specific to the merger will be passed through to consumers in sufficient magnitude to counteract the effect on prices. According to the [Guidelines' Revised Section 4](#), claimed efficiencies, in order to be cognizable, have to be merger-specific, substantiated, and they should not arise from anticompetitive reductions in output or service.<sup>(9)</sup>

In the rest of the article, we will describe how the methodology of the ([revised](#)) [Guidelines](#) was applied in *Staples*. We will focus on the direct price effects and the efficiency claims, which we see as the defining elements of the case.

In *Staples*, the central premise of the FTC's case was that the relevant product market was the sale of consumable office supplies through office superstores. The FTC argued that OSS firms were different from other vendors of office products because they carried a broad range of consumables and maintained large amounts of stock on hand. These attributes of office superstores created a one-stop-shopping opportunity for consumers that was not provided by other retailers or mail-order suppliers of office products.

Estimates derived from numerous different sources consistently predicted that the proposed merger would likely cause prices to increase significantly. A comparison of average prices charged by Staples for office supplies in local markets where Staples and Office Depot competed with average prices charged by Staples in markets where Office Depot was not present is shown in [Table 1](#). The implication of these results was that Office Depot provided a major constraining force on Staples's pricing.

[Table 2](#) shows Staples management's estimate for the percentage of Staples stores located in "Staples only," "Staples and Office Depot," and "Staples, Office Depot, and OfficeMax" markets in 1995 and their projection for the year 2000.<sup>(10)</sup> Absent the merger, Staples management anticipated a significant increase in competition from Office Depot and OfficeMax, as indicated by its projection that by 2000 markets with all three chains would account for 69% of Staples' stores, up from 17% in 1995.

The data in [Tables 1](#) and [2](#) can be combined to estimate the average price increase for office supplies in all Staples stores over the 5 years following the proposed merger, as well as the increase in "overlap" markets when Staples faced Office Depot. Since 29% of Staples stores in 1995 were in Office Depot-only areas (where a 11.6% price increase was predicted), and 17% were in three-player markets (where a 4.9% price increase was predicted), the weighted average price increase in overlap areas was  $(29/46) \times 11.6\% + (17/46) \times 4.9\% = 9.1\%$ . For all Staples stores the weighted average price increase for 1995 would be  $0.29 \times 11.6 + 0.17 \times 4.9 = 4.2\%$ . Over the next five years, as the share of duopoly markets declines and the share of three-player markets rise, the overall price increase remains constant:  $0.07 \times 11.6 + 0.69 \times 4.9 = 4.2\%$ .

Similarly, Office Depot data were used to compute its average prices for overall office supplies. Office Depot's prices were found to be 8.6% higher where it is the only OSS compared to markets where it faces Staples alone, and 2.5% higher in markets where it faces only OfficeMax compared to markets where it faces both OfficeMax and Staples. These results provided more support for the conclusion that the merger could be expected to have a large effect on the price of office supplies. The results also indicated that competition between Office Depot and Staples was much more significant than competition between Office Depot and OfficeMax.

Table 1

Estimated Merger-Related Price Increase for Office Supplies

Pre-Merger Market Structure	Percent increase in Staples Prices	Percent increase in Office Depot prices
Staples and Office Depot	11.6 %	8.6 %
Staples, Office Depot and OfficeMax	4.9 %	2.5 %
Weighted average for overlap markets in 1995	9.1 %	
Weighted average over all markets in 1995	4.2 %	

Table 2

Percentage of Staples stores in Staples-only markets, two-OSS markets, and three-OSS markets.

Year	Staples only	Staples & Office Depot	Staples & OfficeMax	All three	Total
1995	17%	29%	37%	17%	100%
2000	12%	7%	12%	69%	100%

In addition to comparing actual prices across markets, the likely price effects of the merger were estimated independently using two other methods. Both results supported the same conclusion as the cross-sectional price comparisons. An econometric analysis [\(11\)](#) found that a merger between Staples and Office Depot would result in a 7.3% average price increase in markets where both firms presently compete. And a financial [event study](#) that estimated the effect of the merger on the share price of OfficeMax, the next closest competitor of Staples and Office Depot, indicated that the merger would increase the value of OfficeMax's shares by 12%. This estimate was both statistically highly significant and quantitatively large. Most importantly, the \$ 200 million estimated increase in the values of OfficeMax was consistent with an increase in profits to OfficeMax that would result from a price increase for office supplies of about 6.7% in markets where OfficeMax competed with both Staples and Office Depot. This price increase in the "3 to 2" markets is not far from the 4.9% increase, discussed above, that was estimated from cross-sectional data. In addition, the merger would have had little or no effect in the share values of other suppliers of office supplies, implying that investors did not regard these firms as competing as closely as OfficeMax with Staples and Office Depot.

Regarding efficiencies, the FTC's expert witness, David Painter, testified that the defendants' claimed cost savings were unreliable. First, the defendants' figures included cost savings that were not related to the merger. For example, when they estimated the future price concessions from vendors, the defendants did not consider the price discounts that Staples and Office Depot separately would have obtained in the absence of the merger. The FTC's expert estimated that 43% of the savings claimed by the defendants would be achievable without the merger. Second, the parties' efficiency claims were not supported by reliable evidence. In particular, the parties' efficiency claims increased dramatically between the time the deal was first approved by the Staples board and the time that the parties submitted an efficiencies analysis to the FTC. Third, the defendants' methodology in estimating the cost savings was problematic: they estimated cost savings for a selected group of vendors, and then generalized these savings to all other vendors, even to vendors such as Hewlett-Packard, for which they knew that no savings would occur. And fourth, under the [Guidelines](#) (also see [Revised Section 4](#)),

efficiency gains are relevant only insofar as they result in a lower price to consumers. The parties asserted that 67% of cost savings would be passed on to consumers in the form of lower prices. The FTC's econometrics analysis, however, showed that only 15% of the merger-specific cost savings would be passed through to consumers.[\(12\)](#)

When all these results are combined, it becomes clear that the merger could be expected to result in a very large increase in prices paid by consumers of office supplies in areas where Staples and Office Depot compete. In his court testimony, the FTC's efficiencies expert credited a maximum efficiencies of 1.4% of sales. Thus, the merger's expected net effect on the price of office supplies in markets with both Staples and Office Depot would be  $7.1\% = 7.3\% - 0.15 \times 1.4\%$ .

This result is quite robust. For example, even if one were to accept the defendants' efficiencies estimate of 6%, the net price increase would still be  $6.4\% = 7.3\% - 0.15 \times 6\%$ . Similarly, if one were to accept the defendants' pass-through rate of 0.67, the net price effect would again be  $6.4\% = 7.3\% - 0.67 \times 1.4\%$ .

The court appears to have agreed with the FTC's approach to analyzing the merger and granted a preliminary injunction. Judge Thomas F. Hogan defined the relevant product market as the "OSS submarket," thus accepting the FTC's theory that the prices charged by each superstore were principally constrained by other superstores. In his [opinion](#), he observed that office superstores were very different in appearance, size, format, the number and variety of items offered, and the type of customers targeted, than other office supply retailers. While it was "difficult to fully articulate and explain all of the ways in which superstores are unique," he found that:

No one entering a Wal-Mart would mistake it for an office superstore. No one entering Staples or Office Depot would mistakenly think he or she was in Best Buy or CompUSA. You certainly know an office superstore when you see one.[\(13\)](#)

Judge Hogan also accepted the FTC's empirical analysis indicating that a merger could be expected to significantly increase the prices paid by superstore customers even after taking into account of likely merger-related efficiencies.

**REFERENCES:**

[Baker, Jonathan B. "Econometric Analysis in \*FTC v. Staples\*," prepared remarks before American Bar Association's Antitrust Section, Economics Committee, July 18, 1997.](#)

Dalkir, Serdar and Frederick R. Warren-Boulton, "Are Superstores A Relevant Market? Staples and Office Depot (1997)," in John E. Kwoka, Jr. and Lawrence J. White (eds.), *The Antitrust Revolution: The Role of Economics*, 3rd Ed. New York: Oxford University Press (1998).

[\*Federal Trade Commission v. Staples, Inc.\*, No. 97-701 \(1997\).](#)

[United States Department of Justice and The Federal Trade Commission. \*Horizontal Merger Guidelines\* \(1992\). The FTC website displays "1992 HORIZONTAL MERGER GUIDELINES \[WITH APRIL 8, 1997, REVISIONS TO SECTION 4 ON EFFICIENCIES\]."](#)

[United States Department of Justice and The Federal Trade Commission. \*Revision to the Horizontal Merger Guidelines, April 8, 1997.\*](#)

Warren-Boulton, Frederick R. and Serdar Dalkir, "An Event-Probability Study on the Effect of the Proposed Merger Between Staples and Office Depot," mimeo (1997).

**NOTES:**

1. See [Baker \(1997\)](#) for a discussion of the court opinion regarding the unilateral effects from a merger among the sellers of differentiated but close substitutes.
2. See [Dalkir and Warren-Boulton \(1998\)](#). Also see [Baker \(1997\)](#) for an extensive discussion of the motivations and methods for the use of econometrics by the litigants.
3. [Merger Guidelines](#), Section 2.
4. [Guidelines](#), p. 18.
5. The [Guidelines](#) (p.23) recognize this possibility of localized competition between sellers. In this setting, the closest competitors are defined as those firms whose products are the closest substitutes.
6. [Guidelines](#), p. 10.
7. This figure is much smaller than the threshold 5% figure that is sometimes misinterpreted as a “ceiling,” as it were, over the range of percentage price increases that are “tolerable” under the [Guidelines](#). In fact, there is no such range.
8. [Guidelines](#), Section 3.
9. [Guidelines](#), Section 4.
10. Plaintiff’s Exhibit 15 p. 32. The share figures for the year 2000 are based on entry forecasts made by Staples.
11. The statistical analysis was based on a large sample of store level price data, drawn from 428 Staples stores in the United States over the 23-month period from February 1995 to December 1996. Professor Orley Ashenfelter of Princeton University, who testified as the FTC’s econometrics expert, performed this analysis.
12. [Baker \(1997\)](#) p. 15.
13. [Federal Trade Commission v. Staples, Inc. \(1997\)](#).