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**Merger Efficiencies and Pass-Through Analysis:
Comment on Testimony of George Cary to
the Antitrust Modernization Commission**

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In 1996, we published an article that described and criticized a flawed analysis of the predicted price effects of merger-related efficiencies that permeated the antitrust community at that time.² Both enforcement agency standards and legal commentary reflected the mistaken view that static competition is what causes a company to “pass on” efficiencies achieved through merger. We argued, using fundamental economic analysis, that the extent to which a firm passes on firm-specific marginal cost reductions is determined by the shape of the demand curve it faces, and that the pass through rate for such merger efficiencies is directly related to the merged firm’s market power. By contrast, the greater the amount of competition faced by the merged firm, the less likely it is to pass on any firm-specific marginal cost reductions. This analysis is well-known and the conclusions are uncontroversial among economists.³ The policy implications are straightforward: when evaluating the likely price effects of merger-related efficiencies, antitrust enforcement agencies and courts should not require an independent demonstration that efficiencies are likely to be passed on to consumers based on the amount of competition faced by the merged firm.

In testimony before the Antitrust Modernization Commission (“AMC”), George Cary (and Joshua Wright, who authored the associated appendix) presented a mistaken description of our 1996 article on merger efficiencies and, more importantly, made fundamental mistakes in describing the economic analysis underlying an appropriate analysis of this issue.⁴ We appreciate the opportunity to clarify the record and to reiterate the uncontroversial economic analysis described in our article.

¹ Respectively: Assistant Director for Antitrust, Bureau of Economics, Federal Trade Commission, and Partner, Freshfields Bruckhaus Deringer, Washington, DC. We thank Mark Frankena, Michael Salinger, and Luke Froeb for helpful comments. Remaining errors are ours. The views expressed here are our own, not those of the Federal Trade Commission or any individual Commissioner.

² Yde and Vita, *Merger Efficiencies: Reconsidering the “Passing-On” Requirement*, 64 ANTITRUST L. J. 735 (1996) (attached at Tab 1).

³ See *id.* (citing authorities); Froeb, Tschantz, & Werden, *Pass-Through Rates and the Price Effects of Mergers*, 23 INT’L J. INDUS. ORG. 703-15 (2005) (“Froeb, et al.”); Werden, Froeb, & Tschantz, *The Effects of Merger Efficiencies on Consumers of Differentiated Products*, 1 EUROPEAN COMPETITION J. 260-261 (2005) (“Werden et al.”); ten Kate & Niels, *To What Extent are Cost Savings Passed on to Consumers? An Oligopoly Approach*, 20 EUROPEAN J. L. & E. 323-37 (2005). These articles are attached at Tabs 2-4.

⁴ “Efficiencies in Merger Analysis: From Both Sides Now,” Testimony to the Antitrust Modernization Commission, November 17, 2005. In footnote 8 of his testimony, Cary attributes authorship of the Appendix to Joshua Wright of George Mason University Law School. Hereinafter, we attribute primary authorship to Cary, except where specific attribution is made to the Appendix.

Someone reading only the Cary/Wright mischaracterization of our argument might infer that we consider an analysis of the price effects of merger efficiencies irrelevant to sound antitrust analysis. That is not our view, as even a cursory reading of our 1996 article would reveal. We wrote that paper to expose and, we hoped, eliminate the widely-held but noneconomic notion that a firm will “pocket” merger efficiencies in the form of higher profits unless competition forces the firm to pass on the efficiencies to consumers. As we noted, the extant “passing-on” requirement consisted of a sequential three-stage inquiry: (1) would the merger yield merger-specific efficiencies?; (2) would these efficiencies affect the merged entity’s price?; and (3) if so, would the price-reducing effect of the efficiencies be sufficient to offset totally the merger’s price-increasing effects?⁵ The problem, as we noted, was that answering “no” to question (2) generally resulted in the antitrust authorities dismissing completely *all* of the parties’ efficiency claims; and that because of fallacious economic reasoning – namely, a mistaken belief that firms with market power lack any incentive to reduce their prices when their costs fall⁶-- the antitrust authorities were likely to reach such a conclusion precisely in those instances where a careful consideration of efficiencies is most important. We argued that elementary economic analysis showed that firms possessing market power have an incentive – often a powerful incentive – to reduce their prices in response to cost reductions. The relevant question is whether this incentive (and the magnitude and credibility of the asserted cost reductions) would be sufficient to offset any merger-induced incentives to increase price.⁷ Accordingly, we recommended that antitrust analysis dispense with question (2), and instead focus solely on questions (1) and (3).⁸

We concluded that scrutiny of efficiency claims is most important in those instances where the threat of increased market power is greatest – a point with which Cary agrees. Where Cary and Wright go wrong, however, is the assertion that “precisely where anticompetitive inferences are strongest, pass-through of cost savings to consumers are [*sic*] weakest.” Careful economic analysis shows this claim to be incorrect.

There are two problems with the analysis presented in Cary’s supporting Appendix (the “Wright Appendix”). First, the analysis contained in equations (1) and (2) implicitly compares the monopoly pass-through rate to the competitive *industry-wide* pass through rate (i.e., the rate at which identical firms in a perfectly competitive industry pass through a marginal cost reduction experienced by *all* firms). As we discuss below, this is not the correct comparison for the analysis of merger-specific efficiencies, since in that situation only a subset of the competitors (i.e., the parties to the merger) enjoy cost reductions. Second, even if we assumed –

⁵ Yde and Vita, at 746.

⁶ The NAAG Horizontal Merger Guidelines nicely state this fallacy: “To the extent that a merger increases market power, there is less likelihood that any productive efficiencies would be passed to consumers.” For this and many other examples, *see, generally*, Yde and Vita, at 739. More recently, the European Commission adopted this position in its 2004 Guidelines on the Assessment of Horizontal Mergers, stating that “the incentive on the part of the merged entity to pass efficiency gains on to consumers is often related to the existence of competitive pressure from the remaining firms in the market.” Para. 84, note 8.

⁷ Werden presents a method for answering this question that does not require detailed information on the shape of the firm’s demand curve. *See* Werden, *A Robust Test for Consumer Welfare Enhancing Mergers Among Sellers of Differentiated Products*, 44 J. IND. ECON. 409 (1996).

⁸ Yde and Vita, at 747.

for purposes of argument and contrary to meaningful economic analysis – that comparing industry-wide competitive pass-through rates to monopoly pass-through rates is relevant for merger analysis, the Cary/Wright analysis would still be misleading because its demand assumption is not sufficiently general. The Wright Appendix introduces the second problem by stating (p. 22):

“Assuming linear demand, $d^2 Q / dp^2 = 0$ and therefore dp/dc [the monopoly pass through rate] = $1/2$. For demand curves that are convex relative to the origin, invoking the conventional assumption that $d^2 Q / dp^2 > 0$, the pass-through rate $dp/dc > 1/2$.”

Because the industry-wide competitive pass-through rate always equals 1, the Wright Appendix implies that the monopoly pass-through rate always is exceeded by its competitive counterpart. This is incorrect. What the Appendix fails to state is that for many demand functional forms other than linear, not only is the monopoly pass-through rate greater than $1/2$, the monopoly rate is greater than or equal to the *industry-wide* competitive pass through rate.⁹ This result is well-known, and is plainly stated in the very sources cited by Cary and Wright.¹⁰

The more important and obvious error is comparing the *industry-wide* competitive pass-through rate to the monopoly rate. It is generally appreciated that this is not the correct comparison for merger analysis. As we all seem to agree, the important consideration is the *firm-specific* pass-through rate; i.e., the rate at which a merged entity in an imperfectly competitive market (such as one characterized by differentiated-products “Bertrand” competition) passes through a firm-specific cost reduction, taking into account that rivals may be induced to reduce their equilibrium prices in response to the merged entity’s price reduction.¹¹ Froeb, Tschantz, and Werden (2005) rigorously analyze exactly this issue. They conclude:

“We show that there is a strong relationship between the gross consumer costs imposed by a merger, i.e., the increases in consumer prices absent synergies, and the gross consumer benefits derived from the merger, i.e., the pass-through to

⁹ This is seen most easily for a monopolist facing a constant elasticity demand curve. The monopolist’s profit maximizing price, P , equals $(\eta/\eta+1)c$, where η is the elasticity of demand, and c is marginal cost. The pass through rate, dP/dc , equals $(\eta/\eta+1)$. Therefore, if $\eta = -3$, the monopolist’s pass through rate is 1.5 (i.e, if marginal cost falls by \$1, the profit maximizing price falls by \$1.50). If the monopolist has even more market power (e.g., an elasticity of -2) then the pass through rate is even higher (2.0). The competitive pass-through rate in both cases is of course 1.

¹⁰ See Bulow and Pfleiderer, *A Note on the Effect of Cost Changes on Prices*, 91 J. POL. ECON. 91 182 (1983); and Hausman and Leonard, *Efficiencies From the Consumer Viewpoint*, 7 GEO. MASON L. REV. 707 (1999).

¹¹ The (further) adjustments to equilibrium prices brought about by rivals’ reaction to the merged entity’s price reduction are termed the “indirect pass through effect.” Werden, et al., at 254. These effects generally are small (zero, if demands are isoelastic); more importantly, notwithstanding Wright’s incorrect assertion to the contrary (p. 22, esp. note 59), these effects are *larger*, the *less* competitive the market. Werden *et al.*, at 262, state this reason for this result succinctly: “Decreasing competition by increasing the concentration of the non-merging firms, all else being equal, increases indirect pass through (except for isoelastic demand). This proposition follows immediately from the fact that larger non-merging firms increase their prices more in response to the price increases of the merged firm. When cost reductions cause the merged firm to reduce prices relative to levels absent cost reductions, the larger the non-merging firms, the more they decrease prices in response.”

consumer prices of marginal cost reductions from merger synergies. Holding constant the first-order conditions at the pre-merger equilibrium, *higher-order properties that cause larger price increases absent synergies also cause merger synergies to be passed through at higher rates* [emphasis added] . . . [t]he foregoing is predicated on the assumption of Bertrand competition, but similar results obtain with other Nash non-cooperative equilibria.”¹²

In other words, and contrary to Cary’s incorrect conclusion, the pass-through rate of merger-specific efficiencies is likely to be *highest* when the threat of post-merger price increase is *greatest*. This, of course, was our conclusion in 1996. This is because, as Werden, Froeb, and Tschantz observe, “higher own pass-through rates are likely to be associated with greater market power because demand curvature substantially determines both.”¹³

Let us be clear about what this finding means – and what it does *not* mean – for merger analysis (because, apparently, this topic is prone to misunderstanding and misinterpretation). It does *not* mean that careful evaluation of efficiencies is unimportant in markets where the prospect of substantial increased post-merger market power is likely, nor does it mean that in these cases efficiencies likely will offset any tendency to increase price. Indeed, careful analysis suggests precisely the opposite.¹⁴ What it *does* mean is that firms with market power have a substantial incentive to reduce their prices when their costs fall, and that this incentive likely increases with the degree of market power. This fact frequently will make antitrust analysis of mergers challenging and difficult. But one cannot evade these challenges by invoking intellectually faulty bromides and rules-of-thumb, tempting though that may be.

¹² Froeb, et al., at 713. Similarly, ten Kate & Niels, at 334, conclude that “it is not competition that drives cost savers to share the benefits. On the contrary, with competition the pass-on of individual cost savings is weaker than without.” Using a Cournot oligopoly model with constant marginal costs (but possibly different constant costs across firms) and linear demand, ten Kate & Niels show that the pass-through rate of a cost change for a single firm (out of N total competitors) is $1/(N + 1)$. So, for monopoly, the pass-through rate is $1/2$; for duopoly, the pass-through rate is $1/3$; for triopoly, the pass-through rate is $1/4$; etc. Obviously, as N gets very large, $1/(N + 1)$ tends to zero, as does the firm-specific pass-through rate. Again: the larger the number of competitors to the merged firm, the smaller is the merged firm’s rate of pass-through rate for a firm-specific marginal cost reduction.

¹³ Werden, et al., at 261.

¹⁴ Werden’s (1996, p. 411) analysis suggests when pre-merger margins are high, and diversion ratios between the parties are large, substantial cost reductions are necessary to maintain pre-merger prices.

References

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