A HEDGEHOG IN FOX'S CLOTHING?
THE MISAPPLICATION OF GUPPI ANALYSIS

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INTRODUCTION

Merger analysis in the United States has witnessed significant improvement over the last 50 years. During this time, the antitrust agencies steadily have moved away from a rigid step-by-step approach that focuses on counting the number of firms in a market to assess whether a proposed transaction is likely to substantially lessen competition and therefore violate Section 7 of the Clayton Act. In place of this simplistic analytical framework, the agencies have shifted toward a more sophisticated evidence-based method that is grounded in modern economics and that employs a variety of new tools to determine a merger's likely competitive effects.[1]

A key feature of the modern approach is an emphasis on identifying the *actual* competitive effects that are likely to result from a proposed transaction by examining how and why the merging firms' behavior will change post-transaction rather than merely relying on evidence of market concentration as a proxy for consumer harm.[2] Under the modern approach, the agencies focus on whether the merging firms are close competitors and

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   [1]   *See* Carl Shapiro, *The 2010 Horizontal Merger Guidelines: From Hedgehog to Fox in Forty Years*, 77 ANTITRUST L.J. 49, 50-52 (2010) [hereinafter *From Hedgehog to Fox*] ("[T]he 1968 [Horizontal Merger] Guidelines were based on one big idea: horizontal mergers that increase market concentration inherently are likely to lessen competition. . . . [M]erger enforcement in recent years has become increasingly eclectic, reflecting the enormous diversity of industries in which the Agencies review mergers and the improved economic toolkit available. The Agencies and the courts look at a wide variety of evidence and use a wide variety of methods to determine whether mergers may substantially lessen competition.") (footnote omitted).

   [2]   *See* U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, HORIZONTAL MERGER GUIDELINES § 1 (2010), http://www.justice.gov/atr/public/guidelines/hmg-2010.pdf [hereinafter 2010 MERGER GUIDELINES] ("Most merger analysis is necessarily predictive, requiring an assessment of what will likely happen if a merger proceeds as compared to what will likely happen if it does not. . . . [I]t is a fact-specific process through which the Agencies, guided by their extensive experience, apply a range of analytical tools to the reasonably available and reliable evidence to evaluate competitive concerns in a limited period of time.").

how the merger may alter the combined company's incentives.[3] This impor-
tant change to how the agencies conduct merger analysis principally is the
result of new economic learning that abandons the old "structure-conduct-
performance" paradigm that was grounded in the now discarded economics
of the 1940s and 1950s and that keyed off of generic conclusions about
market structure, and adopts more sophisticated economic tools that attempt
to predict the actual behavior of firms.[4]

Recognizing the broad consensus supporting the use of a more rigor-
ous analytical framework for applying Section 7 of the Clayton Act, in
2010 the Department of Justice's Antitrust Division ("DOJ" or the "Divi-
sion") and the Federal Trade Commission ("FTC" or the "Commission")
updated the Horizontal Merger Guidelines (the "Guidelines") to reflect the
improvements that had been made to modern merger analysis and the asso-
ciated economic toolkit.[5] Among the most significant changes to the Guide-
lines was the discussion of the value of diverted sales as part of unilateral
price effects analysis and the endorsement of the gross upward pricing pres-
sure index ("GUPPI") as a tool to assess the likely unilateral effects from a
proposed transaction.[6]

Consistent with the broader goal of better identifying actual competi-
tive effects in modern merger analysis, the GUPPI is an economic tool de-
signed to score the incentives for potential unilateral price effects resulting

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[3]   *Id.* § 6.1 ("In differentiated product industries, some products can be very close substitutes and
compete strongly with each other, while other products are more distant substitutes and compete less
strongly. . . . A merger between firms selling differentiated products may diminish competition by
enabling the merged firm to profit by unilaterally raising the price of one or both products above the pre-
merger level. . . . The extent of direct competition between the products sold by the merging parties is
central to the evaluation of unilateral price effects.").

[4]   Merger analysis was once premised on the so-called "structure-conduct-performance" paradigm
that claimed that a systematic relationship existed between market concentration and various metrics of
competition, including price. For discussion on the rise and fall of structure-conduct-performance eco-
nomics in antitrust, see Douglas H. Ginsburg & Joshua D. Wright, Philadelphia National Bank: *Bad
Economics, Bad Law, Good Riddance*, 80 ANTITRUST L.J. 377 (2015); William E. Kovacic & Carl
Shapiro, *Antitrust Policy: A Century of Economic and Legal Thinking*, 14 J. ECON. PERSP. 43 (2000);
Timothy J. Muris, *Improving the Economic Foundations of Competition Policy*, 12 GEO. MASON L.
REV. 1 (2003).

[5]   *See* 2010 MERGER GUIDELINES, *supra* note 2, § 1. The advances embodied in the revised
Guidelines were adopted gradually over time even if only memorialized in 2010. *Id.* § 1 n.1.

[6]   *See* Carl Shapiro, Deputy Ass't Att'y Gen. for Econ. Antitrust Div., U.S. Dep't of Justice,
Update from the Antitrust Division, Remarks as Prepared for the ABA Section of Antitrust Law Fall
Forum 22–24 (Nov. 18, 2010), https://www.justice.gov/atr/file/518246/download [hereinafter Shapiro
Remarks] ("The 2010 Guidelines significantly expand the discussion of unilateral effects. . . . Section
6.1 states: 'If the value of diverted sales is proportionately small, significant unilateral price effects are
unlikely. For this purpose, the value of diverted sales is measured in proportion to the lost revenues
attributable to the reduction in unit sales resulting from the price increase. Those lost revenues equal the
reduction in the number of units sold of that product multiplied by that product's price.' My *Antitrust
Law Journal* article explains that the value of diverted sales measured in proportion to these lost reve-
nues is equal to the gross upward pricing pressure index, or GUPPI.") (footnote omitted).

from the combination of firms. More specifically, the GUPPI is intended to account for the closeness of competition between the merging firms.[7] The GUPPI helps assess whether the merger gives the combined firm an incentive to raise the price of a product previously sold by one merging firm due to the fact that some of the sales lost as a result of the price increase will be diverted to products previously sold by the other merging firm.[8]

Carl Shapiro, a former Chief Economist at the DOJ, analogized the agencies' steady transition to a more sophisticated approach to merger enforcement, and the adoption of the 2010 Guidelines, to an essay by Isaiah Berlin that describes how the Hedgehog, which "knows one big thing," and the Fox, which "knows many things," view the world differently.[9] Relying on this dichotomy, Shapiro compared the move away from a focus on market structure ("one big thing") presented in the first Guidelines published in 1968 to a more eclectic assessment relying on a variety of inputs and economic tools ("many things") in the 2010 Guidelines as the triumph of the Fox over the Hedgehog.[10] As Shapiro and others have noted, there is a great deal to be applauded in the advances made to modern merger analysis, including the incorporation of new economic learning and the use of a wide variety of evidence to improve the quality of modern merger review.[11] The application of a more rigorous analytical framework has resulted in more accurate predictions by the agencies of whether a merger is likely to substantially lessen competition and has vastly improved enforcement decisions. For these reasons, the business community, consumer groups, the antitrust agencies, and the antitrust bar largely have welcomed the 2010 Guidelines and the so-called triumph of the Fox.[12]

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[7] *See, e.g.*, Steven C. Salop & Serge Moresi, *Updating the Merger Guidelines: Comments* 19 (Nov. 9, 2009), https://www.ftc.gov/sites/default/files/documents/public_comments/horizontal-merger-guidelines-review-project-545095-00032/545095-00032.pdf ("*GUPPI* is intended to measure the upward pricing pressure solely from the closeness of substitution between the products of the merging firms, before adjusting for the possible mitigating effects of supply side responses and other factors, and before netting out the downward pricing pressure.").

[8] *See* Serge Moresi, *The Use of Upward Price Pressure Indices in Merger Analysis*, ANTITRUST SOURCE, Feb. 2010, at 6–7, http://www.americanbar.org/content/dam/aba/publishing/antitrust_source/ Feb10_Moresi2_25f.authcheckdam.pdf. *See generally* Joseph Farrell & Carl Shapiro, *Antitrust Evaluation of Horizontal Mergers: An Economic Alternative to Market Definition*, 10 B.E. J. THEORETICAL ECON., art. 9, http://faculty.haas.berkeley.edu/shapiro/alternative.pdf.

[9] *See* Shapiro, *supra* note 1, at 50–51 (citing ISAIAH BERLIN, THE HEDGEHOG AND THE FOX: AN ESSAY ON TOLSTOY'S VIEW OF HISTORY (1953)).

[10] *See generally id*. Of course, the 2010 Guidelines do not completely do away with the use of market concentration in merger analysis, or the presumption that a significant increase in market shares is indicative of anticompetitive effects, but the weight of market structure is much less significant. *Id.* at 55–57.

[11] *Id.* at 51–52.

[12] *But see* James A. Keyte & Kenneth B. Schwartz, *"Tally-Ho!": UPP and the 2010 Horizontal Merger Guidelines*, 77 ANTITRUST L.J. 587 (2011) (providing criticism of the 2010 Guidelines that anticipates some of the concerns developed in this Article).

Yet the agencies' application of the 2010 Guidelines has not universally lived up to its promise. The "hedgehog-to-fox" narrative is unwittingly misleading as it potentially suggests that the mere inclusion of new economic tools and the reliance on multiple additional forms of evidence in merger review intrinsically improve the quality of merger analysis. Even more, the narrative gives false comfort that the economic analysis conducted today is necessarily more rigorous than under earlier iterations of the Guidelines, and therefore should be given greater weight and reliance when making enforcement decisions. That of course cannot be true; the manner in which we apply our modern analytical approach also matters. It therefore is critical that we regularly assess how those economic tools are being applied, and whether they live up to the promise that they represent a rigorous and more accurate approach to merger analysis or whether, to borrow another idiom, they act as wolves in sheep's clothing—giving a false sense of precision—and must be recalibrated or discarded.

There is no more worthy candidate for such an assessment than the economic tool at the heart of the 2010 Guidelines: the GUPPI. This paper argues that the GUPPI regularly fails to live up to its promise for two principal reasons: (1) the GUPPI all too often is based on inaccurate or incomplete data and (2) there is insufficient guidance to allow the business community and the antitrust bar to draw reliable conclusions about how the GUPPI will be incorporated into the agencies' enforcement decisions.

By relying on inferior inputs that strip the GUPPI of its chief advantage—factoring in closeness of competition—the GUPPI becomes just another means for assessing change in market concentration. By failing to adequately articulate how the output of a GUPPI calculation fits into antitrust agencies' merger analysis, the GUPPI merely asserts the simple truism that a merger between horizontal competitors will always eliminate some degree of competition. As a result, on both counts the GUPPI offers misplaced comfort that the antitrust agencies are conducting a rigorous and effects-based merger analysis worthy of the Fox. In reality, the analysis is rooted in a simple framework from a bygone era that, like the Hedgehog, regrettably focuses on one big thing—market structure.

This paper proceeds in three parts. Part I provides a brief background on the intuition behind and calculation of the GUPPI. Part II argues that the GUPPI often relies on inferior inputs that produce an output that fails to shed light on the closeness of competition between the merging firms. The GUPPI instead often reverts to an outdated focus on market concentration. Part III further argues that, even assuming the availability of the necessary data allowing for GUPPIs to be properly calculated, the lack of sufficient guidance from the agencies as to how they internalize the GUPPI when making enforcement decisions prevents the GUPPI from fulfilling its usefulness as an evidentiary tool beyond merely confirming an obvious increase in market concentration. The Article concludes by offering some modest policy proposals to improve the application of the GUPPI in merger

review in light of the frequent inability to gather the necessary inputs and the absence of empirical evidence upon which to base the enforcement decisions purportedly supported by the GUPPI calculation.

I.   WHAT IS A GUPPI, AND HOW IS IT CALCULATED?

All mergers between firms that supply substitute products will have some effect on competition—and may, in particular, have an effect on price. Absent a fact-specific inquiry both the direction and magnitude of the likely effects of a merger between competitors are unclear.[13] For instance, a merger of competitors may consolidate the market such that the merged firm has a unilateral incentive to increase the price of one product because some lost sales will be recaptured by sales of a newly acquired product. On the other hand, the merger may either involve sufficiently distant substitutes such that a price increase is not profit maximizing or result in marginal cost efficiencies such that the merged firm has an incentive to lower prices to maximize its profits.[14] A merger also may incite responses from other competitors—such as repositioning or entry—that would exert further downward pricing pressure on the combined firm.[15] The ultimate effect of any merger on competition will be a balance of these countervailing forces.[16]

Although only relatively recently formalized as part of official agency practice in the 2010 Guidelines, the concept of upward pricing pressure has been in antitrust economics literature for the last three decades.[17] The GUPPI is an index designed to quantify the unilateral upward pricing pressure inherent in a merger between companies that supply substitute prod-

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[13]   *See* 2010 MERGER GUIDELINES, *supra* note 2, § 1 ("[Merger analysis] is a fact-specific process through which the Agencies, guided by their extensive experience, apply a range of analytical tools to the reasonably available and reliable evidence to evaluate competitive concerns in a limited period of time."); Salop & Moresi, *supra* note 7, at 18–19 ("One can conceptualize the unilateral effects of a merger on consumer prices as a conflict between two opposing forces of upward and downward pricing pressure. The elimination of competition between the competing products of the merging firms generates upward pricing pressure. The efficiency benefits generate downward pricing pressure. . . . The balance between the upward and downward pricing pressure determines whether the merger is likely to raise or lower the prices of the merging firms' products, *ceteris paribus*.") (footnote omitted).

[14]   *Id.* § 6, § 10.

[15]   *Id.* § 6, at 22, § 9, at 27-28,; Salop & Moresi, *supra* note 7, at 16, 18-19.

[16]   2010 MERGER GUIDELINES, *supra* note 2, § 1, at 1-2; Salop & Moresi, *supra* note 7, at 19 ("The balance between the upward and downward pricing pressure determines whether the merger is likely to raise or lower the prices of the merging firms' products, *ceteris paribus*.").

[17]   *See generally* Robert D. Willig, *Merger Analysis, Industrial Organization Theory, and Merger Guidelines*, *in* BROOKINGS PAPERS ON ECONOMIC ACTIVITY: MICROECONOMICS 281 (Martin N. Bailey & Clifford Winston eds., 1991); Farrell & Shapiro, *supra* note 8; Gregory J. Werden, *A Robust Test for Consumer Welfare Enhancing Mergers Among Sellers of Differentiated Products*, 44 J. INDUS. ECON. 409 (1996).

ucts.[18] It is product-specific—a separate GUPPI calculation is required for each product supplied by the merging firms.[19] For example, in a hypothetical merger between Firm 1 and Firm 2, which produce substitute products Product 1 and Product 2, two GUPPI calculations will be relevant to the merger analysis: one GUPPI for Product 1, and one GUPPI for Product 2.[20]

Taking Product 1 as an example, the GUPPI for Product 1 represents the value to the combined firm of its additional sales of Product 2 if it implements a small increase in the price of Product 1 relative to the revenue associated with lost sales of Product 1.[21] Specifically, the GUPPI for Product 1 is equal to: (i) the diversion ratio from Product 1 to Product 2 (D_{12}) multiplied by (ii) the margin realized on the sales diverted to Product 2 ($p_2 - c_2$) as a proportion of (iii) Product 1's price (p_1):[22]

$$GUPPI_1 = D_{12} \frac{p_2 - c_2}{p_1}$$

The intuition behind the calculation is straightforward. If Firm 1 raises the price of Product 1, it will lose sales of Product 1. If Product 2 is a demand-side substitute for Product 1, some of Firm 1's lost sales will be diverted to Product 2.[23] The proportion of lost sales that would be diverted from Product 1 to Product 2 is called the diversion ratio, or D_{12}.[24] A high diversion ratio indicates closeness of competition, whereas a low diversion ratio indicates that the products are more distant substitutes.[25]

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[18]   Shapiro Remarks, *supra* note 6, at 24 n.32 (explaining that GUPPI "is an index of upward pricing pressure").

[19]   *See* Steven C. Salop et al., *Scoring Unilateral Effects with the GUPPI: The Approach of the New Horizontal Merger Guidelines* 4 (CHARLES RIVER ASSOCIATES Competition Memo, Aug. 31, 2010), http://crai.com/sites/default/files/publications/Commentary-on-the-GUPPI_0.pdf.

[20]   *Id.*

[21]   2010 MERGER GUIDELINES, *supra* note 2, § 6.1, at 21 ("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.").

[22]   *From Hedgehog to Fox*, *supra* note 1, at 74. That the margin is represented as a proportion of price allows for the index to be relevant and informative across industries. The margin on a car may be orders of magnitude higher than the margin on a toy car, for example; however, the margin as a percentage of price may well be equal. The choice between p_1 and p_2 as a denominator is not of much consequence given that the primary purpose is to index the GUPPI to a relevant scale for comparison. Indeed, some GUPPI formulations suggest that the margin should be represented as a proportion of Product 2's price. *E.g.*, Salop & Moresi, *supra* note 7, at 20.

[23]   *From Hedgehog to Fox*, *supra* note 1, at 73–75.

[24]   *Id.* at 62.

[25]   *See* 2010 MERGER GUIDELINES, *supra* note 2, § 6.1 ("In some cases, the Agencies may seek to quantify the extent of direct competition between a product sold by one merging firm and a second product sold by the other merging firm by estimating the diversion ratio from the first product to the second product.").

Prior to the merger, assuming Firm 1 sells Product 1 at its profit-maximizing price, Firm 1 by definition has no incentive to raise prices. The value of lost sales resulting from a small increase in price would just barely outweigh the additional revenue that would be realized on retained sales. However, if Firms 1 and 2 merge, the combined firm captures the lost sales that are diverted to Product 2 when the price of Product 1 increases.[26] The value of each of these sales to the combined firm is the profit margin on Product 2 ($p_2 - c_2$).[27] Assuming these sales are made at a positive margin (i.e., at a price above cost)—and excluding all other effects of and competitive responses to the merger—the combined firm will have a greater incentive to raise the price of Product 1 than Firm 1 did alone. The GUPPI is a way to quantify this increased incentive.[28]

As its name suggests, GUPPI seeks to quantify only the *upward* pricing pressure that a merged firm will face with respect to a given product.[29] It does not take into account any of the countervailing downward pricing pressures that contribute to the net effect of the merger.[30] Accordingly, GUPPI may be more properly thought of as an upper bound on net, short-term unilateral pricing pressure, rather than a direct indication of the likely effects of a merger.[31] Finally, for the avoidance of doubt, GUPPI does not directly represent an estimated price increase or the likely effects of a

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[26]   *See From Hedgehog to Fox*, *supra* note 1, at 70.

[27]   *See id.* at 73.

[28]   *See id.* at 70–75.

[29]   *See* Salop & Moresi, *supra* note 7, at 19 ("We define 'GUPPI' as the 'Gross Upward Pricing Pressure Index.' GUPPI is intended to measure the upward pricing pressure solely from the closeness of substitution between the products of the merging firms, before adjusting for the possible mitigating effects of supply side responses and other factors, and before netting out the downward pricing pressure."); Thom Lambert, *Leave a Little GUPPI Alone: Why Commissioner Wright is Right to Call for a Low-GUPPI Safe Harbor*, TRUTH ON THE MARKET (July 14, 2015), https://truthonthemarket.com/2015/07/14/leave-a-little-guppi-alone-why-commissioner-wright-is-right-to-call-for-a-low-guppi-safe-harbor/ ("GUPPI attempts to assess *gross* upward pricing pressure. It takes no account of factors that tend to prevent prices from rising.").

[30]   *See* Salop & Moresi, *supra* note 7, at 19; Lambert, *supra* note 29.

[31]   GUPPI relates only to the unilateral incentives of the merged parties; it does not account for potential coordinated effects of a merger. Moreover, GUPPI does not account for long-term or dynamic considerations with respect to either competitive harm or efficiencies. S*ee* Farrell & Shapiro, *supra* note 8, at 32 ("Often, Firm [2] gains value from additional sales of Product 2 beyond the concrete short-term absolute gross margin . . . . Conceptually, such follow-on (often future) benefits add to Product 2's gross margin. These additional benefits may be concrete sales of spare parts or other complements, or less tangible: in markets with network effects, learning by doing, or customer switching costs, incremental sales today will generate additional profits in the future. . . . Since firms usually benefit in the future from making more sales today, we expect that in most cases accounting for these effects will raise the margin on Product 2, making [upward pricing pressure] for Product 1 more likely."); Salop & Moresi, *supra* note 7, at 18–19 ("Other long-term or dynamic considerations such as network effects and learning by doing also might exacerbate the upward pricing pressure.") (footnote omitted).

merger.[32] It is simply an indexed quantification of upward pricing pressure that allows for comparison of relative upward pricing pressure across mergers but *does not* speak directly to the effects of a particular merger.[33]

II.   GUPPI ANALYSIS TOO OFTEN IS BASED ON FLAWED INPUTS

As discussed above, to conduct a proper GUPPI analysis the antitrust agencies must first accurately calculate the merging firms' diversion ratios and marginal costs.[34] Putting aside the considerable challenges in agreeing on how best to calculate marginal cost,[35] outside of a select set of industries that are data rich, the antitrust agencies typically do not have adequate information to easily and accurately assess the merging firms' diversion ratios.[36] Rather than discard the GUPPI exercise and turn to other sources of available evidence to assess whether a merger is likely to substantially lessen competition, it is common practice to forge ahead with a GUPPI analysis by assuming diversion ratios proportional to the firms' market

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[32] *See From Hedgehog to Fox*, *supra* note 1, at 76 ("The value of diverted sales, taken alone, does not purport to quantify the magnitude of any post-merger price increase."); Salop & Moresi, *supra* note 7, at 20 ("The GUPPI does not purport to be equal to the merger-induced equilibrium price increase.").

[33] *See From Hedgehog to Fox*, *supra* note 1, at 76 ("The value of diverted sales, taken alone, does not purport to quantify the magnitude of any post-merger price increase. Rather, as the Guidelines state, it 'can serve as an indicator of the upward pricing pressure on the first product resulting from the merger.' . . . The value of diverted sales is a measure of the extra (opportunity) cost the merged firm bears in selling units of Product 1. Higher costs give the merged firm an incentive to raise the price of Product 1. But further analysis is needed to determine how that cost increase translates into a price increase. That depends upon the rate at which costs are passed-through to prices, which in turn depends upon the curvature of the demand curve.") (footnotes omitted); Salop & Moresi, *supra* note 7, at 20 ("[GUPPI] is merely an index of the upward pricing incentive of the merged firm for each of its overlap products, holding the prices of other products at pre-merger levels and ignoring other factors."). However, under certain assumptions—namely, the shape of the demand curve, zero efficiencies, and lack of a competitive response from the market—the GUPPI can be used to estimate precise price effects. *See id.* at 20, 20 n.47 ("Under certain conditions, however, and ignoring other factors discussed below, the GUPPI can be used to obtain a precise measure of the predicted 'first-round' price increase. . . . For linear demand, the first-round percentage price increase of product-1 would be equal to the $GUPPI_1$ divided by 2 and then multiplied by the pre-merger price ratio P_2/P_1. For constant elasticity, the first-round percentage price increase of product-1 would be equal to the $GUPPI_1$ divided by $(1-m_1)$ and then multiplied by the pre-merger price ratio P_2/P_1.").

[34] *See supra* notes 25–26 and accompanying text.

[35] *See* Lambert, *supra* note 29.

[36] *See* Farrell & Shapiro, *supra* note 8, at 17–19 (acknowledging upward pricing pressure analysis often may not be possible given the data needed to carry it out); Joshua D. Wright & Theodore Serra, *FTC Alums: Retail Mergers Reflect New Approaches at FTC*, Law360, *available at* http://www.law360.com/articles/806783/ftc-alums-retail-mergers-reflect-new-approaches-at-ftc (discussing the FTC's ability to derive diversion ratios and calculate GUPPIs in *Dollar Tree/Family Dollar*).

shares.[37] Under this approach, if Company A and Company B represent 30 and 20 percent of the relevant product market, respectively, then a price increase by Company A would result in 20 percent of the lost sales being diverted to Company B and a price increase by Company B would result in 30 percent of the lost sales being diverted to Company A.

Take for example, the DOJ's challenge of Electrolux's $3.3 billion proposed acquisition of General Electric's ("GE") appliances business in 2015.[38] After the Division and the merging firms fail to find a mutually agreeable remedy that would address the Division's competitive concerns, the Division filed a lawsuit in federal court seeking to enjoin the transaction.[39] A key part of the Division's case was evidence that the merger would result in significant upward pricing pressure as a result of lost competition between Electrolux and GE. During trial, the DOJ's testifying economic expert stated that his upward pricing pressure calculations demonstrated that the transaction likely would harm consumers.[40] However, the economic expert did not calculate actual upward pricing pressure because he did not rely upon actual diversion ratios and instead used diversion ratios that assumed diversion proportional to market share.[41] Under the weight of the litigation, the firms abandoned the transaction before the court could issue a decision on the merits.[42]

Applying a simplifying assumption that calls for the use of market shares to derive diversion ratios raises serious questions about the value of

[37] Such calculations typically are only known to the firms involved in a transaction and are not know to the broader public because the calculations are part of the antitrust agencies' confidential investigation. Such calculation can become public when the agencies challenge a transaction in federal court and must present evidence. One such example is Electrolux's proposed acquisition of General Electric's appliance division, where the DOJ endorsed a proportional market share approach to diversion ratios in its analysis. *See, e.g.*, Pl.'s Demonstrative/Summary Ex. Used with Direct Testimony of Michael Whinston *passim*, United States v. AB Electrolux, No. 1:15-cv-01039-EGS (D.D.C. dismissed Dec. 10, 2015), https://www.justice.gov/atr/file/ge-px02015/download [hereinafter Whinston Testimony]. *See also* Farrell & Shapiro, *supra* note 8, at 14 n.32, 30; Roy J. Epstein & Daniel L. Rubinfeld, *Merger Simulation: A Simplified Approach with New Applications*, 69 Antitrust L.J. 883 *passim* (2001).

[38] Press Release, Dep't of Justice, Justice Department Files Antitrust Lawsuit to Stop Electrolux from Buying General Electric's Appliance Business (July 1, 2015), https://www.justice.gov/opa/pr/justice-department-files-antitrust-lawsuit-stop-electrolux-buying-general-electrics-appliance.

[39] Complaint at 1, United States v. AB Electrolux, No. 1:15-cv-01039-EGS (D.D.C. dismissed Dec. 10, 2015).

[40] *See* Whinston Testimony, *supra* note 36 *passim*.

[41] United States v. Electrolux AB, 1:15-cv-01039-EGS; Transcript, D.D.C. Docket No. 400, page 2672:20–24 ("The reason [the upward pricing pressure is] very big is that these firms have really big shares, and the amount of business that gets internalized when you bring Electrolux and GE under the tent is a lot . . . ."); *id.* at 2680:2–4("[T]he important component in getting to the size of the internalization, it depends on market shares.").

[42] *GE and Electrolux Walk Away from Anticompetitive Cooking Appliance Merger Before Four-Week Trial Ends*, Dep't of Justice, https://www.justice.gov/atr/division-operations/division-update-2016/ge-electrolux-walk-away-anticompetitive-appliance-merger (last updated Apr. 4, 2016).

the outputs produced by the GUPPI analysis. It rarely is the case that diversion ratios will mirror market shares. Most significantly, the use of market shares to derive diversion ratios fails to account for closeness of competition and elevates the same structural analysis that purportedly was demoted in the 2010 Guidelines in favor of more rigorous effects-based analysis. Although there exist certain narrow circumstances under which a market share approach may yield accurate diversion ratios and correctly describe the competitive dynamics (for example, in cases where the products at issue truly are undifferentiated),[43] in general relying on market shares as a source for diversion ratios used to calculate a GUPPI likely will generate outputs that do not reflect actual market conditions or accurately describe the closeness of competition between the merging firms.[44]

For instance, if two merging firms are more distant competitors and relatively poorer substitutes than suggested by the market shares, a GUPPI based on proportional market share diversion ratios likely will overstate the upward pricing pressure created by the merger.[45] Conversely, if the merging firms are closer substitutes than is born out in the market shares, the GUPPI likely will understate the upward pricing pressure created by the merger.[46] One of these two scenarios often is going to be true when market shares are used to derive diversion ratios, which puts into question the value of using scarce agency resources to calculate a GUPPI that is almost assured of incorrectly describing the competitive dynamics. Even if the GUPPI is used only as one of several pieces of evidence when assessing the potential competitive effects of a proposed merger, it is difficult to justify why the antitrust agencies should incorporate evidence that is at best inaccurate and at worse misleading into the merger review process.[47]

In addition, deriving diversion ratios proportional to market shares raises the familiar hurdle that before market share can be assigned (and thus diversion ratios can be identified), a relevant product market must be defined and a set of competitors must be identified.[48] As a result, in attempting

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[43]   For discussion of the settings where proportional market shares may be reasonable proxies for diversion ratios, see Epstein & Rubinfeld, *supra* note 37, at 885–86, 890–92; Gregory J. Werden & Luke M. Froeb, *The Effects of Mergers in Differentiated Products Industries: Logit Demand and Merger Policy*, 10 J.L. ECON. & ORG. 407 (1994).

[44]   Willig, *supra* note 17, at 301 ("We shall see that the assumptions are unlikely to be valid in many areas of application where specific information can be developed about product characteristics and about consumer preferences for them. For such applications, merger analysis that focuses exclusively on market shares is likely to go awry.").

[45]   *See id.* at 303–304.

[46]   *Id.*

[47]   There potentially could be some directional value in a GUPPI calculation that uses diversion ratios based on proportional market shares in the rare event that it is clear that actual diversion ratios are either greater than or less than suggested by the market shares.

[48]   *See* Farrell & Shapiro, *supra* note 8, at 30 ("Once a market has been defined, diversion ratios could be estimated or proxied based on market shares in that market."); Epstein & Rubinfeld, *supra* note

to generate a GUPPI, the antitrust agencies ironically must conduct difficult and imperfect line-drawing exercises of precisely the type that the 2010 Guidelines hoped to minimize.[49]

As applied by the antitrust agencies today, the GUPPI often on the surface purports to embrace a more sophisticated variant of merger analysis that examines the closeness of competition between the merging firms and how the parties' incentives may change post-transaction. In reality, given the inferior inputs that frequently are used to calculate the GUPPI, the GUPPI often produces nothing more than the same structural analysis it claims to replace.[50]

This is precisely the approach the DOJ took in *GE/Electrolux*.[51] The DOJ presented analysis that purported to examine the actual anticompetitive effects of the proposed transaction by calculating upward pricing pressure, but in reality failed to measure closeness of competition and only drew generic conclusions based on assumptions about the increase in market concentration. As a result, the DOJ's upward pricing pressure analysis added little beyond what is offered by historic tools, such as the Herfindahl-Hirschman Index ("HHI"), that merely assess market concentration without weighing in on the merging firms' changed incentives. Although tools that focus on market concentration historically have been central to merger analysis, today they rightly have been deemphasized as poorly suited for assessing unilateral effects.[52]

If the GUPPI is dependent on diversion ratios, and those diversion ratios are based on market shares, then the GUPPI adds little value beyond older tools that evaluate market structure and the degree of increased concentration. What is worse is that an approach to upward pricing pressure that relies on market shares creates a false comfort that the antitrust agencies are using a more sophisticated analysis and relying on modern economic learning to assess a merger's likely competitive effects when in fact the work largely is based upon simply counting the number of firms in the relevant market.

37, at 893 n.26 ("[E]lasticities derived using the assumption of proportionality may be sensitive to the market definition. If additional brands are thought to be in the market, and are therefore included in the model, the estimated price effects of the merger could change.").

   49   *See* 2010 MERGER GUIDELINES, *supra* note 2, § 4 ("The Agencies' analysis need not start with market definition. Some of the analytical tools used by the Agencies to assess competitive effects do not rely on market definition, although evaluation of competitive alternatives available to customers is always necessary at some point in the analysis.").

   50   *See Hedgehog to Fox*, *supra* note 1, at 63 n.53 ("[T]here is no good theoretical link between the level of the HHI and unilateral price effects with differentiated products"). It is well recognized that the HHI is better suited for a coordinated effect analysis. *See id.* at 53, 56.

   51   United States v. AB Electrolux, No. 1:15-cv-01039-EGS (D.D.C. dismissed Dec. 10, 2015).

   52   *See Hedgehog to Fox, supra* note 1, at 63 n.53. *See also supra* note 50 and accompanying text.

III.   GUPPI HAS NOT BEEN MEANINGFULLY CALIBRATED

When GUPPI analysis was initially introduced into the Guidelines, at least one of the drafters, contemplated that it might be used to serve as an administrative "screen"—an initial filter that serves as a useful indication of whether further investigation by the antitrust authorities is warranted.[53] A high GUPPI, potentially indicative of high gross upward pricing pressure, would suggest that a merger is likely to result in increased prices unless the downward pricing pressure from efficiencies, repositioning by competitors, and entry is substantial. A high GUPPI therefore could signal that a more in-depth (and costly for both the merging firms and the antitrust agencies) investigation of the transaction is warranted. Conversely, a low GUPPI would potentially suggest that even minimal downward pricing pressure would be sufficient to outweigh any upward pricing pressure associated with the merger.[54] A low GUPPI, therefore, could suggest that the risk the merger in question is anticompetitive is sufficiently low so as not to warrant the attention of the antitrust authorities.

Even assuming GUPPIs are appropriately calculated to reflect close-ness of competition, before a GUPPI can be employed properly, the GUPPI faces two initial problems that have yet to be fully resolved or clarified by the antitrust agencies:

(1) *The GUPPI is not calibrated for use as a screen.* Under current agency practice, business and the antitrust bar are left to wonder: what is a "high" GUPPI such that an increase in price should be considered likely, and what is a "low" GUPPI such that an increase in price should be considered unlikely?

(2) *Even if GUPPI were to be appropriately calibrated, the practical implication of a "high" or "low" GUPPI is not clear.* How do the antitrust agencies internalize a "high" or "low" GUPPI into their merger analysis? Should a rebuttable presumption of harm attach to a high GUPPI, or a pre-

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53   *See* Shapiro Remarks, *supra* note 6, at 23–25 ("[T]he 2010 Guidelines, for the first time, point the way towards a 'safe harbor' applicable to unilateral price effects with differentiated products. . . . The 2010 Guidelines state that unilateral price effects for differentiated products are unlikely if the GUPPI is small. Since 1982, under the Guidelines a 'small but significant increase in price' has usually corresponded to a 5% increase in price. Current Division practice is to treat the value of diverted sales as proportionally small if it is no more than 5% of the lost revenues. Put differently, unilateral price effects for a given product are unlikely if the gross upward pricing pressure index for that product is less than 5%. . . . The 'safe harbor' outlined here does not indicate any tolerance for anti-competitive price increases. Rather, it reflects the fact that a small amount of upward pricing pressure is unlikely, at the end of the day, to correspond to any actual post-merger price increase.") (footnotes omitted).

54   *See* 2010 MERGER GUIDELINES, *supra* note 2, § 6.1 ("If the value of diverted sales is proportionately small, significant unilateral price effects are unlikely."); *From Hedgehog to Fox*, *supra* note 1, at 74 ("The Guidelines now provide a condition under which unilateral price effects are unlikely: . . . This condition corresponds to a low value of the GUPPI.") (quoting 2010 MERGER GUIDELINES, *supra* note 2, at §6.1, §6.1 n.11).

sumption that harm is unlikely attach to a low GUPPI? In particular, should there be a GUPPI below which anticompetitive harm is so unlikely that the antitrust authorities will apply a safe harbor?

With such preliminary questions unanswered, GUPPI analysis regularly fails to serve its purpose as useful evidence for antitrust agencies and practitioners. Compounded with problematic assumptions and shortcuts made in the calculation of GUPPIs, the result is a Hedgehog in Fox's clothing—a blunt, imprecise tool too often regarded as a sophisticated and nimble instrument. The next section describes the pitfalls associated with a lack of calibration for the GUPPI and the potential efficiency benefits of a properly calibrated initial administrative screen for merger analysis. This part further argues that there should exist a safe harbor for mergers with relatively low GUPPIs, but that it is premature to implement a presumption of harm for mergers with high GUPPIs.

A.   *GUPPI Is Prone to Misuse Absent Agency Guidance*

Insufficient guidance from the antitrust agencies regarding calibration of the GUPPI exacerbates its misapplication.[55] Without calibration, the GUPPI offers no better an analytical tool than HHI calculations—and likely is a worse tool given its propensity for misinterpretation. Just as a merger will always increase an industry's HHI, GUPPI is virtually always positive.[56] In contrast to HHIs for which the Guidelines outline a problematic threshold,[57] however, practitioners lack any meaningful guidepost regarding what a particular GUPPI means in practice—when is a GUPPI low, and when is it high?

Without a firm indication from the antitrust agencies of what constitutes a high or low GUPPI, an easy misconception is that the GUPPI directly represents some measure of anticompetitive effects, or that any posi-

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55   Although former DOJ chief economist Carl Shapiro outlined a potential GUPPI-based safe harbor, Shapiro Remarks, *supra* note 6, at 24–25, the FTC has taken the position that GUPPI-based presumptions are inappropriate, Fed. Trade Comm'n, Statement Regarding *In re* Dollar Tree, Inc. & Family Dollar Stores, Inc., FTC File No. 141-0207 (July 13, 2015), at 4, https://www.ftc.gov/system/files/documents/public_statements/681901/150714dollarstoresstatement.pdf [hereinafter Commission Statement] ("Indeed, we agree with Commissioner Wright that 'a GUPPI-based presumption of competitive harm is inappropriate at this stage of economic learning.' We think that a GUPPI-based safe harbor is equally inappropriate.") (footnote omitted). Moreover, it is unclear whether Carl Shapiro's 2010 statement that "Current Division practice is to treat the value of diverted sales as proportionately small if it is no more than 5% of the lost revenues" accurately reflects Division practice following Shapiro's tenure at the DOJ. Shapiro Remarks, *supra* note 6, at 24. Accordingly, this disparate guidance is of limited practical value.

56   Lambert, *supra* note 29 ("Virtually *every* merger involves a positive GUPPI. As long as *any* sales would be diverted from one merging firm to the other and the firms are pricing above cost (so that there is *some* profit margin on their products), a merger will involve a positive GUPPI.").

57   2010 MERGER GUIDELINES, *supra* note 2, § 5.3.

tive GUPPI indicates that anticompetitive effects are likely. However, *every* merger (at least, every merger in which at least one of the relevant competing products is sold above cost) has a positive GUPPI.[58] To note that a merger implicates a positive GUPPI is only to note that the upward component of the merger's net pricing pressure is upward. A positive GUPPI sheds no light on the likely effects of a transaction unless there is meaning given to specific GUPPI scores.

This misinterpretation of GUPPIs may have the undesired result of excessive scrutiny or challenge of mergers that would not result in anticompetitive effects. This is true whether the GUPPI is the only evidence used to analyze a merger or, as some have argued when defending the use of GUPPI analysis, it is merely one component of many in a proper merger analysis.[59] In the absence of being tethered to any meaningful guidance grounded in modern economics, the GUPPI can be used to support the conclusion desired by the antitrust agencies or can be dismissed as less reflective of actual competitive dynamics that are better demonstrated by other evidence.

B. *A Safe Harbor for Transactions with Low GUPPIs*

With properly calibrated thresholds—and assuming proper calculation—GUPPI analysis can make the merger review process more efficient, reducing unnecessary expenditure of agency and private-sector resources.[60] If further investigation is sufficiently unlikely to produce a result contrary to an initial GUPPI analysis, it is efficient for the GUPPI to serve as a screen and bypass further analysis. In theory, proper calibration of GUPPI thresholds for safe harbors or presumptions of anticompetitive harm can result in false negatives and false positives, respectively, deemed to be acceptable given the increased efficiency of the review process.[61]

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58   Lambert, *supra* note 29.

59   Commission Statement, *supra* note 55, at 4 ("As with other quantitative evidence such as market shares and HHIs, we believe that GUPPIs should be considered in the context of all other reasonably available evidence. . . . [W]e believe it is appropriate to use GUPPIs flexibly and as merely one tool of analysis in the Commission's assessment of unilateral anticompetitive effects.").

60   Joshua D. Wright, Comm'r, Fed. Trade Comm'n, Statement Dissenting in Part and Concurring in Part, *In re* Dollar Tree, Inc. & Family Dollar Stores, Inc., FTC File No. 141-0207 (July 13, 2015), at 3, https://www.ftc.gov/system/files/documents/public_statements/681781/150713dollartree-jdwstmt.pdf [hereinafter Wright Statement] ("There are a number of reasons why such a safe harbor might be desirable as a matter of antitrust policy if sufficiently supported by economic theory and evidence. Efficient resource allocation—expending agency resources on the transactions most likely to raise serious competitive concerns and quickly dispensing with those that do not—is one such goal.").

61   *See id.* at 5 ("The relevant question is not which legal rule drives false positives or false negatives to zero, but rather which legal rule minimizes the sum of the welfare costs associated with false negatives, false positives, and the costs of obtaining evidence and otherwise administering the law."); Lambert, *supra* note 29 ("A safe harbor is consistent with the Supreme Court's decision-theoretic anti-

In order for the GUPPI to provide a meaningful contribution to merger analysis, there should be a threshold that triggers a safe harbor—or at least a presumption of no anticompetitive effect. If not for use as a screen that truncates or expedites the merger review process, the benefit of GUPPI analysis is unclear.[62] GUPPI analysis provides no additional insight beyond the analysis conducted during a thorough, in-depth merger investigation.[63] If a full merger investigation is required no matter the GUPPI, then calculation of GUPPIs amounts to no more than a detour along the way—a back-of-the envelope calculation that should not carry undue weight in the context of a more thorough analysis.

Assuming it can be properly calculated, the GUPPI is particularly well suited to act as a screen for mergers *unlikely* to have an anticompetitive effect. If a GUPPI is low, it can reasonably be expected that factors such as efficiencies, repositioning, and entry are sufficient to outweigh gross upward pricing pressure such that the transaction has net neutral or downward pricing pressure.[64] Moreover, given that the GUPPI, by definition, accounts *only* for the upward pricing pressure associated with a transaction, a low GUPPI generally indicates *worst-case* unilateral incentives with low upward pricing pressure.[65] Thus, in the (highly unlikely) worst-case scenario of no entry, no repositioning by competitors, and no merger efficiencies, the upward pricing pressure resulting from the transaction is nonetheless likely to be low.[66] While the precise GUPPI threshold appropriate for a safe har-

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trust jurisprudence. In recent years, the Supreme Court has generally crafted antitrust rules to *optimize* the costs of errors and of making liability judgments (or, put differently, to 'minimize the sum of the error and decision costs').").

[62] *See* Lambert, *supra* note 29 ("[W]hy go through the difficult task of calculating GUPPIs if they won't simplify the process of evaluating a merger?").

[63] *See id.* ("Under the Commission's purported approach, once GUPPI is calculated, enforcers still have to consider all the other evidence and make an 'all things considered' judgment. A better approach would be to cut off the additional analysis if the GUPPI is sufficiently small.").

[64] *See* Wright Statement, *supra* note 60, at 3 ("A second reason a safe harbor for proportionately small diversion might be desirable antitrust policy is to compensate for the sources of downward pricing pressure not measured by the GUPPI but expected with most transactions, including efficiencies, entry, or repositioning.").

[65] *See* Lambert, *supra* 29 ("GUPPI attempts to assess *gross* upward pricing pressure. It takes no account of factors that tend to prevent prices from rising. . . . The upshot is that the GUPPI is inherently biased toward an indication of anticompetitive harm. A safe harbor for mergers involving low GUPPIs would help counter-balance this built-in bias.").

[66] This is not to say that false negatives are impossible. Particularly in a scenario in which aggressive price competition results in low margins, but the products have a high diversion ratio, it is possible to observe a low GUPPI for a merger that may have anticompetitive effects. Commission Statement, *supra* note 55, at 3. In addition, if the value of diverted sales retained by the merged firm carries greater benefit than simply capturing the short-term profit margin, upward pricing pressure may be larger than indicated by the GUPPI calculation. *See* Salop & Moresi, *supra* note 7, at 18–19. However, the point remains that there exists a GUPPI threshold that would implicate a level of false negatives deemed acceptable given the substantial resource and efficiency gains from streamlining the merger review process.

bor is a matter of policy, scholars and practitioners have suggested 5% may be an appropriate starting point.[67]

Although GUPPI may indeed be a good screen for mergers unlikely to pose anticompetitive effects, as the upper bound of the net, unilateral pricing pressure associated with a merger, GUPPI analysis is less suited to be a screen for likely anticompetitive harm. That the upper bound of net, unilateral pricing pressure for a transaction is high says very little about the likely net pricing pressure when countervailing factors are taken into account. Moreover, it is unclear, and empirical research has not yet indicated, what would constitute a high GUPPI such that it is highly unlikely that the effects of entry, competitor repositioning, and efficiencies would be sufficient to outweigh the upward pricing pressure implicated by a transaction.[68] Lastly, it is widely recognized that the social costs associated with false positives are significantly greater than those associated with false negatives.[69] Accordingly, it would be premature to implement a presumption of anticompetitive harm based on GUPPI analysis without further empirical research.[70]

CONCLUSION

Although the incorporation of the GUPPI into the modern merger analysis and the 2010 Guidelines represents a step toward a more sophisticated, effects-based analysis, the GUPPI can only live up to this promise if

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[67]   *E.g.*, Shapiro Remarks, *supra* note 6, at 24–25; Wright Statement, *supra* note 60, at 9 ("While reasonable minds can and should debate the optimal definition of a 'small' GUPPI, my own view is that 5 percent is a reasonable starting point for discussion.").

[68]   Wright Statement, *supra* note 60, at 8 ("There is no empirical evidence to support the use of GUPPI calculations in merger analysis on a standalone basis, let alone the use of a particular GUPPI threshold to predict whether a transaction is likely to substantially harm competition.") (citing Dennis W. Carlton, *Revising the Horizontal Merger Guidelines*, 6 J. COMPETITION L. & ECON. 619, 625 (2010) ("Perhaps most importantly, UPP [as described in the 2010 Merger Guidelines] is new and little empirical analysis has been performed to validate its predictive value in assessing the competitive effects of mergers."); Keyte & Schwartz, *supra* note 12, at 590); Joseph J. Simons & Malcolm B. Coate, *Upward Pressure on Price Analysis: Issues and Implications for Merger Policy*, 6 EUR. COMPETITION J. 377, 389 (2010); Thomas A. Lambert, *Respecting the Limits of Antitrust: The Roberts Court Versus the Enforcement Agencies* 13 (HERITAGE FOUNDATION LEGAL MEMORANDUM No. 144, Jan. 28, 2015), http://www.heritage.org/research/reports/2015/01/respecting-the-limits-of-antitrust-the-roberts-court-versus-the-enforcement-agencies.

[69]   *See* Frank H. Easterbrook, *The Limits of Antitrust*, 63 TEX. L. REV. 1, 15 (1984) ("[T]he economic system corrects monopoly more readily than it corrects judicial [false positives].").

[70]   The majority and dissenting statements in *Dollar Tree/Family Dollar* concurred that implementing of a GUPPI-based presumption of harm is inappropriate at this time. *Compare* Wright Statement, *supra* note 60, at 8 ("To be clear, it bears repeating that I agree that a GUPPI-based presumption of *competitive harm* is inappropriate at this stage of economic learning.") (footnote omitted); *and* Commission Statement, *supra* note 55, at 3 ("[W]e agree with Commissioner Wright that "a GUPPI-based presumption of competitive harm is inappropriate at this stage of economic learning.").

properly calculated and based on reliable data. Even assuming proper calculation, the GUPPI cannot live up to its potential useful purpose in merger review without meaningful guidance from the antitrust agencies. In the absence of these conditions, the GUPPI undermines the triumph of the Fox over the Hedgehog embodied in the 2010 Guidelines, and instead acts as a Hedgehog in Fox's clothing by purporting to convey sophisticated, effects-based analysis when in reality only drawing conclusions based on market concentration. Accordingly, it would be appropriate to implement two modest policy recommendations.

First, the antitrust agencies should commit to not relying on GUPPIs unless the necessary data are available to accurately calculate an estimate of diversion ratios. The primary advantage of GUPPI calculations is that the GUPPI accounts for closeness of competition via incorporation of the diversion ratios. If data are not available to calculate diversion ratios reasonably representative of closeness of competition, and if instead diversion ratios are assumed proportional to market share estimates, the GUPPI fails to account for closeness of competition, and its primary advantage is lost.

Second, for instances when GUPPI can be properly calculated, the antitrust agencies should issue guidance explaining how GUPPIs will be incorporated into merger analysis. One specific guideline that would be appropriate based on the current state of empirical research and the economics underlying the GUPPI is the implementation of a GUPPI-based safe harbor. While the precise threshold can be the subject of debate, identifying an agreed-upon threshold would allow the business community, the antitrust bar, and the antitrust agencies to employ GUPPI analysis in a manner that realizes greater efficiency in the merger review process.