

Updating the Merger Guidelines: Hearings Statement December 3, 2009

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We are pleased to participate in these Hearings. We previously have submitted comments to this Update project. This Statement highlights some of the points made in our comments.

We believe that the Merger Guidelines should be updated to reflect the experience accumulated over the past 17 years. Most generally, we recommend that the Guidelines Update should stress the fact that evaluation of competitive effects is the goal of merger analysis, and that all the components of the analysis must be pointed towards that goal. We also recommend that the Update should incorporate concerns about optimal deterrence into the Agencies' enforcement decisions, as well as the remedial standards and procedures. Regarding the specific components of merger analysis, the Guidelines need particular renovation in the area of market definition and unilateral effects.

In these opening remarks, we want to highlight several key issues regarding deterrence, market definition and unilateral effects.

1. Optimal Deterrence

The goal of merger analysis of a particular merger is to identify the likelihood that the merger will lead to anticompetitive effects. The goal of merger enforcement policy goes further. It also takes into account the impact on deterrence.

Merger analysis takes place with limited information in a short time frame, so there always are concerns about "false positives" and "false negatives." False negatives include anticompetitive transactions that are not identified, anticompetitive transactions that are identified but not enjoined by the courts, and transactions where the remedy is insufficient. False positives include procompetitive or competitively neutral (but socially beneficial) mergers that are enjoined or abandoned as a result of Agency enforcement actions. Deterrence analysis also takes into account the impact of these errors on the types of mergers that are proposed or not proposed.

¹ Professor Salop and Dr. Moresi represent only their own views and not necessarily the views of anyone else at Georgetown University Law Center, CRA or elsewhere. We are submitting these comments on our own and not on behalf of any client. We were not commissioned by anyone for preparing these comments.

Deterrence analysis is complex. Intuition might suggest that false positives would lead to over-deterrence and false negatives would lead to under-deterrence. That is true, but it overlooks another very important element: *error generally leads to under-deterrence*.²

The concept of “incipiency” relates directly to optimal deterrence. Incipiency was interpreted in the past in terms of stopping a trend towards concentration. But, a more salient interpretation of incipiency in a modern decision-theoretic analysis might be that the Congress premised Section 7 on the view that false negatives (and under-deterrence) are a more serious concern than false positives (and over-deterrence). The Agencies should clarify the role of this balancing in setting out its enforcement intentions.³

Deterrence is not just affected by the substantive merger standard. It also is affected by aspects of the merger enforcement process. The most obvious issue is the agency enforcement decision threshold, that is, the minimum expected probability of winning in court that the Agencies’ management require in order to justify going to court. Looking over the past 30 years, the previous conventional wisdom was that the Agencies (and Agency lawyers) were overly aggressive. Today, the situation may have become reversed, with the Agencies being highly risk averse about bringing cases.

Commentators sometimes look at the won-loss record to evaluate aggressiveness. But, it is well-known from the law and economics literature that the won-loss rate is mostly determined by settlement behavior and uncertainty that deters litigation in all but the hardest cases when the stakes are symmetric and biases the won-loss record when the stakes, litigation costs and degree of risk aversion are asymmetric.⁴ In that sense, the agencies and commentators may be paying too much attention to won-loss rates.

Settlement and remedial procedures also are relevant to deterrence and are inter-related with the substantive standard. If the merger remedy process is weak, then tougher substantive standards would be required to achieve optimal deterrence, or vice versa. With respect to specific remedial standards, a strict requirement of fix-it-first with no subsequent settlement negotiations likely would increase the degree of deterrence.

² To illustrate with an extreme example, suppose that the state trooper’s radar gun is imperfect so that a driver is equally likely to be ticketed whether going 20 mph under the speed limit or 20 mph over the limit or anywhere in-between. In that case, the likelihood of conviction is not related to the driver’s conduct. The driver might as well exceed the speed limit. After all, the speed does not affect the likelihood of being held liable for speeding and going 20 mph below the speed limit might make the driver late for an important meeting. Given these circumstances, why bother slowing down? As a result, there more likely would be under-deterrence.

³ While the DOJ never fully explained their reasoning, the DOJ may have engaged in some type of similar analytic exercise in setting the HHI thresholds in the 1982 Merger Guidelines, perhaps based on the agency’s experience in merger analysis. Of course, elections matter and William Baxter’s general antitrust experience and his beliefs about the costs and benefits of merger enforcement obviously also played a role.

⁴ For example, see George L. Priest & Benjamin Klein, *The Selection of Disputes for Litigation*, 13 J. LEGAL STUD. 1 (1984), and the literature generated by their article.

2. Market Definition, Market Shares and Concentration

Market definition formally is required under Section 7 of the Clayton Act. The key analytic function of market definition is to focus attention on close substitutes. Market definition also is used to determine market shares and market concentration. These statistics can provide circumstantial evidence of likely competitive effects and also might form the basis for safe harbors and structural presumptions of anticompetitive harm.

As we discussed in our comments, the hypothetical monopolist *ssnip* test for market definition is an elegant but complicated and imperfect methodology. Our comments provide a list of potential criticisms. However these criticisms are resolved, they add up to an important theme: market definition will often yield ambiguous results in which the “most appropriate” market definition is sometimes unclear. As a result, market shares and concentration provide at best very “noisy” evidence. It might make sense to explicitly concede this point in the Guidelines Update and move forward from that basis.⁵ The concession of this point would nudge both the Merger Guidelines and the law to focus more solidly on the bottom line issue of likely competitive effects.

Of course, the decision to downgrade the role of concentration and market shares cuts both ways. On the one hand, it obviously would weaken the *Philadelphia National Bank* structural presumption of harm. On the other hand, it may not be recognized that it also would weaken the case for safe harbors based on market share and concentration.

In our comments, we list a number of areas where renovation is needed for market definition. First, we suggest that the smallest market principle (SMP) be erased. The SMP does not lead to a unique market definition, particularly when non-uniform price increases are taken into account. Second, the SMP can lead to overly narrow market definitions that could lead to false negatives.⁶ Third, the combination of the SMP and the algorithm for expanding the relevant market can distort the entire market definition process.⁷ Finally, and most important, the SMP should be erased because it does not make sense as a matter of policy. A finding that there are no significant competitive

⁵ Michael Katz & Howard Shelanski, *Merger Analysis and the Treatment of Uncertainty: Should We Expect Better?*, 74 ANTITRUST L.J. 537 (2007).

⁶ We have heard the argument that the SMP is an anomaly that can be easily handled simply by increasing the size of the *ssnip*. This makes no sense. If it is known that the market found by the SMP test is too narrow, then there must be another better test being used. It would be better to use that superior test.

⁷ For example, suppose that pens vary along a price/quality continuum. Consider a merger involving a mid-level pen brand. On the one hand, if the very next-best substitute is a lower price/quality brand, the algorithm may drive the market definition to a “low end” pen market. On the other hand, if the very next-best substitute is a higher price/quality brand, the algorithm may drive the market definition to a “high end” pen market. Which brand of pen is the very next-best substitute clearly could be a very close call. Yet, this decision could make a huge difference if the algorithm drives the market expansion process in one direction rather than another. Indeed, it could determine whether or not the merging parties even are placed in the same market.

concerns in the most narrow possible market definition does not mean that there are no concerns in a broader market.⁸

Second, we suggest that that the Guidelines take more seriously the *Cellophane Fallacy* concern that use of the prevailing price benchmark leads to overly broad markets where there is evidence suggestive of pre-merger tacit coordination. We suggest several simple proxy tests for applying this presumption. We also suggest how the market definition test might be implemented when the benchmark price is set below the prevailing price.

Third, when the explanation for high margins is differentiated products (rather than tacit coordination), we suggest that margin information be used to aid the prediction of the elasticity, as stressed in the articles by Katz & Shapiro⁹ and O'Brien & Wickelgren¹⁰ (collectively, "KSOW").

Fourth, where individual firms sell multiple products or multiple brands of the same product, this analysis also would have to take into account the complementarity or substitution relationships.¹¹

All in all, these issues explain why the market definition process is necessarily complex, imperfect and error-prone. Indeed, sometimes it is virtually intractable without using a type of merger simulation model (that assumes away efficiency benefits and entry). As a result, merger analysis and merger enforcement policy should not overweight market shares and concentration statistics.

4. The GUPPI

One can conceptualize the potential 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 merging firms generates upward pricing pressure. The efficiency benefits from the merger generate downward pricing pressure.¹² This approach to unilateral effects analysis – based on upward and downward price pressure – is particularly useful in differentiated product industries where firms compete mainly by

⁸ To illustrate, consider a proposed merger between Heinz and Beech-Nut. Suppose that the *ssnip* test found a narrow market for premium baby food comprised of just Gerber and Beech-Nut, a narrow market that does not include Heinz. Suppose that it also found another narrow market for Gerber and Heinz that does not include Beech-Nut. Those two market definitions do not imply that a merger between Beech-Nut and Heinz necessarily would be free of significant competitive issues, involving either unilateral or coordinated effects.

⁹ Michael L. Katz & Carl Shapiro, *Critical Loss: Let's Tell the Whole Story*, ANTITRUST (Spring 2003).

¹⁰ Daniel P. O'Brien & Abraham L. Wickelgren, *A Critical Analysis of Critical Loss Analysis*, 71 ANTITRUST L.J. 161 (2003).

¹¹ Serge Moresi, Steven C. Salop & John Woodbury, *Implementing the Hypothetical Monopolist SSNIP Test With Multi-Product Firms*, ANTITRUST SOURCE (February 2008).

¹² For cost-savings, the downward price pressure involves the nominal price. For quality improvements, the downward price pressure involves the quality-adjusted price.

setting the prices of their products.

The upward pricing pressure depends on the closeness of competition between the products of the merging firms, relative to other products inside and outside the relevant market, the price/cost margins and other factors.¹³ In particular, the upward pricing pressure may be mitigated by the existence of other close substitutes and by supply-side responses (i.e., entry and repositioning). Multi-product firms, other long-term or dynamic considerations, such as network effects and learning by doing, also might affect the upward pricing pressure. The downward pricing pressure from efficiencies may be mitigated by the various factors that limit the merger-specificity and cognizability of efficiencies. 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*.

Rather than focus on “net” effects as in Farrell/Shapiro’s¹⁴ Upward Pricing Pressure (*UPP*), or the O’Brien/Salop’s¹⁵ Price Pressure Index (*PPI*), or Werden’s¹⁶ critical cost savings, we define “*GUPPI*” as the “Gross Upward Pricing Pressure Index.” *GUPPI* is intended to measure the upward pricing pressure from the elimination of competition between the merging firms, after adjusting for the possible mitigating effects of supply side responses that affect the diversion ratio, but before netting out the downward pricing pressure from efficiencies.

In formal terms, the gross upward pricing pressure (in dollar terms) on the price of the product produced by merging partner firm-1 is equal to the diversion ratio (from that product to the product sold by its merger partner firm-2) multiplied by the dollar margin per unit of firm-2’s product. In percentage terms, this leads to an index that could be used by the Agencies as evidence of the likelihood of adverse unilateral effects in differentiated products industries, as we will discuss shortly. We will refer to this concept as the “gross upward price pressure index” or “*GUPPI*” for short:

$$GUPPI_1 = DR_{12} \times m_2$$

¹³ Measuring the price/cost margin raises all the usual issues about the proper measure of cost. However, these clearly are not fatal concerns for the *UPP* and *GUPPI* approaches described in the text. In fact, what is peculiar about criticisms based on cost measurement concerns is that an estimate of the price/cost margin is required for the critical loss approach to the *ssnip* test too. (As pointed out in the comments of Schwartz and Rozanski, evidence of inelastic demand eliminates the need to do critical loss. But, of course, in order to choose a putative market under the SMP, a whole series of demand elasticities must be estimated at each stage of the market expansion process.)

¹⁴ Joseph Farrell & Carl Shapiro, *Antitrust Evaluation of Horizontal Mergers: An Economic Alternative to Market Definition*, Working Paper, 25 November 2008 (UC Berkeley Dept. of Econ.), available at <http://faculty.haas.berkeley.edu/shapiro/alternative.pdf>.

¹⁵ Daniel O’Brien & Steven C. Salop, *Competitive Effects of Partial Ownership: Financial Interest and Corporate Control*, 67 ANTITRUST L.J. 559 (2000).

¹⁶ Gregory Werden, *A Robust Test for Consumer Welfare Enhancing Mergers Among Sellers of Differentiated Products*, 44 J. INDUS. ECON. 409 (1996).

where DR_{12} is the diversion ratio from product-1 to product-2 and m_2 is the percentage margin of product-2. For example, if $DR_{12}=20\%$ and $m_2=50\%$, then $GUPPI_1=10\%$. The $GUPPI$ for product-2 is defined similarly as $GUPPI_2 = DR_{21} \times m_1$.¹⁷ Thus, $GUPPI$ is higher when either the diversion ratio to the merging partner is higher, or the price/cost margin of the merging partner is higher (or both).

The $GUPPI$ is not a new and alien concept. It is the “value of the diversion” to the merging partner, expressed as a percentage of the price. In fact, the dollar-value of the $GUPPI$ appears to be the measure of closeness of substitution used to rank the next-best substitutes in carrying out the *ssnip* test in the Merger Guidelines.¹⁸

The diversion ratio used in $GUPPI$ also is related to the cross-elasticity and own-elasticity of demand, concepts of market definition going back to the *DuPont* decision and the 1982 Merger Guidelines. The $GUPPI$ also is a close cousin of the KSOW market definition methodology.¹⁹

The $GUPPI$ is relevant “circumstantial” evidence of adverse unilateral effects. (The $GUPPI$ generally has been used by economists in this way.) Note that the $GUPPI$ does not purport to be equal to the merger-induced equilibrium price increase. It is only one factor among others. First, the simple $GUPPI$ formula does not take into account merger-specific efficiencies, such as production cost savings and product quality increases. Second, the $GUPPI$ does not account for several other factors that are potentially important to the post-merger price increase, including the competitive interaction among close substitutes, the multi-product nature of many firms (i.e., the impact on pricing incentives of the merged firm’s sales of other substitutable or complementary products), potential pricing interdependencies (i.e., how the merging firm’s pricing initiatives might trigger particular responses by other firms), dynamic demand factors, and the shape of the demand curve (i.e., how the magnitude of the price effect depends on the curvature of the demand function).

In addition, even when those other factors are not present or significant, so that the simple $GUPPI$ formula captures all main factors, it might be difficult to estimate the diversion ratio used in the $GUPPI$ formula. This is because the estimated diversion ratio should account for potential supply-side responses (e.g., product repositioning, product extension and uncommitted entry). In fact, sometimes the diversion ratio estimate may be based on the “proportional diversion” assumption that uses information on market shares

¹⁷ The $GUPPI$ measure and the UPP test normally are derived and analyzed in the context of the Bertrand model of price competition with differentiated products. However, similar measures also can be derived in the context of the Cournot model of quantity competition, and in the context of bidding models. For details, see the Comments of Serge Moresi. For the use of HHI as a direct welfare marker in a particular negotiation market structure, see the Comment of my CRA colleague, Yianis Sarafidis.

¹⁸ §1.11(n. 9)(“Throughout the Guidelines, the term “next best substitute” refers to the alternative which, if available in unlimited quantities at constant prices, would account for the greatest *value of diversion of demand* in response to a “small but significant and nontransitory” price increase.” (*emphasis added*))

¹⁹ See footnotes 8 and 9.

in a “relevant market” and the market demand elasticity. Thus, as relevant evidence, the *GUPPI* would be combined with other evidence to form a better prediction.

5. Using *GUPPI* for Unilateral Effects Presumptions

The *GUPPI* also might be used for setting enforcement thresholds for unilateral effects concerns in differentiated products industries to replace or supplement the HHI and the combined market share of the merging firms. For example, a relatively low *GUPPI* threshold could be used to establish a safe harbor for unilateral effects concerns, either as an initial screen or later on in the HSR process. The Agencies (or the courts) also could use the *GUPPI* to determine whether or not to presume harmful unilateral effects and shift the burden of rebuttal onto the merging parties. We believe that most economists would agree that the *GUPPI* generally is a better gauge of unilateral effects concerns than the product of the shares (i.e., the HHI delta) or the combined market share of the merging firms.

There also is the question of whether the simple *GUPPI* formula should be used, or whether the *GUPPI* should be replaced by a *PPI* that explicitly takes into account some or all of the other factors. (For example, Farrell & Shapiro’s *UPP* takes into account an “efficiency credit.”) We would not recommend this type of reformulation at this time. There are too many possible factors to include. Moreover, some of the factors are not so easily quantified or cannot be easily inserted into the formula in a simple way. Finally, each of the factors raises its own evidentiary burdens. If they were included in the expanded formula, then the formula might well lose its utility as a simple, initial screening device, say for deciding whether or not to issue a second request.²⁰ We prefer the simple *GUPPI* formula, with the other factors then added into the analysis.

This suggestion does not mean that we think that the other factors are irrelevant. To the contrary, in the ultimate merits analysis, more complex analyses often will be quite useful, including the *UPP* or other variants that take the specific structure of the market into account. In fact, these other factors often will be the central issues in the ultimate merits analysis. This analysis also would include evidence specific to the merger, rather than just presumptive credits and adjustments like the efficiency credit. But, we would recommend that the presumption be based on the *GUPPI*, rather than a more complex formula. We feel this is a compromise worth considering in the Update.

If the *GUPPI* were given this role as a presumption, the Agencies would need to set the thresholds and the strength of the presumption. As suggested by the long list of factors above, setting the threshold would involve more than simply applying an “efficiency credit” (e.g., based on an estimate of the typical variable cost-reduction in horizontal mergers, either in general or tailored to particular industries). (We discuss the efficiency

²⁰ Of course, some well-counseled firms likely will present evidence on these other factors at an early stage in order to convince the Agency not to issue a second request. If they do, we can see no reason to ignore this information and we see substantial benefits in considering it. After all, complying with a second request is very expensive for the parties, causes delay and uses up substantial resources of both the Agency and the parties.

credit in more detail in the comments we submitted.) It also would be necessary to take into account deterrence concerns.

If *GUPPI* (whether alone or in conjunction with the market share statistics) is used to identify presumptively non-harmful or presumptively anticompetitive transactions for enforcement purposes, the Agencies must choose whether to make those presumptions rebuttable or irrebuttable. If one or the other presumption is rebuttable, the Agencies also must choose the strength of the presumption -- that is, the weight of the “thumb on the scale.” Again, this is the way in which the HHI is used in the current Merger Guidelines.

We recommend that for the purposes of identifying presumptively anticompetitive transactions, the Agencies use some type of sliding scale. A higher *GUPPI* should require more exculpatory evidence than would a smaller *GUPPI*.

In light of the importance of these other factors, we also recommend that the presumption not be made irrebuttable. We similarly recommend that the presumption of anticompetitive effects be modest, except perhaps for the most extreme values. And, even then, rebuttal should be permitted.

6. Selected Questions and Answers

We now discuss some more specific issues relating to *GUPPI* and its relationship to market definition.

i. Does GUPPI Eliminate the Role of Market Definition?

It does not. The issue is not whether a market should be defined but rather how much weight (if any) should be placed on market shares and concentration statistics.

As discussed already, Section 7 of the Clayton Act requires that a market be defined. However, Section 7 does not require that market shares and concentration be given primary importance in the analysis or that other evidence be ignored. It does not mandate that the likelihood of unilateral effects should be proxied by either the sum or the product of the market shares of the merging parties (as measured by the combined market share or the HHI delta). For the past 30 years, courts and commentators have been criticizing the overemphasis on market shares and concentration in merger analysis. It is ironic that concentration is being defended now that an alternative quantitative measure is being proposed.

ii. How is GUPPI Related to Market Definition under the SSNIP Test?

GUPPI is closely related to the KSOW test for market definition in differentiated products industries. Suppose that a uniform and profit-maximizing *ssnip* for all products

in the candidate market is being considered. In that situation, the products of the two merging firms would comprise a relevant antitrust market if:²¹

$$GUPPI/(1-DR) \geq 2s$$

For example, if the relevant profit-maximizing *ssnip* for market definition is $s = 5\%$, and the diversion ratio between the two merging firms is $DR = 20\%$, then the products of the two merging firms alone would comprise a relevant market if the *GUPPI* were at least 8% (i.e., $2 \times 5\% \times 80\%$).

In the above formula, we have assumed that the *GUPPIs* for each firm are identical. That is not generally the case. We want to stress that a separate *GUPPI* must be calculated for each firm.

The Merger Guidelines also contemplate a *ssnip* applied to only one of the products. This is a proper approach because sometimes the competitive concern is focused on the price of the products of only one of the merging firms. In this situation, the products of the two merging firms would comprise a relevant market if:

$$GUPPI \geq 2s$$

In the previous example with a *ssnip* of 5%, the two products would comprise a relevant market if the *GUPPI* were at least 10%.²²

iii. Is *GUPPI* Over-Inclusive?

The *GUPPI* is just a concept and so cannot be over-inclusive. However, anticompetitive presumptions based on very low *GUPPIs* could be over-inclusive, especially if they are irrebuttable.

There are two separate presumptions at issue: (i) a safe harbor for escaping further analysis (perhaps including a second request), and (ii) a presumption of highly significant

²¹ This formula assumes that market definition is based on a profit-maximizing *ssnip*, not a just-profitable *ssnip*. In addition, it assumes that the merging firms are Bertrand competitors who each produce single products that are substitutes for one another. It also assumes linear demand, constant marginal cost, and symmetric merging firms (i.e., equal diversion ratios, equal margins, equal prices, and equal quantities).

²² The threshold *GUPPI* for the single-product *ssnip* test (i.e., $2s$) is higher than for the uniform *ssnip* test (i.e., $2s(1-DR)$). Intuitively, the profitability of raising the price of product-1 and diverting sales volume to product-2 is higher if the price of product-2 is raised as well, and thus a smaller diversion ratio is needed to make the price increase profitable. Thus, when the merging firms are symmetric, if they constitute a relevant market under the single-product *ssnip* test, then they also constitute a relevant market under the uniform *ssnip* test. However, when the merging firms are asymmetric (e.g., a large firm acquiring a small firm), it is possible that they constitute a relevant market under the single-product *ssnip* test but not under the uniform *ssnip* test (e.g., the *GUPPI* of the large firm could be 3% while the *GUPPI* of the small firm could be 12%, well above the 10% threshold; however, the “average” *GUPPI* to be used for the uniform *ssnip* test might be well below the 8% threshold). This also raises the issue of whether the Agencies should use the average or the individual *GUPPIs* in setting presumptions.

unilateral effects concerns, a presumption that may shift the burden to the merging parties.

We do not know what *GUPPI* presumptions (if any) will be put into the Merger Guidelines. We do know that setting the presumptions is not a trivial exercise. The presumptions should take into account the impact on deterrence as well as false positives and false negatives in particular mergers. In doing so, they must take into account the Agencies' assumptions regarding measurable and non-measurable efficiencies, competitive interaction among market participants, and so on.

As a starting point, the anticompetitive presumption threshold could be based on the relationship between *GUPPI* and the KSOW test for market definition. For example, suppose that the anticompetitive presumption would require a showing that the KSOW test would imply a *narrow market comprised solely of the products of the merging firms*. If the market were defined on the basis of a 5% profit-maximizing *uniform ssnip* (i.e., identical price increases for both firms), the relevant threshold for the products of the merging firms to comprise a relevant market would be the *GUPPI* that satisfies the equation $GUPPI / (1 - DR) = 10\%$. If $DR = 20\%$, then the threshold *GUPPI* would be 8%. (If the diversion ratio is very large, this could imply a very low *GUPPI*.) If the market instead were defined on the basis of a 5% profit-maximizing *single-product ssnip* (i.e., a price increases for the product of only one of the merging firms), then the threshold *GUPPI* would be 10%.²³ The safe harbor also could be based on the same concept, but with a smaller *ssnip*.

Whatever the exact *ssnips* that are chosen for the two presumptions, on the basis of enforcement philosophy and deterrence factors, this basic approach is defensible. If the two products of the merging firms comprise a relevant market, then the post-merger HHI would be 10,000, absent uncommitted entry. We understand that such a preliminary and "nominal" monopoly market often will not stand up to more detailed analysis. We have commented in detail on the various complications involved in market definition under a more complete KSOW type of analysis. Issues of pre-merger tacit coordination, multi-product firms (producing either substitutes or complements), long-term profit-maximization, and so on, all make a rigorous approach to confirming such a narrow market definition (or any other particular market definition) much more complicated, if not completely intractable. They also complicate competitive effects analysis. In light of all these issues, we recommend that the presumptions not be made irrebuttable. We similarly recommend that the presumption of anticompetitive effects be modest, except perhaps for the most extreme values. And, even then, rebuttal should be permitted.

²³ As noted above, the threshold *GUPPI* based on the uniform *ssnip* test is lower than the threshold *GUPPI* based on the single-product *ssnip* test. When the merging firms are asymmetric, there also is a different *GUPPI* for each firm.

iv. What GUPPI Levels Would be Expected in Prototypical Mergers?

A number of attorneys have inquired about the *GUPPI* levels that arise in various hypothetical merger situations. The following examples provide some information.

Consider a 6-to-5 merger in a symmetric market, where the HHI would rise from 1667 to 2231. If the firms were all equally close substitutes, and there were no outside substitutes, then the diversion ratio between any two firms would be 20%. If the pre-merger margin were 30%, then the *GUPPI* would equal 6%. If there were substantial substitution to firms outside the relevant market, so that the diversion ratio fell to 15%, then the *GUPPI* would equal 4.5%.

Consider instead a 5-to-4 merger of symmetric firms, so that the HHI would rise from 2000 up to 2800. The diversion ratio would be 25% (assuming no outside substitutes). Thus, if the firms' margins were 50%, then the resulting *GUPPI* would be 12.5%. If there were sufficient substitution to products outside the relevant market to push the diversion ratio down to 12.5%, then the *GUPPI* would equal 6.25%.

Consider next a 3-to-2 merger as in *Staples*, but where it is assumed that a price increase would not lead to any substitution to Wal-Mart, etc. In that situation, the diversion ratio would be 50%. If the margins were 30%, then the *GUPPI* would equal 15%.

Consider next a situation where the relevant market is comprised solely of the merging firms' products. That may not imply a 100% diversion ratio because there generally will be diversion to products outside the relevant market. If the diversion ratio were 25% and the margin were 40%, then the *GUPPI* would equal 10%.

Finally, consider a pharmaceutical transaction. Suppose that there are seven independent firms producing similar and symmetrically located molecules, so that the diversion ratio is 16.7% between any two firms (assuming that there is no diversion to other products). Suppose that the margins are 75%. In this case, the *GUPPI* would equal 12.5%.

v. Why Not Ignore Unilateral Effects Concerns When the Merging Firms Are Not Each Other's Closest Competitors?

There can be significant unilateral concerns for products that are not each other's closest substitutes. For example, suppose that Gerber (with approximately 70% of baby food sales) was a closer substitute for both Beech-Nut and Heinz than the two smaller brands were to one another. That fact obviously would not obviate unilateral effects concerns in a Heinz/Beech-Nut merger. If Staples had been a closer substitute to Office Max than Office Depot, that would not have eliminated unilateral concerns from a Staples/Office Depot merger. This is one of the reasons why we would recommend elimination of the "smallest market principle" in the Merger Guidelines.

vi. Does the GUPPI Overlook Competition From Other Close Substitutes?

It has been argued that the existence of other close (but not closest) substitutes may lead *GUPPI* analysis to a false positive conclusion. For example, in his AMC testimony, Bobby Willig provided an example of two gas stations on a traffic circle that are closest substitutes to one another. In Willig's example, if either station unilaterally raises its price by even a very small amount, then it will lose all of its volume to the other station. Willig then states that:

The demand cross-effects between them indicate extremely high substitutability. The conclusion might be drawn that the merger between them would significantly raise their market power, and permit a unilateral competitive effect of significantly elevated prices. However, an insistence on identification of the relevant market might well properly reverse that conclusion. [...] Would it be profitable for the hypothetical monopolist over both [...] gas stations to raise prices say 5%? Here the answer may be yes, so that the traffic circle constitutes a relevant market area for gas stations, or the answer may be no because so many customers would drive a bit down the road for gas without elevated prices.

Suppose that both stations would lose all their business to other more distant stations, if they both raised their prices by a *ssnip* (say 5%). Thus, if the market were defined on the basis of a uniform price increase, the market would include the more distant stations. But, Willig suggests, a simple diversion ratio analysis (such as the *GUPPI*) would find a competitive problem where no competitive problem exists.

However, Willig's analysis is problematical because his particular example does not hold up. If the two stations on the traffic circle are such close substitutes, and they do not collude or tacitly coordinate, then the equilibrium market price will be equal to their (common) marginal cost. Any other price would induce further competition until the price is driven down to cost.²⁴ At this competitive price, each firm's margin would be zero, and so the *GUPPI* would be zero too. Thus, the *GUPPI* analysis would *not* find a competitive problem.

This type of example in principle might be reformulated in two ways so that the price would exceed marginal cost. However, in neither reformulation does the *GUPPI* lead to a false positive.

First, suppose that the two gas stations on the circle tacitly coordinate and set a price just below the prices of the most distant stations. In that situation, the prevailing price should not be used for market definition, but rather a lower price that would reflect a more competitive market. In addition, and more importantly, that merger would raise concerns that it would "perfect" the tacit coordination and decrease the potential for future competition. This means that the relevant competitive issue is not whether the firms could raise price above the prevailing level, but rather whether prices might fall below the prevailing level. Thus, any upward pricing constraint created by the more distant

²⁴ In addition, the formulation does not explain why one of the more distant stations would fail to reduce price to capture all of the sales from the merging firms.

competitors becomes less relevant. In short, the existence of tacit coordination does not justify rejecting the *GUPPI* approach.

Second, suppose that the gas stations are assumed to sell differentiated products, so that each faces a downward-sloping demand curve, rather than the perfectly elastic demand curves in Willig's formulation.²⁵ In that situation, the *GUPPI* would apply because the more distant stations would not provide the absolute price constraint implied by perfectly elastic demand.²⁶ The *GUPPI* is premised on a linear demand curve as a first approximation, but that could be changed when appropriate. Product differentiation also raises a possible competitive concern regarding a post-merger price increase for only one of the merging stations. In that case, the *GUPPI* also applies. If most of the customers switch to the other merging station, they would not be harmed. But, the ones who continue to patronize the higher price station would be harmed.²⁷ In this example, it also might be the case that a narrow relevant market that includes only the products of the two merging firms would satisfy the single-product *ssnip* test.

vii. Is GUPPI Impractical to Calculate?

A number of questions have been raised about the practicality of *GUPPI*. The real issue is the comparative one: what data gives a better picture of likely unilateral concerns, even after taking measurement issues into account, the *GUPPI* or the product (or sum) of the market shares of the merging firms.²⁸ I have seen no evidence to prefer market shares when products are differentiated.

GUPPI is not more complex to estimate than market shares because market shares require the market to be defined. In order to define the market, the components of the *GUPPI* must be measured. *GUPPI* requires an estimate of the margins of the merging firms. So does the calculation of critical loss in the *ssnip* test. *GUPPI* requires an

²⁵ For example, suppose that each of the two merging stations faces an own-price elasticity of -20 at the pre-merger equilibrium. Then, assuming linear demand, a 5% unilateral price increase by either station would make that station lose all of its customers. Assuming Bertrand price competition among differentiated products with no capacity constraints, the pre-merger equilibrium margin of the two merging stations would be 5%.

²⁶ As in Willig's example, suppose that all the customers lost by the station that raised price would switch to its merging partner, so that the diversion ratio would be 100%. Therefore, the *GUPPI* would equal 5%. Note that, in Willig's example, no customer would be switching to the other more distant stations, and thus these other stations would not be constraining the merging firms in the pre-merger world.

²⁷ Continuing with the example of the previous two footnotes, suppose that a uniform 5% price increase by both stations would be unprofitable because of substantial diversion to the other more distant stations. The merged firm nonetheless would still have the ability and incentive to increase its profits by raising the price of one of the two stations by 2.5%, while leaving the price of the other station unchanged. In this situation, 50% of the customers of the former station would switch to the latter station. These customers would not be harmed and the merged firm would continue to make the same profit from these customers as pre-merger. However, the 50% of the customers who would remain with the high price station would be harmed by the 2.5% price increase, and the merged firm would earn a higher profit on these customers.

²⁸ The HHI "delta" is the twice the product of the market shares of the merging firms. The "combined" market share is the sum of the market shares of the merging firms.

estimate of the diversion ratio between the products of the merging firms. The *ssnip* test requires estimates of the elasticities that lie behind diversion ratios. Therefore, if *GUPPI* cannot be implemented, then the *ssnip* test also would be difficult or impossible to implement rigorously. In fact, as discussed above, the *GUPPI* is closely related to the “value of diversion” already used in the *ssnip* test (to select the “next-best substitute” when expanding the candidate market).

Market definition and market shares also may be relevant to the calculation of the diversion ratios used in the *GUPPI*. In the absence of reliable direct evidence of substitution patterns, analysts sometimes assume that diversion ratios involve “proportional diversion,” that is, diversion in proportion to the market shares of firms in the relevant market. These diversion ratios also must take into account diversion to products outside the relevant market, which can be estimated from the market elasticity of demand. As noted by Farrell & Shapiro, the “market” used for calculating proportional diversion ratios need not be a precise relevant antitrust market.

Of course, market shares also raise their own separate measurement issues. Market shares can be based on production, revenues or capacities. Captive production may or may not be included. The divertible capacity (or revenue or volume) of uncommitted entrants also must be estimated. Similarly, the price for the *ssnip* test might be based on the price level, or the value added of the producers.²⁹ These and other measurement issues were considered worrisome in 1982, but they often no longer raise discomfort. For that matter, old-timers recall how threatening the *HHI* seemed in 1982 and how standard it seems now. The same will be true with the *GUPPI* or some related test statistic.

viii. How Will Marginal Costs Be Measured? What if Marginal Costs are Not Constant?

The price/cost margin is used in calculating the *GUPPI*. The same price/cost margin is used in calculating critical loss for market definition. So, measurement issues clearly do not lead to any advantage for using market shares instead of *GUPPI*.

It is true that *GUPPI* (and critical loss) assume that marginal costs are constant over the relevant range of output. I have seen no evidence that this assumption leads to significant distortion in the vast majority of cases. However, if the merging parties have such evidence in a particular case, the Agencies should be open to adjusting the formulae appropriately.

²⁹ Recall the old issue raised by gas pipelines versus oil pipelines.