MERGER ANTITRUST LAW

LAW 1469
Georgetown University Law Center
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Tuesdays and Thursdays, 3:30 pm – 5:30 pm
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CLASS 11 WRITTEN ASSIGNMENT—INSTRUCTOR'S ANSWER

Instructions

Submit by email by 3:30 pm on **Thursday, October 2**[1]
Send to wdc30@georgetown.edu
Subject line: Merger Antitrust Law: Assignment for Class 11

1. Consider digital-do-it-yourself (DDIY) tax products again, this time with some different (fictitious) data. Do H&R Block and TaxACT by themselves constitute a relevant product market under the 2023 Merger Guidelines for a 5 percent SSNIP? Do TurboTax, H&R Block, and TaxACT constitute a relevant product market for the same SSNIP? If the DOJ wants to challenge the merger, what market definition should it allege (all things considered) and why?

Here is the data the investigation revealed:

Prevailing conditions

	TT	H&R	TaxAct	
Price	55	25	11	
%Margin	50%	40%	20%	
Marginal cost	27.5	15	8.8	(constant marginal costs)
Quantity	1,131	624	855	
%SSNIP	5%	5%	5%	
%Actual loss	-10.00%	-12.50%	-25.00%	

Diversion ratios (for single-product SSNIPs)

	To :			
From:	TT	H&R	TaxACT	Total Recapture
TT	x	30.0%	9.0%	39.0%
H&R Block	30.0%	x	26.8%	56.8%
TaxAct	25.0%	27.7%	x	52.7%

[1] I appreciate that I am late in posting this assignment and that we have three classes this week. Therefore I am giving you an extra week to do this assignment.

Answer

The market in this problem comprises differentiated products with varying prices, margins, and one-product SSNIP diversion ratios. This situation calls for a one-product SSNIP recapture test.

In answering this question, I will use two alternative approaches to the problem:

1. *The easy way*: First, determine if any two products pass the one-product SSNIP recapture test and, if so, apply the "superset theorem" to expand the market to include all three products.
2. *The "brute force" way*: Use brute force accounting for the candidate three-product market.

Alternative 1

Step 1. Evaluate of H&R Block plus TaxACT as a relevant market. Since this is a two-product candidate market, we can use the following one-product SSNIP formula:

$$R_{cl}^{i} = \frac{\delta p_i}{\$m_{RAve}} = \frac{\$\text{SSNIP}_i}{\$m_{RAve}} = \frac{\$\text{SSNIP}_i}{\$m_j}$$

where R_{cl}^{i} is the critical one-product SSNIP recapture ratio, $\$\text{SSNIP}_i$ is the dollar SSNIP of Product i, and $\$m_{RAve}$ is the recapture share weighted margin of the products in the candidate market other than Product *i*. Since this is a two-product candidate market, there is only one "other" product, so that $\$m_{RAve} = \$m_j$. [This last step is something that you will want to remember.] Now

$$\$\text{SSNIP}_{H\&R} = \%\text{SSNIP time price} = (0.05)(25) = 1.25$$
$$\$\text{SSNIP}_{TaxACT} = \%\text{SSNIP time price} = (0.05)(11) = 0.55$$

$$\$m_{H\&R} = \%\text{margin times price} = (0.4)(25) = 10$$
$$\$m_{TaxACT} = \%\text{margin times price} = (0.2)(11) = 2.2$$

And so

$$R_{cl}^{H\&R} = \frac{\delta p_{H\&R}}{\$m_{TaxACT}} = \frac{1.25}{2.2} = 0.568 = 56.8\%$$

$$R_{cl}^{TaxACT} = \frac{\delta p_{TaxACT}}{\$m_{H\&R}} = \frac{0.55}{10} = 0.055 = 5.5\%$$

A hypothetical monopolist could profitably increase the price of product *i* by a SSNIP if $R_i > R_{cl}^{i}$ for one of the merging firms.[2] From the tables, the actual recapture ratio for H&R Block is simply the diversion ratio from H&R Block to TaxACT, which is 26.8%. Since the actual recapture ratio is less than the critical recapture ratio of 56.8%, a one-product SSNIP test on H&R Block fails.

[2] The 2010 Merger Guidelines required that at least one of the products subject to the SSNIP had to be a product of one of the merging firms, which the courts adopted in their opinions. The 2023 Merger Guidelines eliminated this requirement, although the courts continue to employ it as a matter of precedent. Here, both products in the candidate market are products of the merging firms, so whether or not the requirement applies is irrelevant.

Likewise, the recapture ratio for TaxAct is the diversion ratio from TaxACT to H&R Block, which is 27.7%. Since the actual recapture ratio is greater than the critical recapture ratio of 5.5%, a hypothetical monopolist could profitably increase the price of TaxACT by 5%.

Since only one product needs to satisfy the one-product SSNIP test for the candidate market to be a relevant market, H&R Block plus TaxACT is a relevant market under the Merger Guidelines.[3]

Step 2. Evaluate H&R Block plus TaxACT plus TurboTax as a relevant market.

Apply the "superset theorem." Recall that if one group of products satisfies the HMT with selective pricing, then any superset of products (i.e., any larger product grouping that contains the original group) also satisfies the HMT with selective pricing. Here, H&R Block and TaxACT pass the HMT under a one-product SSNIP test for TaxACT. *A fortiori*, the three-product market will also satisfy the one-product SSNIP test for TaxACT since the recapture of profits by H&R Block alone is sufficient to offset the loss in TaxACT even if there is no recapture of profits by TurboTax.

Alternative 2

We could also have used brute force accounting to calculate the gains from the increase in margin on the inframarginal sales, the loss from the marginal sales, and the profits recaptured by each of the other two products in the candidate market.

[3] Although a bit more complicated, you could also have reached this result through brute force accounting.

Candidate market: H&R Block + TaxACT + TurboTax

One-product SSNIP: Brute force

	SSNIP Product			
	H&R Block	TaxACT	TurboTax	
Gain from inframarginal sales				
q1	624	855	1,131	DATA FROM PROBLEM
Δ_{q1}	-78	-213.64	-113.09	Marginal sales = %Actual loss times q1
q2 = q1 - Δq1	546	641	1,018	Inframarginal sales
%SSNIP	5%	5%	5%	DATA FROM PROBLEM
$SSNIP	1.25	0.55	2.75	%SSNIP times p1
Gain	682.5	352.5	2799	$SSNIP times q2
Loss from marginal sales				
Δq1	-78.00	-213.64	-113.09	Already calculated
%margin	40%	20%	50%	DATA FROM PROBLEM
$margin	10.00	2.20	27.50	%margin times p1
Loss	-780.00	-470.00	-3,110.00	$margin times Δ_{q1}
Net gain on SSNIP product	-97.50	-117.50	-311.00	Gain on inframarginal sales minus loss on marginal sales
Profit on recaptured sales				
To TaxACT				
Diversion ratio	26.8%	x	9.0%	DATA FROM PROBLEM
Δq_{TaxACT}	20.90	x	10.18	Recaptured unit sales = Diversion ratio times Δ_{q1}
%margin (TaxACT)	20%	x	20%	DATA FROM PROBLEM
$margin (TaxACT)	2.20	x	2.20	%margin times p_{TaxACT}
Gain on TaxACT	45.99	x	22.39	$margin times recaptured unit sales
Profit on recaptured sales	x			
To H&R Block	x			
Diversion ratio	x	27.7%	30.0%	DATA FROM PROBLEM
Δq_{TaxACT}	x	59.18	33.93	Recaptured unit sales = Diversion ratio times Δ_{q1}
%margin (H&R)	x	40%	40%	DATA FROM PROBLEM
$margin (H&R)	x	10	10	%margin times $p_{H\&R\ Block}$
Gain on H&R Block	x	591.77	339.27	$margin times recaptured unit sales
Profit on recaptured sales			x	
To TurboTax			x	
Diversion ratio	30.0%	25.0%	x	DATA FROM PROBLEM
$\Delta q_{TurboTax}$	-23.40	-53.41	x	Recaptured unit sales = Diversion ratio times Δ_{q1}
%margin (TurboTax)	50%	50%	x	DATA FROM PROBLEM
$margin (TurboTax)	27.50	27.50	x	%margin times $p_{TurboTax}$
Gain on TurboTax	643.50	1,468.75	x	$margin times recaptured unit sales
Total gain on recapture	689.49	2,060.52	361.66	
NET GAIN WITH RECAPTURE	591.99	1,943.02	50.66	
One-product SSNIP test	PASSES	PASSES		

Recall that a one-product SSNIP must contain at least one product of the merging firms. Hence, there was no need to perform a one-product SSNIP test for TurboTax. I included that calculation just to provide another illustration of the brute force technique.

Assignment 2. Calls for a memorandum to a law firm partner.

Sonny Rollins, a litigation partner in the firm, is preparing for his first antitrust case. He has been reading the district court's opinion in *FTC v. IQVIA Holdings Inc.*, 710 F. Supp. 3d 329 (S.D.N.Y. 2024). In its complaint for a Section 13(b) preliminary injunction, the FTC alleged that IQVIA's proposed acquisition of DeepIntent would likely substantially lessen competition in the worldwide market for programmatic advertising to health care professionals (HCPs).

Programmatic advertising is an automated way of presenting targeted advertising, in the form of website-based ads, to a specific cohort—in this instance, doctors, nurses, and other health practitioners. The FTC's alleged market included three primary products—DeepIntent, Lasso (IQVIA's product), and PulsePoint (a third-party competitor's product)—along with some much smaller competitors. While the merging parties agreed that the geographic market was worldwide, they argued that the product market should be expanded to include other forms of advertising, such as social media and digital advertising on medical websites such as WebMD.

In addition to the *Brown Shoe* factors, the district found support for the FTC's alleged market in a "critical loss analysis" performed by Dr. Kostis Hatzitaskos, the FTC's economic expert. Mr. Rollins is not familiar with critical loss analysis and has questions about the court's following explanation:

> [C]ritical loss analysis asks how many customers the hypothetical monopolist would have to lose to alternatives outside the market for the price increase to be unprofitable. [*S*]*ee also FTC v. Swedish Match*, 131 F. Supp. 2d 151, 160 (DDC 2000) (describing critical loss as "the largest amount of sales that a monopolist can lose before a price increase becomes unprofitable"). Dr. Hatzitaskos estimated that a 5% price increase for DeepIntent would result in a critical loss of 10.6%, meaning that the hypothetical monopolist would need to regain 10.6% of the customers switching away from DeepIntent. He also estimated that a 10% price increase for DeepIntent would result in a critical loss of 21.2%. For both calculations, he relied on a margin estimate of 47.3% for DeepIntent.
>
> Dr. Hatzitaskos then compared the critical loss figures to an estimate of the aggregate diversion ratio. "The aggregate diversion ratio for any given product represents the proportion of lost sales that are recaptured by all other firms in the proposed market as the result of a price increase." *H&R Block*, 833 F. Supp. 2d at 63. These sales remain within the proposed market and thus are not lost to the hypothetical monopolist. If the aggregate diversion ratio to products within the proposed market exceeds the critical loss threshold, then a price increase would be profitable for the hypothetical monopolist. *H&R Block*, 833 F. Supp. 2d at 63.;
>
> Here, Dr. Hatzitaskos used 79.4% as an estimate of the aggregate diversion ratio. That figure was based on his analysis of actual customer choices, which relied on DeepIntent's internal "win/loss data" and campaign data from Lasso and PulsePoint. He found that 79.4% of customers who considered but did not choose DeepIntent ended up choosing Lasso or PulsePoint. Dr. Hatzitaskos characterized this figure as a conservative estimate of the aggregate diversion ratio because the hypothetical monopolist would control all providers of HCP programmatic advertising in the candidate market rather than just those three firms.

> To reiterate, the ultimate test is whether the aggregate diversion ratio is higher than the critical loss; if it is, then the candidate market passes the HMT. [*S*]*ee also H&R Block*, 833 F. Supp. 2d at 63. The aggregate diversion ratio was 79.4%, while the critical loss was either 10.6% (based on a 5% price increase) or 21.2% (based on a 10% price increase). In both cases, then, the aggregate diversion ratio exceeded the critical loss by a wide margin and thus the HMT was satisfied.

IQVIA, 710 F. Supp. 3d at 370-71 (record citations omitted).

Mr. Rollins would like you to prepare a memorandum explaining this passage. He asks you to be sure to address the following questions: What is a "hypothetical monopolist" and what is its role in defining markets? What is "critical loss analysis" and why is it relevant to defining markets in antitrust cases? Why is Dr. Hatzitaskos using a 5% and 10% price increase? What is "critical loss" and how did Dr. Hatzitaskos derive his critical loss numbers? What is the 47.3% "margin estimate" for DeepIntent, how did Dr. Hatzitaskos use it in the analysis, and where did Dr. Hatzitaskos get the number? What is an "aggregate diversion ratio" and why did Dr. Hatzitaskos use 79.4% as the estimate of the aggregate diversion ratio for DeepIntent? What is the significance of the finding that the aggregate diversion ratio was greater than the critical loss? Finally, are there any hidden assumptions in Dr. Hatzitaskos' analysis that may limit its generality?[4]

[4] Dr. Mark Israel, the defendants' economic expert (who we shall see in other cases later in the course), challenged the Hatzitaskos critical loss analysis. *See IQVIA*, 2024 WL 81232, at *27-28. You may prepare your memorandum without examining Israel's criticisms, but take a look at them if you like and take them into account if you wish.

INSTRUCTOR'S ANSWER TO ASSIGNMENT 2

PRIVILEGED AND CONFIDENTIAL
~~ATTORNEY-CLIENT COMMUNICATION~~
ATTORNEY OPINION WORK PRODUCT[1]

ABLE & BAKER LLP

INSTRUCTOR'S ANSWER

TO: Sonny Rollins
FROM: Dale Collins

The Hypothetical Monopolist Test in *IQVIA*[2]

You have asked me to analyze the court's use of the hypothetical monopolist test (HMT) based on the testimony of Dr. Kostis Hatzitaskos, the FTC's economic expert in the case.

In its complaint for a Section 13(b) preliminary injunction, the FTC alleged that IQVIA's proposed acquisition of DeepIntent would likely substantially lessen competition in the worldwide market for programmatic advertising to health care professionals (HCPs) in violation of Section 7 of the Clayton Act. Programmatic advertising is an automated way of presenting targeted advertising, in the form of website-based ads, to a specific cohort—in this instance, doctors, nurses, and other health practitioners. The FTC's alleged market included three primary products—DeepIntent, Lasso (IQVIA's product), and PulsePoint (a third-party competitor's product)—along with some much smaller competitors. While the merging parties agreed that the geographic market was worldwide, they argued that the product market should be expanded to

[1] **Note to students**: This memorandum addresses a pure theory of law, does not contain any client confidences and therefore is not protected by the attorney-client privilege even if shared with the client. Since Mr. Rollins is working on a merger that may ultimately be challenged in court, the memorandum is arguably prepared "in anticipation of litigation." Since it contains an attorney's analysis of the case law and agency practice, it is attorney opinion work product. Opinion work product is the mental impressions, conclusions, opinions, or legal theories of an attorney. *See* United States v. Adlman, 134 F.3d 1194, 1195 (2d Cir. 1998) (*Adlman II*) (holding that "a document created because of anticipated litigation, which tends to reveal mental impressions, conclusions, opinions or theories concerning the litigation, does not lose work-product protection merely because it is intended to assist in the making of a business decision influenced by the likely outcome of the anticipated litigation"). Attorney opinion work product is almost never subject to discovery. *See* Hickman v. Taylor, 329 U.S. 495, 510 (1947) ("Not even the most liberal of discovery theories can justify unwarranted inquiries into the files and mental impressions of an attorney."); Upjohn Co. v. United States, 449 U.S. 383, 401-02 (1981) ("As Rule 26 and Hickman make clear, such work product cannot be disclosed simply on a showing of substantial need . . . [A]far stronger showing of necessity and unavailability by other means would be required than is needed to justify ordinary work product."); Chaudhry v. Gallerizzo, 174 F.3d 394, 403 (4th Cir.1999) (finding that appellant failed to present the "very rare and extraordinary situation justifying disclosure of opinion work product"); Fed. R. Civ. P. 26(b)(3)(B) ("If the court orders discovery of those materials [prepared in anticipation of litigation], it must protect against disclosure of the mental impressions, conclusions, opinions, or legal theories of a party's attorney or other representative concerning the litigation.").

[2] FTC v. IQVIA Holdings Inc., 710 F. Supp. 3d 329 (S.D.N.Y. 2024).

include other forms of advertising, such as social media and digital advertising on medical websites such as WebMD.

Hypothetical monopolist test. In addition to the *Brown Shoe* factors, the district court found support for the FTC's alleged market in a "critical loss analysis" performed by Dr. Hatzitaskos. Critical loss is a particular implementation of the hypothetical monopolist test. The HMT was introduced by the Merger Guidelines in 1982 and has been adopted in one form or another by the courts. The following passage from the 2010 Merger Guidelines, which the *IQVIA* court quoted, explains the test:

> The hypothetical monopolist test requires that a product market contain enough substitute products so that it could be subject to post-merger exercise of market power significantly exceeding that existing absent the merger. Specifically, the test requires that a hypothetical profit-maximizing firm, not subject to price regulation, that was the only present and future seller of those products ("hypothetical monopolist") *likely would impose at least a small but significant and non-transitory increase in price ("SSNIP") on at least one product in the market, including at least one product sold by one of the merging firms*.[3]

The idea is that if a hypothetical monopolist controlling all products in a candidate market could not profitably increase the price by a small but significant amount, then the candidate market does not include all of the substitute products that effectively constrain prices. In this case, the market definition needs to be expanded to include additional substitute products until the hypothetical monopolist can profitably increase price. This is important because a properly defined market reflects the boundaries within which market power can be exercised. Once the market is properly defined, the analysis can turn to whether the merger is likely to create or facilitate the exercise of market power in that market.

The Merger Guidelines and the courts commonly use a SSNIP of 5% of the prevailing premerger price, although there are cases that use 10%.[4] Dr. Hatzitaskos used both. Although the

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[3] *IQVIA*, 710 F. Supp. 3d at 368-69 (quoting U.S. Dep't of Justice & Fed. Trade Comm'n, Horizontal Merger Guidelines § 4.1.1 (rev. Aug. 19, 2010) (emphasis added)). The 2023 Merger Guidelines revisions permit the hypothetical monopolist to make selective price increases to any product in the candidate market and do not require a price increase to be made in a product of one of the merging firms. *See* U.S. Dep't of Justice & Fed. Trade Comm'n, Merger Guidelines § 4.3.A (rev. Dec. 18, 2023). The case law precedent has frequently cited the HMT formulation in the 2010 guidelines. *See, e.g.*, *IQVIA*, 710 F. Supp. 3d at 368-69; FTC v. RAG-Stiftung, 436 F. Supp. 3d 278, 293 (D.D.C. 2020); FTC v. Wilh. Wilhelmsen Holding ASA, 341 F. Supp. 3d 27, 47 (D.D.C. 2018); United States v. Anthem, Inc., 236 F. Supp. 3d 171, 198 (D.D.C.), *aff'd*, 855 F.3d 345 (D.C. Cir. 2017); United States v. Aetna Inc., 240 F. Supp. 3d 1, 20 (D.D.C. 2017); FTC v. Staples, Inc., 190 F. Supp. 3d 100, 122 (D.D.C. 2016); FTC v. Sysco Corp., 113 F. Supp. 3d 1, 33 (D.D.C. 2015); United States v. H & R Block, Inc., 833 F. Supp. 2d 36, 52 (D.D.C. 2011). It remains to be seen whether, and to what extent, courts will adopt this 2023 revision. In any event, the distinction is immaterial here because Hatzitaskos applied the SSNIP to DeepIntent's product.

[4] *See* U.S. Dep't of Justice & Fed. Trade Comm'n, Merger Guidelines § 4.3.B (rev. Dec. 18, 2023); IQVIA, 710 F. Supp. 3d at 373 (noting SSNIP are "typically of five or ten percent"); Wilhelmsen, 341 F. Supp. 3d at 57 (noting that FTC's expert used several SSNIPs, "including a SSNIP of 10% (in addition to the typical 5%); FTC v. Tronox Ltd., 332 F. Supp. 3d 187, 204 (D.D.C. 2018) (relying on the analysis of the FTC's expert, who used a 10% SSNIP); *Aetna*, 240 F. Supp. 3d at 20 (noting that SNNIPs are "typically of five or ten percent"); United States v. Bazaarvoice, Inc., No. 13-CV-00133-WHO, 2014 WL 203966, at *28 (N.D. Cal. Jan. 8, 2014) (noting SSNIPs are of "five to 10 percent"); *H & R Block*, 833 F. Supp. 2d at 57 ("the typical five to ten percent price increase of the SSNIP test").

2023 Merger Guidelines have superseded the 2010 Merger Guidelines, the HMT general principles remain the same.[5]

Critical loss test. One implementation of the HMT is a "critical loss" test for a uniform SSNIP for all products in the candidate market. This test is typically used in markets with homogeneous products that only support a single price for all products. This single-price characteristic requires the SSNIP to be applied to all products in the candidate market.

Critical loss analysis determines the profitability of a price increase in a candidate market by comparing two factors:

(1) the gross incremental profit gained on units that the hypothetical monopolist continues to sell at the higher price (the *inframarginal sales*) and

(2) the gross incremental profit lost from units no longer sold due to the price increase (the *marginal sales*).

As the magnitude of the price increase grows, retained inframarginal sales and the associated incremental profits decrease while lost marginal sales and the associated incremental profit loss increase. Consequently, at sufficiently small price increases, the incremental profit gain on the inframarginal sales will outweigh the incremental profit loss on the marginal sales, making the price increase profitable. Conversely, at sufficiently large price increases, the incremental profit gain on the lower number of inframarginal sales will be less than the incremental profit loss on the larger number of marginal sales, making the price increase unprofitable.

The critical loss for a uniform SSNIP in a candidate market is the largest number of marginal unit sales the hypothetical monopolist can lose before the price increase turns unprofitable. If the actual loss of marginal sales for a given SSNIP is less than the critical loss for that SSNIP, then SSNIP is profitable and the candidate market satisfies the HMT. If the actual loss of marginal sales for a given SSNIP is greater than the critical loss for that SSNIP, then the SSNIP is unprofitable and the candidate market fails the HMT.

Formulas exist to calculate the critical loss for a given SSNIP. For example, for a candidate market with a uniform percentage SSNIP δ and a uniform percentage margin of m, the percentage critical loss %CL is:

$$\%CL = \frac{\delta}{\delta + m}$$

For example, the percentage critical loss for a product grouping with a uniform SSNIP (δ) of 5% and a uniform margin (m) of 30% is:

$$\%CL = \frac{\delta}{\delta + m} = \frac{5\%}{5\% + 30\%} = 14.3\%$$

[5] The 2023 Merger Guidelines revisions also change the HMT by expanding the test to include a "worsening of terms" of trade (SSNIPT) and not just an increase in price (SSNIP). *See* U.S. Dep't of Justice & Fed. Trade Comm'n, Merger Guidelines § 4.3.A (rev. Dec. 18, 2023). Although the expansion may aid qualitative HMT analysis by incorporating nonprice effects, it is unlikely to be useful in quantitative implementations without clear, objective metrics for deteriorations in terms of trade.

In this example, if the actual loss is 8%, the candidate market satisfies the HMT. If the actual loss is 35%, the candidate market fails the HMT. Note that the higher the actual loss, the less likely the candidate market will satisfy the HMT.

Aggregate diversion ratio test. Another implementation of the HMT is an "aggregate diversion ratio" or "recapture" test for a selective SSNIP that applies to some but not all of the products in the candidate market.[6] Typically, only one product is subject to a SSNIP. This test is used in markets with differentiated products, where each product can have its own distinct price. The aggregate diversion ratio test determines the profitability of a price increase in a candidate market by comparing three factors:

(1) the gross incremental profit gained on those units subject to the SSNIP that the hypothetical monopolist continues to sell at the higher price (the *inframarginal sales*),

(2) the gross incremental profit lost from those units subject to the SSNIP no longer sold due to the price increase (the *marginal sales*), and

(3) the gross incremental profit gained by the recapture of the lost marginal units that divert to products in the candidate market not subject to the SSNIP and hence charge their pre-SSNIP price.

The aggregate diversion ratio test, like the critical loss test, determines whether a price increase is profitable and, hence satisfies the HMT, by summing the gross incremental profits and losses resulting from the SSNIP. Here, however, there are two sources of incremental profit gain—one from the retained inframarginal sales of the product subject to the SSNIP and the other from the recapture of some portion of the lost marginal sales of the product subject to the SSNIP by other products in the candidate market not subject to the SSNIP. Notably, this extra source of incremental profit gain from recaptured marginal sales tends to make relevant markets under the aggregate diversion ratio test smaller than markets under a uniform critical loss test.

This test aligns with the new theory of unilateral effects introduced in the 1992 Horizontal Merger Guidelines. The theory posits that an increase in the price of only one product of a merging firm, resulting from the merger and without any offsetting procompetitive benefits, constitutes an anticompetitive effect under Section 7. The aggregate diversion ratio test provided a method for defining relevant markets consistent with this new theory.

Formulas exist to calculate the critical aggregate diversion ratio or recapture rate for a given SSNIP applied to a single product within the candidate market. For example, for a candidate market with a SSNIP δ applied only to product 1, the percentage critical percentage aggregate diversion ratio critical loss $\%R_{Critical}$ is:

$$R^{1}_{Critical} = \frac{\delta p_1}{\$m_{RAve}} = \frac{\$\text{SSNIP}_1}{\$m_{RAve}},$$

where $\$m_{RAve}$ is the recapture share-weighted average of the products in the candidate market not subject to the SSNIP. When all products in the candidate market have the same pre-SSNIP prices p and percentage margin m and one product is subject to a SSNIP of δ, the test simplifies to:

[6] Although "aggregate diversion ratio test" is commonly used, a more descriptive term is a "one-product SSNIP recapture test."

$$R_{Critical} = \frac{\delta}{m}.$$

For example, the critical aggregate diversion ratio for a candidate market with a selective SSNIP (δ) of 5% applied only to product 1 and a uniform margin (m) of 35% is:

$$R_{Critical} = \frac{\delta}{m} = \frac{5\%}{25\%} = 20\%.$$

In this example, if the actual recapture rate is 40%—that is, if 40% of the loss marginal sales of product 1 are recaptured by other firms in the candidate market—the candidate market satisfies the HMT. If the actual recapture rate is only 14%, the candidate market fails the HMT.

Application in IQVIA. The FTC's alleged relevant market of the worldwide market for programmatic advertising to health care professionals (HCPs) contains differentiated products, and so a one-product SSNIP aggregate diversion ratio test is an appropriate HMT method for identifying a relevant market. Although the opinion lacks detail on precisely what Dr. Hatzitaskos did and why he did it, we can reverse engineer his methods from the data cited by the court. Dr. Hatzitaskos used SSNIPs of 5% and 10% to DeepIntent and found DeepIntent's percentage margin to be 47.3%. If Dr. Hatzitaskos assumed that the prices and the percentage margin were the same for all products in the candidate market, he could use the simplified critical aggregate diversion ratio formula noted above:

$$R_{Critical(5\%)} = \frac{\delta}{m} = \frac{5\%}{47.3\%} = 10.6\%$$

$$R_{Critical(10\%)} = \frac{\delta}{m} = \frac{10\%}{47.3\%} = 21.1\%.$$

Dr. Hatzitaskos found the critical aggregate diversion ratios to be 10.6% and 21.2%, which are essentially identical to what we found using the simplified formula. So, we can be reasonably confident that Dr. Hatzitaskos posited that the prices and percentage margins for all products in the alleged relevant market were the same, although the opinion did not note this fact or examine the evidence in the record to support it.

Dr. Hatzitaskos then compared these critical aggregate diversion ratios to the actual aggregate diversion ratio for DeepIntent. He estimated the actual diversion ratio using DeepIntent's "win/loss" data, which showed that 79.4% of customers who considered but did not choose DeepIntent purchased Lasso or PulsePoint instead. Although "win/loss" data record losses for any reason and not just because of small changes in relative price (as technically required for a diversion ratio), courts have accepted estimates of actual diversion ratios from win/loss data when this data is the best available. Courts, however, may discount the weight they give to the results of the resulting aggregate diversion ratio test because diversion ratios from win/loss data may overestimate the extent of recapture by other products in the alleged relevant market, and this overestimation can erroneously make the relevant market appear smaller than a more accurate test would reveal.[7] In this case, however, it appears that the court found that the

[7] On the other hand, win/loss data can also overestimate the amount of diversion outside of the relevant market, making the market appear larger than a more accurate test would reveal. Since the test using win/loss data to

estimated actual aggregate ratio significantly exceeded the critical aggregate diversion ratios, making discounting irrelevant.

Dr. Hatzitaskos's HMT analysis in *IQVIA* demonstrates how quantitative economic evidence can strongly confirm market definitions established through traditional *Brown Shoe* analysis. The court credited his critical loss/aggregate diversion implementation, which showed for the candidate market that the estimated actual aggregate diversion ratio (79.4%) substantially exceeded the critical ratios at five and ten percent SSNIPs (10.6% and 21.2%). This substantial margin helped overcome the defendants' methodological criticism about using win/loss data as a proxy for price-sensitive diversion. The court found that the HMT analysis provided quantitative validation of what the qualitative evidence had already indicated: that HCP programmatic advertising constitutes a relevant market. The case shows that when *Brown Shoe* analysis provides the foundational test and HMT results strongly corroborate those findings, the combination creates a strong evidentiary case for market definition in antitrust proceedings.

Please let me know if you have any questions or would like to discuss this matter further.

estimate aggregate diversion ratios may be either underinclusive or overinclusive in the dimensions of the relevant market, I suspect that in a closer case the court would discount the weight of an aggregate diversion ratio test using win/loss data against the proponet of the test, whether the plaintiff or the defendants.