

MERGER ANTITRUST LAW

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Georgetown University Law Center
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Tuesdays and Thursdays, 3:30-5:30 pm
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Class 13 (October 13): H&R Block/TaxACT (Unit 9)¹

In this class, we will continue our examination of market definition. We introduced the hypothetical monopolist test in Class 11 and followed with its critical loss implementation in Class 12. We will finish market definition in *H&R Block* with its diversion ratio implementation of the hypothetical monopolist test.

The critical loss implementation we examined in the last class applies primarily to homogeneous product markets where quantity is the control variable and there is no price discrimination. Empirically, this occurs relatively infrequently in the real world. Instead, competing products tend to be differentiated from a consumer perspective and so permit each firm some ability to set its own price to maximize profits against its (downward) residual demand curve.

In addition, although the original hypothetical monopolist test in the 1982 Merger Guidelines required the hypothetical monopolist to increase the prices of all of the products in the candidate market by a uniform percentage SSNIP, the 2010 Merger Guidelines allow the hypothetical monopolist to raise the prices of one or more products in a differentiated market selectively while leaving the prices of the other products constant, provided that at least one off the products subject to the SSNIP is a product of one of the merging firms. Under this change, the hypothetical monopolist test requires only that the hypothetical monopolist be able to profitably *raise the price of a single product* in the product group for the product grouping to be a relevant market.

When a hypothetical monopolist raises price on only one product (say product 1), three things happen:

1. The monopolist gains the $\$SSNIP$ on each of the inframarginal sales of product 1
2. The monopolist loses the profit margin on the lost marginal sales of product 1
3. The monopolist gains the profit margin on any lost marginal sales “recaptured” by other products in the candidate market.

The first two factors characterize the critical loss tests of Class 12 since there is no recapture of lost marginal sales by other products in the candidate market. Instead, all lost sales divert to products outside the candidate market. In a differentiated products market, however, some of product 1’s lost marginal sales will divert to other products in the candidate market and the hypothetical monopolist will earn incremental profits on those recaptured sales.

¹ A reasonably complete set of the most important filings in the litigation (including the trial transcript) may be found [here](http://www.appliedantitrust.com) on AppliedAntitrust.com.

An example may be helpful to compare a uniform SSNIP test with a one-product SSNIP test. Consider a candidate market consisting of four different types of gourmet yogurt with the following characteristics:

	Price	\$Margin	Unit Sales
Siggi's	\$2.50	\$1.00	1000
Noosa	\$2.50	\$1.25	800
La Fermiete	\$3.50	\$1.75	600
Oikos Triple Zero	\$4.00	\$2.00	500
			2900

When the prices of all products are increased by five percent, each product loses ten percent of its sales. None of these sales divert to another product in the group. Does the product group satisfy the HMT under a uniform SSNIP of five percent?

We can set up the following worksheet for a brute force accounting:

	Price	\$Margin	Unit Sales	Marginal Sales	%Δq	Inframarginal Gain	Marginal Loss	Net
Siggi's	\$2.50	\$1.00	1000	100	10.00%	112.50	100.00	12.50
Noosa	\$2.50	\$1.25	800	80	10.00%	90.00	100.00	-10.00
La Fermiete	\$3.50	\$1.75	600	60	10.00%	94.50	105.00	-10.50
Oikos Triple	\$4.00	\$2.00	500	50	10.00%	90.00	100.00	-10.00
						387.00	405.00	-18.00

Inframarginal gain for each product is 5% of the product's price times the inframarginal unit sales. Marginal loss is the dollar margin of the product times the marginal unit sales. The sum of the net incremental profits is -\$18.00, so a uniform 5% SSNIP is unprofitable.

Now let's perform a one-product SSNIP test. Say Siggi's is a product of one of the merging firms and subject it alone to a five percent SSNIP. Suppose Siggi's loses 120 sales (12%) due to the price increase. Siggi's loses half of these unit sales to products outside the candidate market and half divert to the other products in the candidate market (as shown in Recaptured Sales):

	Price	\$Margin	Unit Sales	Marginal Sales	Recaptured Sales	Inframarginal Gain	Marginal Loss	Recapture Gain	Net
Siggi's	\$2.50	\$1.00	1000	120		\$110.00	-\$120.00		-\$10.00
Noosa	\$2.50	\$1.25	800		30			\$37.50	\$37.50
La Fermiete	\$3.50	\$1.75	600		20			\$35.00	\$35.00
Oikos Triple	\$4.00	\$2.00	500		10			\$20.00	\$20.00
			2900		60	\$110.00	-\$120.00	\$92.50	\$82.50

Two things of note here. First, Siggi's loses more sales when only its price increases than when the (percentage) price increase is applied to all four products because the other products in the group are more attractive to Siggi's marginal customers at the lower prices. Second, notwithstanding the greater unit and dollar losses on Siggi's when only its price is subject to the SSNIP, the hypothetical monopolist makes a positive profit of \$82.50 because of the profits

earned on Siggis lost marginal sales that are diverted (recaptured) by the other three products in the candidate market. Hence, although the candidate market fails the uniform SSNIP test, it satisfies the one-product SSNIP test.

As this example suggests, one-product SSNIP tests typically yield relevant markets that are smaller (have fewer products) than uniform SSNIP tests, which in turn often results in market shares and market concentration levels that are higher than in relevant markets that must satisfy a uniform SSNIP test. This often makes one-product SSNIP tests appealing to plaintiffs.

With this introduction, read the class notes on one-product SSNIPs and “aggregate diversion analysis” (slides 121-44). After an introductory slide (slide 122), the class notes review diversion ratios, discuss how experts estimate them, and develop the DOJ’s estimation in H&R Block/TaxACT (slides 123-29). Diversion ratios refer to the percentage of unit marginal sales lost by a single product subject to a SSNIP that are diverted or recaptured by other products in the candidate market. You can see by the above example that this notion of diversion or recapture is central to one-product SSNIP implementations of the hypothetical monopolist test. The class notes then develop the one-product SSNIP test under the Merger Guidelines and provide two brute force accounting examples (slides 130-34).

Brute force will always work, but there are formulas that simplify the mechanics of the test (slides 135-44). These formulas turn on the notion of a terribly named aggregate diversion ratio, which is much better descriptively as the *recapture ratio*, *recapture rate*, or *group recapture rate* (slide 129). These synonymous terms all mean the total percentage of lost marginal sales due to a SSNIP recaptured by all other products in the market not subject to the SSNIP. In the example on the previous page, 60 units of the 120 lost marginal sales are recaptured by other products in the candidate market, so the recapture ratio is 50%.

Intuitively, the larger the recapture ratio of loss marginal sales by other firms in the candidate, the more likely a one-product SSNIP will be profitable to the hypothetical monopolist. The smallest recapture ratio that allows the hypothetical monopolist to just break even on profits with or without the one-product SSNIP is called the *critical recapture ratio*. One-product SSNIP tests compare the *actual recapture ratio* to the critical recapture ratio. If the actual recapture ratio is greater than the critical recapture ratio, the one-product SSNIP is profitable. If the actual recapture ratio is less than the critical recapture ratio, the one-product SSNIP is unprofitable.

The class notes derive the one-product SSNIP test using recapture ratios under various assumptions about prices and margins of the products in the candidate market (slides 135-43). The notation and the derivation are complex, and I have marked a number of the slides as optional. I have included these slides because many of the applications are wrong in practice and before the courts. Two problems plague this area of antitrust economics. First, the propositions are not stated rigorously as theorems and often contain hidden conditions that may or may not apply to a particular real-world case. Too often, the formulas are applied when the hidden conditions are not satisfied. Second, most propositions in the literature are not formally derived and some “derivations” contain mistakes that render them incorrect (see slide 144). Nonetheless, these incorrect formulas can still be found in expert reports and in court opinions.

Although you will not have to apply any of the formulas on slides 136 or the corollaries on optional slide 140 on the exam, I encourage you to at least look at the conditions under which the formulas apply. I also encourage you to look at the inequality on the bottom of slide 130 and the accompanying box for my attempt to provide some intuition for what is (to me) a very

nonintuitive test. Finally, look at the special case of symmetric products (slide 141) and an application (slide 142) (these slides are not optional).

Exam hint: *While the formulas may help you answer an exam question more quickly, if you know how to do the critical loss and recapture tests through brute force accounting, you will be able to answer the question without penalty.*

The final implementation of the HMT we will explain is the so-called “aggregate diversion ratio test” applied to a uniform SSNIP in a differentiated candidate market (slides 145-54). Why, you might (sensibly) ask, would anyone want to apply a uniform SSNIP to a differentiated products market? Why not use a one-product SSNIP test instead? The only reason I can imagine has to do with the nature of the actual diversion ratios (recapture rates) that can be observed in the market. Normally, diversion ratios are the percentage of lost marginal sales from one product subject to a SSNIP to the other products in the candidate market *holding the prices of the other product constant*. It is this type of diversion ratio that one-product SSNIP tests require. However, what if all you have is diversion data (such as switching data) where the prices of all the products in the candidate market are increasing proportionally (say, because of cost increases of a common factor)? You cannot use this data in a one-product SSNIP test.² I suspect that the aggregate diversion ratio test—which the DOJ expert applied in *H&R Block* using switching data—was developed to deal with the latter type of diversion ratio.

The class notes introduce the aggregate diversion ratio test (slides 146-47). Try to plow through the (admittedly complex) notation (slide 148) and Proposition 1 and its corollary for symmetric products (slide 149). You do not have to fully understand Proposition 1 (and you will not be required to use it on the exam), but study the corollary since the DOJ’s expert used it in *H&R Block*. Then look at Proposition 2, which provides a set of sufficient conditions for satisfying the aggregate diversion ratio test (slide 150), and the hypothetical on the following slide (slide 151).

Now you are ready to follow what the DOJ expert did in *H&R Block* (pp. 110-12, p. 115 for the diversion ratios, and slides 152-53). *Query*: Is the DOJ expert’s analysis correct? Did he apply the right formula given the facts of the case?

The DOJ’s expert also used merger simulation to support his market definition conclusion. Like the Court, we will defer discussion of merger simulation until we examine competitive effects (pp. 112-13 and slide 161).

The merging parties attempted to refute the DOJ’s expert and offer an alternative market definition through their own expert (pp. 113-24). As you will see, this did not go well. This is a good place to quickly review the note on expert evidence (pp. 182-89). Then read more carefully Judge Howell’s Memorandum Opinion and Order denying the DOJ’s motion in limine to exclude the email survey commissioned by the defendants and the portions of the defendants’ expert opinion that relies upon the survey (pp. 167-81).

Enjoy the reading! As always, email me if you have any questions.

² The diversion ratios in the two situations are likely to differ materially: for any product in the candidate market subject to a SSNIP, the other products in the candidate market are more attractive substitutes (have a higher diversion ratio) when the prices of the other products remain constant than when their prices increase (see slide 147).