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THE AMERICAN AIRLINES CASE:

A CHANCE TO CLARIFY PREDATION POLICY

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I. INTRODUCTION

Predation occurs when a firm offers consumers favorable deals, usually *in the short

run*, that get rid of competition and thereby harm consumers in the long run. Modern

economic theory has shown how commitment or collective-action problems among

consumers can lead to such paradoxical effects.[1]

But the paradox does signal danger. Too hawkish a policy might ban favorable deals

that are not predatory. "It would be ironic indeed if the standards for predatory pricing

liability were so low that antitrust suits themselves became a tool for keeping prices

[1] See Edlin (2002), Bolton, Brodley, and Riordan (2000), Spector (2002). The relevance of these problems
is illustrated in *Barry Wright* where the collective action problem is limited because there is one large
purchaser, Grinnell. Grinnell can presumably choose whether to take favorable deals (even if temporary)
or whether to subsidize competition (Barry Wright) for the sake of long-term low prices. Even here,
though, too little entry can occur if the buyer cannot commit not to "take the bait" of post entry discounts.

high."[2] Predation policy must therefore diagnose the unusual cases where favorable deals

harm competition. To this end, courts and commentators have largely defined predation

as "sacrifice" followed, at least plausibly, by "recoupment" at consumers' expense. The

American Airlines case raises difficult questions about this approach.

A. The case

American Airlines or "AA" is the dominant carrier at Dallas-Fort Worth

International Airport (DFW). As the judge wrote, the case

> "...arises from competition between American Airlines and several smaller
> low cost carriers [Vanguard, Western Pacific, and SunJet] on various
> airline routes centered on Dallas-Fort Worth Airport (DFW) from 1995 to
> 1997. During this period, these low cost carriers created a new market
> dynamic, charging markedly lower fares on certain routes. For a certain
> period (of differing length in each market) consumers of air travel on these
> routes enjoyed lower prices. The number of passengers also substantially
> increased. American responded to the low cost carriers by reducing some
> of its own fares, and increasing the number of flights serving the routes.
> In each instance, the low fare carrier failed to establish itself as a durable
> market presence, and eventually moved its operations, or ceased its
> separate existence entirely. After the low fare carrier ceased operations,
> American generally resumed its prior marketing strategy, and in certain
> markets reduced the number of flights and raised its prices, roughly to
> levels comparable to those prior to the period of low fare competition."

> -- *U.S. v. AMR et al.*, 140 F. Supp. 2d 1141 (2001)

The Department of Justice (DOJ) argued that American's *initial* response to the

entry of "low-cost carriers" (LCCs) was to match the entrants' fares on a limited basis.

But then American grew concerned that the LCCs might expand and perhaps create a

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[2] *Brooke Group*, 226-27, cited in American Airlines' Appellees' Brief at 15.

mini-hub at DFW[3] -- a prospect that alarmed American after ValuJet's Atlanta mini-hub had cost Delta $232 million in revenue.

American then *shifted* to a more aggressive response, increasing the availability of its low fares, and adding flight frequencies and/or larger aircraft. American also entered a route, DFW-Long Beach (LGB), that it had previously abandoned as unprofitable and that Sun Jet was serving.

DOJ sued American under Sec. 2 of the Sherman Act for thus monopolizing or attempting to monopolize four DFW routes: Kansas City (twice), Wichita, Colorado Springs, and Long Beach. DOJ called predatory not American's *prices* alone, nor its initial response to entry, but a "totality" of its subsequent *expansion* of low-fare availability and capacity (including flight schedules).

DOJ claimed that the expansion made no business sense unless it made the LCCs withdraw or cease to compete so hard. It quoted American's CEO: "If you are not going to get [LCCs] out then no point to diminish profit," and said that this "no business sense but for exclusion" criterion was the essence of predation.

Specifically, DOJ argued that American knew that an alternative strategy—sticking to its initial response—would have been more profitable, other than through the effect on LCC competition. DOJ's expert used American's internal decision-support profit measures (discussed below) to run four tests for sacrifice that DOJ summarized as:

> "Test 1. Whether incremental cost exceeded incremental revenue;
> Test 2. Whether long-run (18-month) AVC [average variable cost] exceeded price;

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[3] DOJ Appellant's brief p.8. As of this writing, redacted versions of the appeals briefs and other key documents are available at www.usdoj.gov/atr/cases/indx199.htm (for the Government-Plaintiff) and at www.aadoj.com.

Test 3. Whether price was below American's 18-month cost measure (persistent negative profitability); and
Test 4. Whether incremental [...] cost exceeded price."[4]

DOJ argued that these tests showed sacrifice (estimated at $41 million),[5] and that American reasonably expected to "recoup" its sacrifice by reducing competition on these routes, on other DFW routes it dominated, and through the development of a reputation for predation.

American responded that its prices were never below route-level average variable cost; that the routes in question remained profitable; that it had at most matched, not undercut, the entrants' prices; and that DOJ's theory of "recoupment" was speculative. It moved for summary judgment, which the district court granted in April 2001. The Court believed that, even if the Government were right about all contestable facts, it would still lose on the law. DOJ appealed to the Tenth Circuit Court of Appeals; the appellate briefs were filed early in 2002, and oral argument was expected later that year.

B. Key questions

The district court ruled for American on four key issues:

1. Should courts measure "sacrifice" relative to

    a. Maximized profits, or profits from marginally less output;

    b. Profits after entry, but before the alleged predation; or

    c. Reservation profits: profits if the defendant had exited the market (route)?

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[4] DOJ Reply Brief, p. 4. Not all the tests could be applied to all episodes; see the appeals briefs for discussion.
[5] See District Court Opinion, 140 F. Supp 2d 1141, 1213, hereafter referred to as "Op."

2. Should the sacrifice benchmark differ when the plaintiff alleges predatory nonpricing conduct – here, the "capacity increase" – rather than low pricing *per se*?

3. How conclusively must prospective recoupment be proven? Should the evidence focus on financial results or on consumer harm? Must recoupment be in the market where sacrifices are made, or does recoupment in other markets count?

4. If a defendant meets but does not beat its competitor's prices, is this a defense? If so, how should one weigh differences in perceived quality?

The case raises at least two other important questions:

5. Should the test or standard of proof for predation be different for a monopoly than for an oligopoly?

6. Is sacrifice merely *evidence* of predation, or is it a *necessary* element of the offense of monopolization?

We discuss these questions below, but first we consider the economies that American enjoyed from its hub operations in Dallas.

II. AMERICAN'S HUB OPERATION, DECISION ACCOUNTING, AND MARKET DEFINITION

Paradoxically, major carriers maintain large market shares, even dominant market positions, in their hubs despite higher prices and higher costs than competitors at those hubs. In 1995, American reportedly commanded premiums in DFW of 31% and yet served 70% of the passengers who originate or terminate nonstop travel in DFW (Borenstein 1992; Edlin 2002, fn 9). Like other majors, American also has high costs per flight, or per available seat-mile (ASM), largely due to union contracts. In 1994,

American's cost per ASM was 8.54 cents, while it estimated ValuJet's comparable cost at 4.32 cents.[6] Why, then, don't LCCs easily out-compete the majors?

Much of the answer lies in the countervailing economies of scope and scale not captured in measures of cost per ASM. Economies of scope come largely from hub operation, in particular from the sharing of flights by passengers who are flying different routes. An AA flight from Wichita to Dallas carries not only passengers traveling from Wichita to Dallas but also those from Wichita to Los Angeles or Miami. Thus there are economies of scope in service from Wichita to Dallas, to Los Angeles, and to Miami.

Some passengers on the Wichita-Dallas flight will go on to Miami and would likely not fly AA at all if AA didn't serve Wichita-Dallas. The Wichita-Dallas ("upline") flight causes additional traffic and profits on AA's Dallas-Miami ("downline") route. Thus AA might profitably serve (say) the Wichita-Dallas spoke even at very low fares, because doing so boosts its profits on the Dallas-LA, Dallas-Miami, and similar routes.

American's break-even fare level (or load factor) for the Wichita spoke may be low even though its cost of flying planes (or cost per ASM) is much higher than a smaller airline's. American's competitive advantages thus lie in its hub complementarities. Its decision accounting system accounted for these complementarities, as we discuss next.

A. American's Decision Accounting Incorporated Complementarities

AA's internal accounting tools for routing and scheduling decisions took account of the hub complementarities discussed above. DOJ in turn relied on these internal decision accounts.

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[6] Op. at 1151. Similarly an internal American document stated that Southwest's labor costs per ASM were 45.8% lower than American's in 1993.

In particular, AA measured each route's "Fully Allocated Earnings plus Upline/Downline Contribution Net of Costs," or FAUDNC, which includes a measure of the route's net contribution to profits on *other* routes. Thus when a passenger buys a ticket from Wichita to Miami via Dallas, FAUDNC would attribute a measure of the Downline Contribution (conceptually the price for the Dallas-Miami leg, less its incremental cost) to the Wichita-Dallas route, and would attribute an analogous Upline Contribution to the Dallas-Miami route.

While one might initially be taken aback by the double-counting, in fact this is a sensible way to do route-level *decision* accounts[7] in light of hub complementarities, and both sides in the case used these accounts. FAUDNC, the court found, was "one of the factors American uses when deciding whether to exit a route." It is:

> "part of a number of profitability measures intended to reflect the economic value of operating a flight, a segment, a hub or the entire system [*sic*]. The company expended a substantial amount of time and money investigating its accounting systems, and in developing decision FAUDNC. Since its development of FAUDNC in 1995, American has continued to modify its methodology to improve route profitability reporting." (Op. at 1175)

On the revenue side the judge believed that even FAUDNC understates the benefits to AA of operating a route. He noted that "FAUDNC does not capture the system benefits... [of] enhanced regional presence or origin point presence... [such] benefits accrue on other routes and flights."[8]

On the cost side, despite the "Fully Allocated" name and the fact that FAUDNC includes roughly 97-99% of AA's total costs, DOJ's expert found that "FAUDNC cost is

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[7] The double-counting makes FAUDNC and its cousins unfit to measure AA's overall system profitability, or to calculate its tax liability.

conceptually close to long-run average route-level variable cost." But the judge concluded that FAUDNC included too many (fixed) costs, including "certain costs that would not be entirely avoided if AA were to abandon service on a particular DFW route" (Op. at 1176), such as "fixed maintenance expenses" and "fixed overhead expenses." He found that "FAUDNC ... is a fully allocated earnings measure, not a measure of the variable costs of serving a route."

Economists, like the court, often criticize fully-allocated measures as including too many fixed or common costs, and stress that not all accounting costs are economic costs of decisions, especially decisions where exit is not contemplated. Yet, as the judge notes elsewhere, American conducted a "detailed audit" to decide which costs to include. Although it chose to include 97-99% of total costs, it apparently felt that this made for the best decision measure with which to "compare the performance of its various routes against each other."

Why might a decision accounting system include costs that seem not to vary with the decisions for which it is designed? One possibility is that some costs are more variable than they look. In particular, variable congestion costs can easily be missed in the short run if the firm makes no extra expenditures. A facility or service such as baggage handling or an airplane will become congested under increased usage. This congestion is a real cost even if the firm spends no money to alleviate congestion in the short run. Indeed, if the firm would in the long run prefer to hire more baggage handlers or add airplanes, rather than inflict congestion on its customers, but can't do so in the

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[8] Op. at 1176. For instance, a broader system makes frequent-flyer rewards more valuable.

short run, then the long-run money cost is a *lower bound* on short-run variable cost, which might thus even exceed FAUDNC cost.[9]

FAUDNC was not the only upline/downline decision accounting system. VAUDNC is a similar measure on the revenue side but includes only "the variable expense categories of costs" (those "categorized as variable over an 18-month planning horizon"); a third measure, VAUDNS, also allows for "spill," the possibility that carrying one passenger displaces another. (Op. at 1174) VAUDNC even excludes aircraft costs (surprisingly, only about 7% of AA's costs); the judge commented that aircraft costs are not regarded as variable—even though the number of aircraft used on the route was in fact varied, and aircraft surely have an opportunity cost on other routes, or in other hands – there is a leasing market for planes.[10] DOJ's expert believed that VAUDNC's cost component was an appropriate measure of short-run route-level AVC if one adds to it aircraft cost, creating VAUDNC-AC.

B. Market Definition

Antitrust markets are generally defined based on demand-side substitutability, suggesting that markets consist of city-pairs or airport-pairs. Restrictions on service at Dallas' other airport, Love Field (where Southwest operates), plausibly made it an inadequate substitute for DFW. A related empirical question is whether connecting service is an adequate substitute for nonstop service on a route. These conventional

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[9] Short-run costs of expansion may thus exceed short-run cost savings from output reduction. It appears that DOJ did not pursue the congestion argument as sketched here and maintain that FAUDNC cost reasonably measured short-run AVC for American's expansion on the routes.

[10] If AA brought planes and other factors from other routes (rather than buying or hiring more), the right measure of their cost is their opportunity cost elsewhere. This opportunity cost presumably includes both upline/downline contributions and broader network benefits. If it is hard to measure, one might gauge it

questions of demand substitutability were not central on appeal, and we will not pursue
them here.

But antitrust markets are sometimes pressed into the role of defining a universe of
discourse. Routes are ill-suited for this, since different routes are closely linked as
sketched above. AA's extensive and profitable hub operations at DFW made it more
profitable for AA to operate any individual DFW spoke, because spokes are complements
in hub operation. And DOJ argued that AA was much more concerned that LCCs might
establish DFW hubs than about LCC operations on isolated DFW routes. To understand
the case one must thus think across routes, as we will see repeatedly below.

III. WHY LOOK AT SACRIFICE?

Both sides followed tradition by arguing that the court must assess whether
American lost money (sacrificed profit) through its actions. Why?

First, if there is no sacrifice, this might indicate that all is well. In order to
eliminate competition, a firm might need to sacrifice short-term profits. But not always:
A low-cost monopoly may harm competition (not only competitors) by using its
advantages strategically to exclude competitors, with little or no sacrifice, as Edlin (2002)
explains.

Second, conscious voluntary sacrifice might indicate that the firm thinks that it
can thereby eliminate competition, and thus that harm is indeed in prospect. Sacrifice
may be what Bork (1978, p. 145) called "an investment in monopoly profits." But not
always: A firm may have legitimate reasons to sacrifice short-run profits. For example,

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from the long-run equilibrium condition: AA will have tried to ensure that the full gross benefits of these
factors *on its marginal routes* will be about equal to their long-run costs.

production today may lower future costs in an industry with learning-by-doing, as Arrow (1962) describes. Or, more to the point, "sacrifice" in one product can be immediately recouped (often quite legitimately) because it boosts profits in a complementary product.[11] Thus sacrifice of short-run profits is neither necessary nor sufficient for harm, and could be far from both.

Before discussing sacrifice benchmarks in the *American* case, we point out two fallacies to avoid in tests for sacrifice. First, a predator presumably doesn't expect to sacrifice profits *overall*. Profit sacrifice tests compare what is loosely called "short-run" profits – *not counting* the consequent profit from exclusion – against some other benchmark level of profit. If (as we normally assume) the firm is really maximizing its overall profits, then the fear is that the missing element is the effect of reducing competition. Certainly there are many good reasons not to maximize short-run profits at the product level, such as (procompetitive) penetration pricing and complementarities. But sacrifice of short-run profits at least indicates that something strategic may be going on, and might make it worth looking further to see whether there is a credible theory of anticompetitive effect. In short, testing for an overall failure of profit-maximization would catch only irrational predation: the *Actual Sacrifice Fallacy*.

Second, entry ordinarily reduces an incumbent's profits even if the incumbent responds optimally. That profit reduction must not be confused with sacrifice; taking *pre-entry* profits as the benchmark would fall into an *Involuntary Sacrifice Fallacy*. Tests of

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[11] See Farrell and Katz (2000, 2001). For example, supermarkets that supply free parking are not normally engaged in predation against commercial parking establishments; rather, they charge through the complement (groceries). Such cases need not be viewed as sacrifice. One might try to redefine revenues to include contributions to complementary products as American does by including "Upstream" and "Downstream" contributions.

profit sacrifice must compare profits (not counting the subsequent rewards from exclusion) against those of some other post-entry option available to the alleged predator.

IV. BENCHMARKS FOR SACRIFICE

The DOJ claimed that American lost money through its capacity expansion, but American responded that the proper legal question was really whether it lost money *overall* on any route in question. The dispute was thus: Relative to what profit benchmark must the plaintiff show losses or sacrifice? Is the relevant comparison exit from the route as American implicitly contended or profits absent the capacity expansion as DOJ advocated?

Hub complementarities, included (as we saw) in American's decision accounts, make it relatively cheap—in terms of overall profits—for American to cut prices and/or expand service on a given spoke (which boosts demand on others), as long as it doesn't do so on too many spokes at once. Indeed, this effect could outweigh its cost-per-ASM disadvantage versus an LCC.

Yet, in part precisely because it can improve its offer to customers if need be, a hub carrier such as American may be able to respond to entry aggressively enough to discourage entry even by a lower-cost carrier—perhaps without much sacrifice or conceivably with none. While aggressive responses are good for consumers in the short run (while the entrant is there), the *prospect* of such a response can deter desirable entry and thus be bad for consumers and perhaps for efficiency. So the question of which sacrifice benchmark to use is central.

A. Profit Maximization and the Areeda-Turner Test

DOJ cites Judge Bork as explaining:

Predation involves aggression against business rivals through the use of
business practices that would not be considered profit maximizing except
for the expectation that (1) actual rivals will be driven from the market, or
. . . (2) rivals will be chastened sufficiently to abandon competitive
behavior the predator finds threatening to its realization of monopoly
profits.[12]

In Bork's view predation is an investment (a sacrifice) in pursuit of monopoly

profits. Figure 1 shows a firm's profits, as a function of how good an offer it makes to

consumers, with better offers lying to the right.[13] In principle this profit function should

incorporate everything except effects on competition, but in practice sacrifice tests often

use short-run data, and we will often follow the conventional shorthand of calling it

"short-run profits."   A firm thus aggressively sacrifices profits if it chooses a point to the

right of the peak in Figure 1.

There are at least three ways one might test for a sacrifice of short-run profits:

1. Calculate profit-maximizing output or price; then compare actual output or price.

2. Test whether the profit function is downward-sloping at the point that the firm

chose.

3. Allow aggressive plaintiffs to pick *any* alternative course of action for the firm

(benchmark) and show that *it* would have led to higher profits.

Implementation (1) seems unrealistic; yet (or therefore) it has been the butt of

much criticism of sacrifice tests. In the *American* case, the District Court said that

antitrust does not require profit maximization, and cited a prior decision:

"A rule of predation based on the failure to maximize profits would rob
consumers of the benefits of any price reductions by dominant firms

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[12] *Neumann v. Reinforced Earth Co.,* 786 F.2d 424, 427 (D.C. Cir. 1986).
[13] Thus one can think of the horizontal axis in Figure 1 as showing quality, or quantity; one can also think
of it as measuring price but in a right-to-left direction.

facing new competition. . . In addition, a "profit maximization" rule
would require extensive knowledge of *demand* characteristics – thus
adding to its complexity and uncertainty."[14]

The Court also cited a treatise arguing that the profit-maximizing price is seldom

knowable: "It depends not only on the defendant's costs at the moment but also on

projections of what those costs would be at higher and lower levels of output."

Implementation (2). This test compares the firm's marginal revenue (MR)

against its marginal cost (MC). If MR < MC, then the profit function is downward-

sloping: the firm could have made more money by making a slightly less favorable offer

or producing slightly less output.[15]

Suppose for a moment that the firm has little or no static market power: It faces a

highly elastic short-run demand curve. Then MR < MC becomes p < MC, the Areeda

and Turner (1975) test and a test that the district court seemed to endorse.[16] For a firm

without market power, the Areeda-Turner (A-T) test is a profit-maximization test: Any

output above the profit-maximizing output will trigger an A-T "sacrifice" alarm.

Usually, of course, an alleged predator faces a downward-sloping demand curve.

Then the A-T test is more lenient than profit maximization. In Figure 1 the A-T

benchmark would be to the right of the peak, allowing a firm to sacrifice *some* profit

before the A-T test flags a sacrifice. It could well make sense for a sacrifice test to have

some lenience (or margin of error). After all, a firm might be to the right of the peak by

accident (no firm can always fully maximize profits); or might wrongly be thought to be

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[14] Op. at 1201, citing *MCI Communications*. The first sentence of the quote is an odd claim in itself.
[15] When the profit function is single-peaked (as we have drawn in Figure 1), MR<MC also implies that the offer is more attractive than the profit-maximizing offer.
[16] Op. at 1198-99. Areeda and Turner (1975, p. 716) conclude that "marginal-cost pricing is the economically sound division between acceptable, competitive behavior and 'below-cost' predation." As we

to the right of the peak; or (if the curve literally shows short-run profits) might be to the

right of the peak for legitimate reasons. But the A-T version seems *ad hoc* and oddly

mixes marginals and averages (price is average revenue). It is most lenient for a firm

with the most short-run market power (*i.e.*, whose demand is least elastic) – even though

presumably one should worry *more* about predation by such a firm.[17] Nonetheless many

people have come to think that A-T is the ideal test or gold standard.

Other approaches, including both DOJ's and one reading of American's and the

court's, involve comparing profits against certain discrete benchmark alternatives, as we

discuss next.

B. DOJ's Benchmark: Profits But For Challenged Acts

Recall that AA's response to entry on some routes came in two phases. In the

first phase, which DOJ did not challenge, AA matched the entrant's prices on a limited-

availability basis. In the second phase, AA increased flight frequency, flew larger planes,

and/or increased availability of its lowest fares: an expansion of "capacity" in DOJ's

words. DOJ's Test 1 therefore assessed sacrifice by comparing AA's profits in the second

phase to its profits in the first. This comparison also has the practical virtue that actual

profitability data were (in some cases) available.

DOJ claimed to show that AA's profits would have been higher had AA stuck to

its initial response and not shifted to the second phase. American argued, and the court

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will see, they propose average variable cost as a "surrogate" because of "the difficulty of ascertaining a
firm's marginal cost."

[17] If the firm's demand elasticity is $e<0$, then its marginal revenue is $(e+1)/e$ times price. Thus the A-T test
is an MR-MC test with a "fudge factor" of $e/(e+1)$. To illustrate, consider a Cournot market with market
demand elasticity equal to -2. Relative to the stricter, more logical MR-MC test, the A-T test gives a firm
with a 10% market share (and thus a firm-specific demand elasticity of $-2/0.1=-20$) a fudge factor of 20/19

agreed, that this amounted to a profit maximization test. DOJ said not, and one of its

experts urged the court to:

> "determine whether the incumbent had clear alternatives that the incumbent knew or could reasonably be expected to have known would have made it more money absent any predation profits. Importantly, it is not necessary to compare the alleged predator's actual behavior with its *most* profitable alternative."[18]

If American's initial response was not "short-run" profit-maximizing, then the DOJ

benchmark is more lenient than a profit-maximization benchmark, and would lie to the

right of the profit-maximization benchmark in Figure 1. (And, if the initial response was

to the left of the peak, then a range of shifts to the right would have passed the DOJ test.)

Did DOJ unwittingly engage in Implementation (3) of a profit maximization test?

We think not, because the alternative it used was presumably very salient in American's

decision-making. There is no sign that DOJ creatively or exhaustively searched for a

highly profitable alternative to which to compare American's profits, nor that the DOJ

used the benefit of hindsight to second guess what American originally thought would be

a profitable strategy.

C. American's Benchmark: Exit from the route

American argued that the proper legal test of sacrifice was whether its route-level

variable costs (or perhaps its avoidable costs) exceeded its revenues on the routes. This

"average variable cost" test has two rationales, each with shaky underpinnings.

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or about 1.05, meaning that A-T finds sacrifice only if MR < MC/1.05. A dominant firm with a market share of 80% (and thus elasticity of -2/0.8=-2.5) gets a much more generous fudge factor of about 1.67.
[18] Op. at 1180.

1. Baumol (1996) rationale

American sometimes followed Baumol (1996), who argued that comparing route-wide revenues with avoidable costs was the right test in principle because it promotes "competition among equally efficient firms, without sheltering less efficient firms from competition on the merits. See *Morgan*, 892 F. 2d at 1363; *Henry*, 809 F. 2d at 1344." (American's Appeals Brief at p. 23). If AVC is close to average avoidable cost, this might justify a price-AVC test. The idea is that if the incumbent's post-entry price satisfies p>AVC, then any firm with equal or lower AVC can profitably enter the route, so only less efficient firms will be excluded. Baumol's argument for market-wide average avoidable cost assumes that successful entry will fully displace the incumbent, and his test effectively amounts to a test of *sacrifice relative to exit* from the market (here, route).

But, as a DOJ expert noted, a rival might not fully displace the incumbent, and might be more efficient at serving the increment than the incumbent, yet still be excluded. This can occur if (*) holds—as we argue below is quite possible:

(*)   American's Route-Level AVC < p < Rival's AC < American's Incremental cost.

A second potential failure is more subtle, and arises because the DOJ tests used American's accounting system, not a literal price-cost comparison. Recall that this accounting system adds to a route's revenues its upline and downline contributions. An entrant on the route who does not have a hub will not capture such "contributions;" thus, even if it can fly more cheaply per seat-mile, it might yet be excluded by American's profitable pricing. If the complementarities are inherently lost to society when the entrant displaces American, then the asymmetry broadly reflects a true difference of product.

But if passengers can connect between airlines flying the entrant on one leg and the incumbent on another, or if American could cheaply let them do so, then the complementarities can survive but may not be captured by the entrant. This can produce inefficient incentives.

But if American's hub operation is what handicaps entrants, why would an LCC enter on only a few routes, and then respond to adversity by exit, rather than enter with full-blown hub operations? At the extreme, why didn't Vanguard – one of the LCCs in the *American* case – take advantage of its much lower cost per ASM and simply enter with a full duplication of AA's route structure, including hubs?

The answer is that it can be hard to quickly acquire, and integrate, very many flight control slots, aircraft, crew, and other inputs: indeed, this is why short-run and long-run costs may differ. Business models often need time to be "shaken down" before they can scale up. Capital markets may more readily finance a toe-dipping strategy than a riskier all-out plunge. Even if neither AA nor the LCCs really thought of the route as the unit of analysis, an LCC practically had to survive a period of being limited to a small number of routes. Such entry could be efficient in the long run even if it would be productively inefficient in the short run for an LCC to enter, then never expand.

2.   Areeda and Turner (1975) rationale

Areeda and Turner (1975, p. 716) provided the more traditional rationale for comparing price with AVC to gauge sacrifice. They suggested that AVC might be a more readily observed proxy for MC (recall that they argue that MC should in principle be compared with price). This "proxy A-T test" has been highly influential.

However, in the *American* case, route-wide AVC may have importantly underestimated incremental or marginal cost (or AVC for the increment): the p<AVC test in Figure 1 may be well to the right of the p<MC test, and the right and left hand terms of expression (*) may be far apart. It is unclear why one should use a double approximation (price for incremental revenue, and route-wide average variable cost for incremental cost) when better evidence on sacrifice is available (recall that DOJ's Test 1 directly compares incremental costs and incremental revenues).

We called the Areeda-Turner substitution of price for marginal revenue "ad hoc," but that "lenient approximation" may make less difference here than approximating incremental cost with AVC. DOJ's Test 4 claims that incremental cost (or the average variable cost of the sales increment) exceeded not only incremental revenue but a measure of price as well. Meanwhile the court found that price exceeded route-wide average variable cost. Hence, if DOJ and the court are both right, incremental cost per passenger must exceed route-wide AVC by a sufficient amount to make all the difference to a comparison of cost with price.

American argued that DOJ was wrong, and that AVC falls with output, implying that incremental cost is below route-wide AVC, so that a price above route-wide AVC must also be above incremental cost.[19]

The dispute here may not be a simple factual one; rather, American and DOJ may be talking about different increments. Incremental cost of sales and of seats could differ dramatically. DOJ argued that AA's load factors (the percentage of seats filled) fell

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[19] Here American included the fixed cost of infrastructure in variable costs (Appellees' Brief at 26), perhaps suggesting it had AAC rather than AVC in mind. But this claim concerns AVC of available seats, not of passengers: see our discussion of Figure 2 below.

when American increased its capacity and attracted additional passengers (Appellant's brief p.10). A hypothetical example shows how a fall in load factors could lead to increasing marginal cost of sales (as implied by DOJ's claims), although marginal cost of seats might even decrease (as American claimed).

Suppose an airline initially has one flight a day, with 100 seats, at a cost of $5,000. Average price is $100; thus, if full, the flight would yield revenue of $10,000, but in fact it is only three-quarters full (75 passengers), so it yields revenue of $7,500 and profits of $2,500. The break-even load factor is 50%.

Now , without changing price, the airline schedules a second flight, costing another $5,000—so the incremental cost of additional *available seats* is equal to the variable cost for seats on prior "frequencies," as Figure 2 depicts.[20] If the load factor remains at 75%, then the second flight has the same revenue and profit as the first: everything is simply doubled. But if each flight is now just 60% full, there are just 60% times 200, or 120 passengers: total revenue is $12,000. Since total costs are $10,000, the route remains profitable (American's test), but profits *fell* with the additional capacity (as DOJ's Test 1 claims). The incremental capacity cost $5,000, but brought in only $2,000 in incremental revenue (even though passengers on the second flight paid a total of $6,000). The second flight was 60% full, but it also reduced the first flight's load factor.

The incremental cost of the *first* 75 passengers is $5,000, or $66.67 per passenger: this is below price. The incremental cost of the *additional* $120 - 75 = 45$ passengers is

$5,000, or $111.11 per passenger: This is above price. Qualitatively this is what DOJ's Test 4 claims.

Thus if load factors fall with added capacity, the marginal cost of *sales* can far exceed the average avoidable (or variable) cost of sales, or the marginal cost of *seats*, as in Figure 2. Incremental cost can thus exceed average variable cost for *sales* even if average variable cost for *available seats* is roughly constant (and therefore equal to marginal cost for *seats*) or even declining.

This important distinction, between cost functions for *seats* and for *passengers*, may not have been clear to Judge Marten who treated "capacity" as "the flip side of price." The word "capacity" apparently suggested to him that American was simply pursuing profits by serving demand, rather than lose money by turning customers away.[21]

D. Should the Sacrifice Benchmark Differ for Non-price Predatory Conduct?

DOJ says it challenges not American's fare cuts but the capacity additions, which were often later than and "not triggered by" the fare cuts (Appellant's brief at 34), so that the case is not about the level of price. But the district court saw the claim that this was not a pricing case as "semantic sleight of hand." (Op. at 1194). Should this price/nonprice distinction matter? In particular, should sacrifice be judged by a different benchmark if the plaintiff alleges non-price predatory conduct?

DOJ argues that the incremental costs from American's expansion exceeded incremental revenues and that the motivation for this (seemingly) unprofitable tactic was

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[21] The District Court (and American's appeals brief, p. 39) seems to assume that a firm will naturally (*i.e.*, non-strategically) increase output in response to entry. This is possible but not obvious. When price falls, *total* output will rise, but the incumbent's output is no longer the whole market output. In simple Cournot models, for instance, each existing firm's output normally *falls* when entry takes place. In fact, Williamson

anticompetitive exclusion. But why wouldn't the same benchmark be reasonable in a pure pricing case?

Any distinction between price and nonprice predation may prove too cute. Ordinarily, one cost to a firm of selling more output is a lower price received on inframarginal units sold, as all first-year microeconomics students learn.[22] So to avoid confusing marginals and averages, the "appropriate measure of cost" to compare with price for a sacrifice test would include this pecuniary cost, unless one is trying to build in an *ad hoc* margin for error as we agued the Areeda-Turner test does. This reasoning returns us to comparing incremental costs and revenues, regardless of whether the alleged predatory conduct is output expansion, a price cut, or as in this case an expansion of capacity.

V. RECOUPMENT

DOJ claimed that American would likely profit, and consumers would likely lose, through loss of competition in three ways. First, on the routes in which predation was alleged; second, on other AA-dominated DFW routes into which the LCCs might have expanded; and third, through a broader loss of competition as a result of American's building a reputation for predation. Judge Marten found the estimates of within-route recoupment too low compared to the estimate of sacrifice,[23] and the broader theories too vague, unproven, and disturbingly easy to allege. He noted that one DOJ expert knew of no firm that failed to enter because it now feared American's response; and he criticized

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(1977) argues that post-entry output expansion should be a test of predation, because he believes it is not a profit-maximizing response.

[22] However, DOJ argues that price changed little when American expanded its capacity: This is presumably related to the airline industry practices of price discrimination and yield management.

[23] One might be concerned at the implication that a plaintiff could do better by under-estimating sacrifice.

another DOJ expert for calculating recoupment on the assumption that hub entry probabilities were reduced by 10%, a mere "round number."[24] He thus found that DOJ had not proved a dangerous likelihood of "recoupment" through supracompetitive pricing.

There are two reasons for a "recoupment prong" in a coherent predation policy. First, sacrifice doesn't in itself harm consumers: quite the reverse.[25] Nor need it even portend consumer harm: for instance, a firm may price below cost so as to work its way down a learning curve. The law surely should demand a convincing theory of harm to competition (not just competitors) from the defendant's acts. One might call this consideration "*recoupment as harm*." As the Supreme Court wrote in *Brooke Group*, "Recoupment is the ultimate object of an unlawful predatory pricing scheme . . . Without it, predatory pricing produces lower aggregate prices in the market and consumer welfare is enhanced." Note that this does not require a predator to recover *all* its sacrificed profit: even an unprofitable predatory scheme could be harmful.

The second reason to examine recoupment, in contrast, does focus on the predator's profits, and relates to the Actual Sacrifice Fallacy. If recoupment is implausible, that casts doubt on any theory of *rational* predatory sacrifice.[26] In other words, if we think the firm couldn't have expected to recoup its sacrifice, we should re-think whether there was a sacrifice at all (perhaps costs or prices were mis-measured, or there is more learning-by-doing than we thought). Unprofitable predation could well be

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[24] Op. at 1215, note 24.
[25] If price is below marginal cost, there could be harm to allocative efficiency, although not necessarily when there are intertemporal complementarities.

harmful, but it may not be likely. This "*recoupment as reality-check*" seems to have been the court's focus in the recoupment part of the case.

Along those lines, Judge Easterbrook suggested in *Rose Acre* that sacrifice is not worth even looking for if recoupment seems very unlikely. He argues that it's often easier to see that market structure makes recoupment unlikely than to decide if there was a sacrifice.

What should we infer if recoupment seems unlikely but there is strong evidence of sacrifice? If one is confident that firms maximize profits overall, one might infer that recoupment is easier than it seemed. This logic suggests a trade-off between stronger evidence on sacrifice and weaker evidence on recoupment: If sacrifice is incontrovertible, an expectation of recoupment could be inferred (that is, to avoid the Actual Sacrifice Fallacy, one might start with a strong prior belief about recoupment-as-reality-check if sacrifice is established).

All this bears directly on one of the two recoupment questions for appeal. DOJ claimed that, given the structure of the industry and the facts as reported, AA might very well expect to recoup its sacrifice, and that consumers would be harmed, through a loss of competition. (Judge Marten disagreed, finding that entry into DFW routes was easy and that the market could not sustain supracompetitive prices.[27]) And DOJ also claimed that there was not very much entry into American's DFW routes, but could hardly have proved just how much out-of-market competition might have been deterred.   Similarly,

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[26] "For the investment to be rational, the [predator] must have a reasonable expectation of recovering, in the form of later monopoly profits, more than the losses suffered." *Brooke Group,* p. 224, quoting *Matsushita,* at 588-589.

even if entrants do become somewhat less likely to get financing, specific quantitative evidence of the fact might be unavailable. This suggests that the appellate court should consider what should be done if part of the plaintiff's recoupment theory is plausible but inherently hard to prove.

A. Must Recoupment Be In-Market?

Neither of those reasons for a recoupment test suggests that recoupment must be in the same antitrust market as the sacrifice: Antitrust markets should not be universes of discourse.[28] DOJ claimed that American sought to prevent the LCCs from forming mini-hubs in Dallas by adding other spokes, threatening American's profits on those routes and perhaps its hub profits more broadly. Thus considering recoupment (of both kinds) on other routes seems vital to understanding the logic of the plaintiff's case.

But the district court was reluctant to consider recoupment in other markets because it saw no limiting principle: If a plaintiff could always make vague claims about broad recoupment, the recoupment test would be vacuous. DOJ offers the limiting principle that out-of-market recoupment is less likely when markets are not strongly linked, but that here, different DFW markets are strongly tied together by hub effects. The appellate court must decide if this limiting principle suffices. Of course, there is apt to be a reason why a firm is in multiple markets, so there will usually be some link.

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[27] This finding itself is odd, given that the Court also finds that prices on Southwest routes are proxies for competitive prices (including a normal rate of return) (Op. at 1149) and that margins on American-dominated non-LCC routes are higher.

[28] In *Brooke Group*, the plaintiff alleged sacrifice in generic cigarettes and recoupment prospects in branded cigarettes. The Supreme Court found such schemes within the statute and wrote that assessing recoupment *"requires an estimate of the alleged predation and a close analysis of both the scheme alleged by the plaintiff and the structure and conditions of the relevant market"* (emphasis added): *Brooke Group* at 226. And the *Microsoft* plaintiffs claimed recoupment in operating systems as a result of anticompetitive behavior in middleware.

VI. MEETING COMPETITION

The district court agreed with American that since it at most met but did not beat its competitors' fares, its actions could not be predatory, even if they involved sacrifice, were exclusionary, and would be recouped. This raises three issues. First, given American's popular frequent-flyer program and brand, does meeting an LCC's dollar price actually constitute beating that price? Second, how does such a defense mesh with the logic of predation tests? Third, and fundamentally, is price-matching really inherently pro-competitive? We discuss these questions in sequence.

A. Is Meeting Really Beating?

If an incumbent offers twice as big a box of soap at the same price as a rival's box, sensible implementation of any price-matching defense requires adjusting the price accordingly—the price per ounce is half. The *American* case raises a much harder version of the problem: plausibly, AA had a substantial advantage in perceived quality, but this advantage is hard to quantify. Matching an entrant's nominal price is clearly more aggressive than a quality-adjusted match; yet, it is not clear what safe harbor a matching defense would offer to a defendant if the quality difference is hard to quantify, or if proper quantification would vary among customers. Saying much more would require evaluating possible solutions to the adjustment problem in terms of the goals of having the price-matching defense. Since it is opaque what those goals are, this is not possible. However, below we make a simple observation to those who favor the productive-efficiency goal.

B. Price Matching and The Logic of Predation Tests

Baumol (1996) argued that incumbents should be forbidden to price below AAC after entry, because he believed that rule protects more-efficient entrants. On that logic, allowing the incumbent to match entrants' prices below its own AAC would exclude efficient rivals. The fact that an incumbent who fails to match such a price will lose business (in Baumol's model, *all* its business) is not a glitch in the policy, to be corrected by a matching defense, but is the *very point* of the policy. Protecting more-efficient entrants, in Baumol's model, would imply that there must *not* be a price-matching defense when the price is below the incumbent's cost.[29] Less sharply, the Areeda-Turner logic finds pricing below MC or AVC suspicious; it is unclear why it becomes less suspicious if an entrant is also pricing below the incumbent's cost.

C. Is Price-Matching Good In Itself?

The court's discussion hints that, because price-matching is in some sense natural, it deserves protection against the antitrust laws. This doesn't follow. Price-matching can easily be anti-competitive, in at least two potentially relevant ways.[30] First, as we have just seen, the conventional logic of predation suggests that *below-cost* price-matching may deter (or reverse) entry by more-efficient entrants. Second, even *above-cost* price-matching (or the prospect of it) may deter productively inefficient, but welfare-enhancing, entry, as Edlin (2002) shows. This certainly doesn't show that price-matching is anticompetitive, but we see no basis to be sure that it's always pro-competitive.

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[29] Since Baumol's model treats the extreme case where successful entry fully displaces the incumbent, presumably this conclusion too is limited.

[30] Price-matching has also been identified as softening competition among established airlines (why cut price when price cuts will be matched?). See Borenstein on airline tariffs (1999, and this volume). See also Edlin (2002, p. 971-3), the Supreme Court *Container* case, and Edlin [1997].

In *American*, the matching is neither evidence against the plaintiff's theory nor the centerpiece of it. But AA's price cuts to match the entrant's surely reinforced the capacity increases in discouraging entry. A vigorous response to entry (even involving sacrificially low prices) may well be efficient while an entrant is present, but if it shortens or postpones such competition, that effect should be accounted for also.

VII.   FUNDAMENTAL QUESTIONS NOT BROACHED IN THE CASE

Two other big questions were not raised explicitly in the *American* case, but are important behind the scenes. First, should the predation standard be the same for monopoly as for oligopoly? Second, should sacrifice be a *necessary* part of a predation test?

A. Monopoly is different

Should a court use the same standards to assess a claim that a monopolist (such as AA in some DFW routes) engaged in predation, as it should use to assess a claim that oligopolists (as in *Matsushita* or *Brooke Group*) did so? Probably not. Recoupment (in both senses) is easier for a monopoly, and encouraging entry (or even limit-pricing prior to entry) is socially more important. These points are consistent both with a Bayesian decision-theory approach to antitrust, and with a long sensible tradition of greater suspicion and/or stricter rules applied to monopolies.

Joskow and Klevorick (1979) frame the choice of predation policy as minimizing the sum of type-1 and type-2 errors, weighted by the harm that the errors cause. Relative to an ideal policy, any real-world policy will sometimes misdiagnose predatory conduct as procompetitive; one must conceptually calculate the frequency of this kind of error and multiply by the likely damages that result thereby. At the same time, any real-world

policy other than abandoning enforcement will sometimes misdiagnose legitimate competition as predatory; one must multiply the frequency of this kind of error by the damage it causes.[31] Adding the expected costs of the type 1 and type 2 errors gives a measure of how far the policy falls short of ideal; a better policy is one that falls short by less. The Supreme Court in *Brooke Group* implicitly endorses this decision-theory calculus as a sensible guide to a predation standard. For example, it thought that skepticism is generally appropriate if predation is rare,[32] and that an aggressive standard would condemn a lot of valuable competitive behavior: Without a sacrifice requirement we would be "courting intolerable risks of chilling legitimate price cutting."

Such reasoning suggests that monopoly cases of predation should be treated differently than oligopoly cases. Recoupment will typically be easier for a monopoly than for an oligopoly, as the Supreme Court observed in *Matsushita*: A monopoly has more to gain from excluding competition than do oligopolists.   Therefore, it is rational to be more suspicious of worrying business practices when done by a monopolist than when done by a firm with less market power.

B. Is Sacrifice Necessary for Monopolization?

Edlin (2002) observes that monopolies like American often have substantial advantages, which may help explain why they have survived previous entry. If a more efficient firm uses its advantages to provide good deals on a consistent basis, that's good for consumers, economic efficiency, and productive efficiency (though bad for competitors and for the generally discredited goal of low concentration *per se*). But

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[31] On both sides, one must account for behavior deterred as well as behavior that occurs and is examined.

sometimes an efficient firm may instead charge high prices and provide poor service as long as it faces little or no competition, and will offer good deals only if and when competition arises.

For a low-cost monopoly, offering such good deals post-entry that the entrant regrets entering, and perhaps exits, need not involve sacrifice. The monopoly may even maximize its short run profits while driving out entrants or at least making them regret entry. Even if doing so requires some sacrifice relative to maximum short-run profits, the monopoly may well pass less-demanding sacrifice tests, such as a route profit test. If entrants foresee this pattern, no entry will occur (and/or accidental entrants will exit), and the monopoly may always charge high prices and provide poor service, paradoxically because of its ability to do otherwise. This is very likely bad for consumers and may well be bad for overall efficiency (though not for productive efficiency), relative to an alternative in which the incumbent responds less vigorously to entry but entry happens, or in which the incumbent must limit-price.

If good offers can have anticompetitive consequences without sacrifice (let alone proof thereof), it is unclear why one should require proof of sacrifice in *all* predation cases: mightn't it be like requiring proof of broken windows in all burglary cases? Because of the Bayesian considerations above, and because the "high-with-threats-of-low" price pattern is much easier for a monopoly than for an oligopoly to implement and threaten, it would make more sense to relax the sacrifice requirement in monopoly cases

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[32] Hempill (2001) notes that the Court didn't say predation is unlikely, but said that the consensus view is that predation is unlikely. Bolton et al. (2000), following Klevorick (1993), argue that the consensus view has changed.

than in oligopoly ones. (But see Elhauge, 2002, who argues that such a relaxation would do more harm than good.)

Many commentators would worry about any change that would make it easier for predation plaintiffs to prevail. Indeed, we don't advocate weakening the sacrifice requirement in such a way as to open a floodgate of bad cases, occasioning the "intolerable risks of chilling legitimate price cutting," about which the *Brooke Group* Court worried. Avoiding such a flood might be a challenge, but challenges need not be impossible: shifting the focus from "sacrifice plus financial recoupment" to "exclusion plus grave harm to consumers and/or to efficiency" needn't make things easier for plaintiffs with weak cases, since it would focus attention on their relevant weakness, where it belongs, rather than on half-relevant weakness in proof of sacrifice.

VIII. CONCLUSIONS

The *American Airlines* case inevitably draws us into deep questions of policy. Normally, we want firms to make good offers to consumers, yet we worry when it seems that they are making good offers with suspect motives and bad effects. This position is not inconsistent, but it does raise difficult problems.

"Sacrifice" -- behavior that would be irrational without its exclusionary effect -- is logically neither necessary nor sufficient for harm to competition. It could yet be a useful test, but only because of some (still unexplored) empirical correlation, not as a matter of economic logic. So it's hardly surprising that there's so much unfocused disagreement about the right *version* of the sacrifice test.

DOJ adopted the "sacrifice" logic, and claimed that AA did sacrifice: After prices fell, it expanded service on certain routes in ways that lowered profits (as long as the

LCC entrants were present) in order to "get them out" and then increase its prices and profits again. The judge ruled that this was not what DOJ must show, because arguing that AA's actions "reduced its profits" constituted "an illegal profit maximization test" and did not compare price against the right measure of cost.

The judge held that DOJ should instead have compared AA's price against route-wide AVC, and that on that basis AA was not liable. As we saw, there are two possible reasons to compare price against AVC. The first reason is that AVC may be a proxy for marginal or incremental cost; yet in this case, DOJ argued that incremental cost exceeded route-wide AVC. Indeed, DOJ's test #4 suggested that price lay between average incremental cost and route-wide AVC, so that this approximation could reverse the result. The second reason is that AVC may be a proxy for avoidable cost, suggesting a sacrifice test relative to exit, and supposedly an efficiency motivation for a rule. This too seems inapposite here. There are also pitfalls in AVC's measurement, into some of which the district court may have fallen.

Encouragingly, all sides agreed that some legitimate complementarities—here, upline and downline contributions—should be taken into account. Yet deeper complementarities were little discussed. In particular, if (as American feared) the LCCs would have expanded if not deterred, route-level analysis may be incomplete in several ways. First, AA *could not* literally have stuck with the state of affairs that DOJ used as the benchmark against which to measure predation (the "post-entry, pre-predation" period).[33] Second, neither AA's nor an LCC's narrow *route*-level profits are central to their decisions: Both AA (very concretely) and potentially the LCC viewed the route as a

part of a system. Third, the overall effects *on competition* are also not limited to the

routes that the LCCs entered, nor to those where AA most vigorously responded. DOJ

stressed this in the context of "recoupment," but in principle *all* the analysis should take

into account the possible counterfactual in which the LCCs expand and gain hub

complementarities. None of this is helped by restricting the analysis to individual

antitrust markets, which are defined by demand substitutability, and should not be

elevated to universes of discourse.[34]

In the second conventional prong of a predation case, the district court focused on

"recoupment as reality check;" we suggest that in the recoupment inquiry courts should

pay more attention to showings of serious consumer harm or harm to economic

efficiency: "recoupment as harm." Even quantifying consumer harm might well have

been much easier for DOJ than trying to quantify how AA could profit by its behavior.

The reality check is inevitably rather inconclusive in this case, largely (we think) because

the main component of the possible anticompetitive gains is hard to quantify, although

American seems at the time to have thought it large.

American also won on a price-matching defense. As with sacrifice, the discussion

of such a defense has not been well grounded in economics. Again, the appeals court has

a tough task.

Because DOJ challenged AA's increase in capacity rather than just its prices, the

case also raises the question of whether the proper benchmark for sacrifice might be

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[33] Might American thus argue that a sacrifice comparison should take account of this? No: that would be
the Actual Sacrifice Fallacy. Sacrifice comparisons ignore effects of actions on future competition.
[34] American's choice to enter DFW-LGB (Long Beach) in competition with SunJet brings this point out
sharply: If it were right to analyze everything route-by-route, it would be odd for American to enter LGB or
for DOJ to claim that American aimed to monopolize a market it had spurned before SunJet served it.

different (and perhaps more favorable to plaintiffs) in predation cases that are not purely about price. The government's arguments that a sacrifice determination requires comparing incremental revenues with incremental costs make excellent logical sense in a quality or capacity case – and seem to apply equally well in a pricing case. Common sense and the rationales in *Brooke Group* suggest that if one is going to compare price (average revenue) with "an appropriate measure of cost," the cost measures could include consequent changes in average revenue (pecuniary costs) from the conduct in question. This reasoning leads to the Government standard.

Finally, we argued that the "balancing" or Bayesian approach to policy suggests, among other things, being open to using different tests for allegations of monopoly predation than for oligopoly predation.

The questions raised by the American case should not be answered by slogan and dictum, but by considering long-term effects on competition. If an incumbent is *permanently* making a good offer, that's great—perhaps even if the offer is below cost, although that may be unlikely. If an incumbent is *strategically* making (or threatening to make) limited good offers with the purpose and effect of stifling competition— competition that would give consumers more in the long run and/or enhance efficiency— that's bad. Telling the difference will often be very hard, but merely saying that we want incumbents to make good offers—or saying that we don't want them making *very* good offers—misses the point.

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X. CASES

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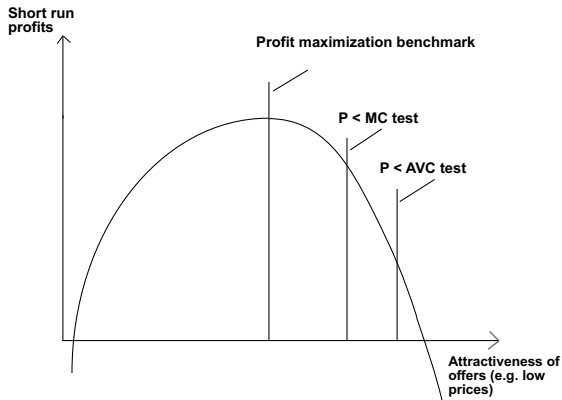*Matsushita Electric Industrial Co., v. Zenith Radio* (1986) 106 S. Ct. 1348-1367.

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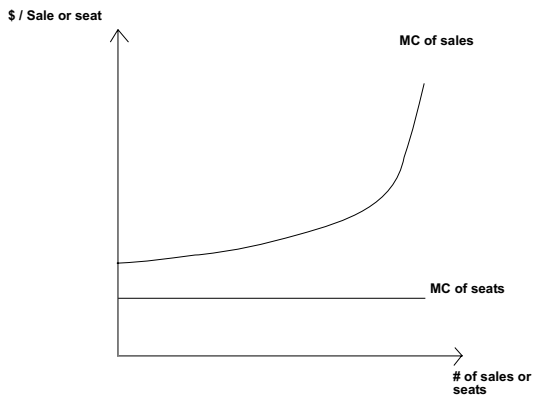*United States of America v. AMR Corporation, American Airlines, Inc., and American*

Eagle Holding Corporation. 140 F. Supp. 2d 1141 (2001).

Figure 1

Caption: A "P<MC" test is more lenient to an alleged predator than a profit maximization (MR<MC) test because P>MR. If MC exceeds AVC, then a "P<AVC" test is more lenient still.

Figure 2

Caption: The figure depicts the MC of sales in comparison to the MC of seats. The MC of sales lies above the marginal cost of seats because flights have load factors less than 1. The MC of sales is upward sloping if load factors decline as the firm increases sales.