Predatory Pricing in the U.S. Airline Industry: The American Airlines Case

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What is Predation?

- Conceptually actions that:
  1. Sacrifice short term profit (Investment)
  2. With the intent of causing the exit of a rival
  3. In order to earn monopoly profits after exit (Return)

- In practice, a predation case requires meeting the standards of *Brooke Group v. Brown and Williamson Tobacco*
  1. Showing prices/revenues are below a ”relevant” measure of cost over some range of output (a big enough investment was made)
     - e.g. Marginal/Incremental, Average, Avoidable
  2. A plausible theory of ”recoupment”. How the return on the investment is to be made through
     - e.g. If entry/reentry is easy it’s unlikely that monopoly profits will persist
     - e.g. If there are a lot of firms it’s unlikely that one firm’s actions can cause the exit of another.
The State of Predation in Antitrust

In practice predation doesn’t exist as an antitrust violation.
There hasn’t been a case won in 20 years
Arguments are met with extreme skepticism
Two reasons:

1. Fear that punishing firms for competing too aggressively will "chill the very conduct antitrust laws were designed to encourage". Compounded by
2. Bad-Poorly Understood-Ill-Suited Tools for distinguishing predatory conduct
Complaints of predation are frequent in the industry

Over 30 complaints filed between 1995 and 2000

Typical Scenario
1. Small, low cost, carrier enters a market dominated by large hub carrier
2. Incumbent responds with large fare cuts and dramatic increases in capacity

Expectation of aggressive response plays a large role in low cost entry strategies

Small low cost carrier Access Air followed the rules:

Stay off elephant paths. Don’t eat elephant food. Keep the elephants more worried about each other than they are about you.
In May of 2000 the Department of Justice sued American for predatory pricing.

Case emphasized aggressive price *and* capacity response to entry of low cost rivals at its Dallas Fort-Worth "fortress" hub.

The markets and firms in question.
1. Dallas to Long Beach (Sunjet)
2. Dallas to Colorado Springs (Western Pacific)
3. Dallas to Kansas City (Vanguard)
4. Dallas to Wichita (Vanguard)
American Price and Capacity Responses to Entry
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American One Way Prices Dallas-Wichita
American Capacity Dallas-Wichita
The American Case

- The case was dismissed despite considerable qualitative evidence
  
  “If you are not going to get [the low cost rivals] out tomorrow there is no point to diminish profit today” - American CEO Robert Crandall

- DOJ argued that the costs of moving aircraft in and out of markets was pivotal

- Courts did not buy it and dismissed the case on summary judgement on the grounds Justice could not demonstrate pricing below cost.
The court had both practical and theoretical issues with the DOJ’s argument

1. Didn’t understand why capacity wasn’t the same as quantity and thus just the flip side of price
2. The DoJ used American’s sophisticated internal accounting as its cost measure. Court didn’t like it

Both of these are common issues in predation cases

In this case the court seemed to conflate the two
Why did the Justice Department emphasize the capacity behavior of American?

Adding seats/planes to a route has 3 effects

1. Increases frequency so there are more products for consumers to choose from (so you’re more likely to find a flight you like)
2. Decreases the economic marginal cost - If planes are less crowded selling a ticket to a passenger is less likely to crowd out a high value customer (that tend to purchase late)
3. Increases economic fixed cost - You have to pay the lease payment for the plane

Let’s focus on the second one and assume American and a low cost rival sell a single homogenous products

Two big differences between American and a low cost firm:

1. American has a huge fleet of planes and can adjust capacity on a route quickly, the low cost carrier can not
2. American has a huge route network out of its hub so exiting a route is very costly, i.e. more of its costs are sunk than a lcc
Suppose American and Vanguard compete for passengers from Dallas to Wichita for 2 periods.

(Inverse) Demand in each period is given by:

\[ P = 1000 - 20(Q_1 + Q_2) \]

Both firms choose the number of passengers in each period.

Both firms start the first period with 1000 seats.
American can increase its capacity from 1000 to 2000 seats in the first period and from 1000 to 2000 seats or vice versa in the second period.

- Marginal costs are constant (in $Q_i$) but depend on capacity:
  \[ c_A(1000) = c_V(1000) = 25 > c_A(2000) = 10 \]

- Each unit of capacity costs $1 of fixed costs so if you have 1000 seats your fixed costs are $1000.

- Going from 1000 to 2000 seats costs you \( Z \) and you get nothing back going from 2000 to 1000.

At the end of the first period Vanguard can exit, selling off its planes for \( K \).
Timing of the Game

Start of period 1

- American chooses
- Whether or not to pay \( Z \)
- And go to \( S_H \)

Start of period 2

- The Firms compete by simultaneously choosing quantities
- Vanguard decides whether to stay or exit and get \( K \)

American chooses to change capacity or not

The Firms compete by simultaneously choosing quantities
Subgame Perfect Nash Equilibrium

- As usual we can find the SPNE by backward induction

- First things first: We can simplify this game

- Notice in each of the periods when the firms choose prices, their decisions don’t have any effect on the other period
  - This is obviously true in the second period
  - This means the firms simply play Cournot (except the marginal costs depend on capacities)
Recall that the Cournot Solution gives

\[ q_A = \frac{1000 - 2 \times c_A(seats_A) + 25}{3 \times 20} \]

\[ q_V = \frac{1000 - 2 \times 25 + c_A(seats_A)}{3 \times 20} \]

\[ P = \frac{A + 25 + c_A(seats_A)}{3} \]

Where \( c_A(1000) = 25, c_A(2000) = 10 \)

Total profits are the standard Cournot profits minus fixed costs and capacity adjustment costs for American and plus Exit payment for Vanguard

If Vanguard is out of the market then American makes monopoly profits

We can now draw the game
American’s Payoff is listed first and Vanguard’s second.
If $K$ is big enough Vanguard will always exit and American will never add capacity
If $K$ is too small Vanguard will never exit and American will never add capacity.
If $Z$ is too large then adding capacity is too expensive for American. Supposing $K$ is Moderate Vanguard will always stay.
If Z is too small, then American can’t commit to keeping capacity on the route. If Vanguard decides to stay. Since it’s not a credible threat, American will not add capacity and Vanguard won’t exit (Assuming K is not too big).
If $Z$ is moderate: Large enough to make leaving the capacity on the route but not too large to make the investment infeasible, then American can add capacity and Scare Vanguard off. After Vanguard leaves American removes the capacity
Vanguard’s level of commitment to the market \((K)\) and the cost of adding capacity play an important role in the recoupment and relevant cost arguments.

If most of Vanguard’s costs are sunk \((\text{low } K)\) then there would be little hope of getting them out:
- e.g. What if we saw American behaving like this against another big hub carrier?

If adding capacity was too cheap \((\text{Low } Z)\), American could not make a credible threat to keep the capacity after Vanguard decides to exit.
- If adding capacity is too expensive we would think a predatory strategy is too expensive to be plausible.
- Is capacity simply the analogue of quantity/price?
Predatory pricing often requires complicated reasoning
Measurement of cost is a problem for applying the standards
All compounded by the natural quesiness associated with punishing firms for competing too much