Antitrust as an Interdisciplinary Field: Evolution or Revolution?

Philip B. Nelson
Principal, Economists Incorporated

(June 11, 2013)

What I mean when I refer to “interdisciplinary” or “behavioral” analysis in today’s talk?

- “Interdisciplinary” simply means that economics draws on findings in other disciplines.
- “Behavioral economics,” which is a type of interdisciplinary economic analysis, is sometimes described in ways that focus on findings that are contrary to “rational” decision making (attributable to psychological biases and bounded rationality).
- I have in mind a more inclusive definition when I refer to Behavioral Economics.

What I mean when I refer to "interdisciplinary" or "behavioral" analysis in today's talk?

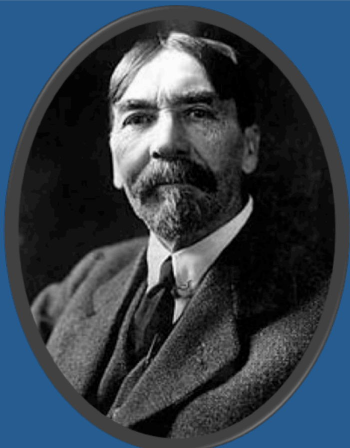
- I use the term "Behavioral Economics" to include economic models (which may be premised on maximization or satisficing behavior) that reflect institutional complexities such as incomplete information, search costs, recognition of transaction costs, and diversity of interest among firm constituents that are likely to shape the behavior of market actors. (See Richard Cyert and James March, A BEHAVIORAL THEORY OF THE FIRM (1963). See also my Ph.D. dissertation / 1981 book CORPORATIONS IN CRISIS: BEHAVIORAL OBSERVATIONS FOR BANKRUPTCY POLICY.)
- Does this mean that "we were all behavioral economists all along"? (See e.g., Josh Wright, *Nudging Antitrust? Commissioner Rosch's Weak Case for "Behavioral Antitrust" (Part 1)* available at http://truthonthemarket.com/2010/07/12/nudging-antitrust-commissioner-roschs-weak-case-for-behavioral-antitrust-part-1/))
- Consider historical disputes over the implications of the more sophisticated modeling and the evolution in economic literature.

Opening Exercise

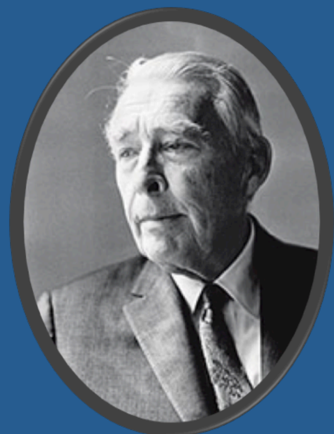
$100 Will Go To The Highest Bidder

- Rule: Bids should be secret. Please don't discuss your bid with others.
- Bids can be anywhere from a penny to over $100.
- The winning bidder will be given or pay the difference between their bid and $100.
- Instructions:
  - You have 3 minutes. Please take one of the forms on your table and fill out your bid for the $100 bill. You will find some pens on your table in case you didn't bring one to lunch.
  - Fold your bid and hand it to one person at your table so we can collect your table's bids quickly.

Interdisciplinary Influences On Economics Go Beyond Experimental Economics

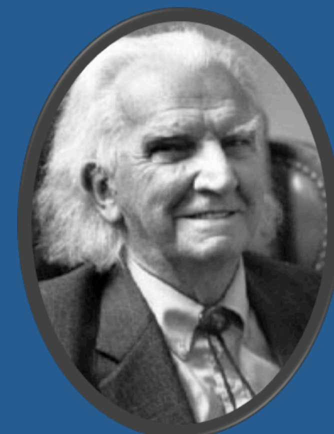


Thorstein Veblen



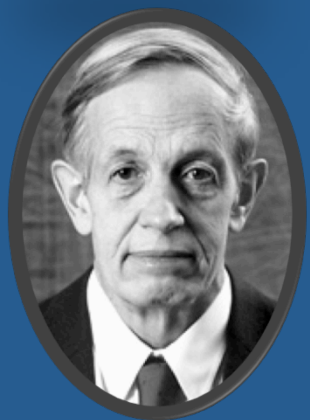
Adolf Berle

Gardiner Means



Kenneth Boulding

Paul Samuelson



John Nash

Herbert Simon

Daniel Kahneman

Interdisciplinary Influences on Antitrust: Evolutionary Not Revolutionary

- The fact that findings in psychology, sociology, political science, and marketing can provide insights into market processes that are relevant to economic analysis is not new.
- More debate over what interdisciplinary analysis brings to antitrust law.
  - "Is there a single instance in which behavioral economics has been shown to offer a clear and testable prediction about firm behavior that deviates from conventional theory predictions," depending on how one defines "convention theory predictions." (See e.g., Josh Wright, *Nudging Antitrust (Part 2): Do Critiques of Behavioral Antitrust Have Any Bite?* available at http://truthonthemarket.com/2010/07/14/nudging-antitrust-part-2-do-critiques-of-behavioral-antitrust-have-any-bite)

The FTC's "Coffee Case" Illustrates Interdisciplinary/ Behavioral Approach Applied In Antitrust Case

(In The Matter of General Foods Corp., 103 F.T.C. 204 (1984))

Overview

- Due to an FTC order related to P&G's purchase of the Folgers' business, Folgers was prevented from selling coffee in the eastern U.S. for a period of time.
- In the late 1970s, Folgers rolled out into the east through a series of incremental entries, starting in Cleveland.
- General Foods responded to this entry. The FTC challenged General Foods' pricing and promotional conduct that was directed at Procter & Gamble's expansion.
- The FTC Staff not only alleged pricing below costs, but also alleged other strategic responses (such as the use of a "fighting brand" and signaling) that were thought to slow or deflect Folgers' entry.

Rationality of Behavior

- Thought to be rational for two reasons:
  - Protect a strategic advantage that it had because of its leadership position in eastern markets.
  - Disrupt/Slow Folgers' expansion so that General Foods could sustain its high profits in other eastern markets for a longer period of time.

The FTC Staff's Theory Drew On Marketing Literature

- Behavioral Theory: Economically significant product differentiation can be and was present at the wholesale level because of retailer preferences based on consumer search processes based on "bounded rationality."
  - Because consumers use the pricing of the leading coffee brand (along with other frequently purchased items) to assess the competitiveness of different grocery stores, retailers had an incentive to lower their markup on the leading coffee brand relative to other brands. In particular, this "loss leader" type strategy was profitable because it increased store traffic and led to increased sales of other products.
- Moreover, it was thought that there were sufficient market frictions that a market leader would find it profitable to undertake strategies designed to deflect entry and/or slow entry, even if it did not completely block entry ("mobility barriers").

Agreement On Favored Treatment of Leading Brand By Retailers

- Marketing Literature supported FTC "specialing theory." (See e.g., Robert L. Steiner, *The Inverse Association Between the Margins of Manufacturers and Retailers* 8 Review of Industrial Organization 717 (1993) and Robert L. Steiner, *The Third Relevant Market*, 45 Antitrust Bulletin 719 (2000).)
- Record evidence and Full Commission confirmed:
  - "For example, one of complaint counsel's **retailer witnesses testified that** at the time of Folgers' expansion, **RMH [Regular Maxwell House] was a more valuable item to him** than either Hills or Chase & Sanborn because of its 'greater customer acceptance, which he attributed to Maxwell House's superior 'quality and promotion against the ultimate consumer.''" (General Foods Decision at 363)
  - "The **record also contains many examples of the disproportionate use of the leading coffee brand as a loss leader** . . ." (General Foods Decision at 362) "In short, the **proximate source of superior profits for leading regular coffee brands in an area was their exceptional ability to generate store traffic** when sold at a discount from normal retailer profit margins." (Ibid)
  - "For these features, **retailers were willing to pay a premium to Maxwell House** (or other leading brands). But it was not passed on to the coffee consumer." (General Foods at 364)

FTC Theory Also Reflected In Firm Strategy Literature

Step 3. *Firm n's Actions at Stage n.* In view of these computations, if $x > x_n$, then entrant n will in equilibrium correctly regard a predatory response as certain. If $x = -\infty$, entry will be correctly anticipated to meet a nonaggressive response. In general, we have

$$
\begin{aligned}
p_n(x) &= \text{the probability in equilibrium that firm 0 will prey at stage } n \text{ with reputation } x\text{, given that } \tau_0 \geqslant x \\
&= \text{the probability assessed by entrant } n \text{ that, given the reputation } x\text{, firm 0 will prey at stage } n \\
&= \begin{cases} \dfrac{\varepsilon + [1 - (x \vee x_n)]}{\varepsilon + (1 - x)} & \text{if } x \geqslant 0 \\ 0 & \text{if } x = -\infty \\ \dfrac{[\varepsilon + (1 - x_n)]}{[1 + \varepsilon + \delta]} & \text{if } x = -1. \end{cases}
\end{aligned}
$$

The entrant's best response at n is then to enter if and only if

$$p_n(x) \cdot 0 + (1 - p_n(x)) \cdot 1 \geqslant \beta(t_n),$$

i.e., if and only if

$$t_n \leqslant \beta^{-1}(1 - p_n(x)) \equiv q_n(x).$$

Then $q_n(x)$ is precisely the probability that n enters at stage n when firm 0's reputation is x.

These strategies are clearly optimal responses to firm 0's strategy.

Source: Paul Milgrom and John Roberts, *Predation, Reputation, and Entry Deterrence*, 27 JOURNAL OF ECONOMIC THEORY 280 (1982).

Evolution of Strategic/Marketing Literature Reflected In I.O. Textbooks

- Scherer 1st edition (1971): "the reduction of price temporarily, perhaps even below cost, to discipline rivals and teach them that cooperation pays." (F. M. Scherer, INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE (1971) at 277)
- Scherer 2nd edition (1980):
  - Discusses "demonstration effect that sharp price cutting in one market can have on the behavior of actual or would-be rivals in other markets." (F. M. Scherer, INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE (1980) at 338)
  - Describes the Coffee Case as an example of where this might have occurred.
- Scherer's 3rd: edition (1990): Provides a more technical discussion of "rational entry deterrence" that reflects the evolution in game theoretic modeling of business strategies. (F. M. Scherer and David Ross, INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE (1990) at 380-410)
- Carlton & Perloff (2005): "More recent models of predatory behavior explain that differences in firms' beliefs about their rivals can result in successful predation." (Dennis Carlton and Jeffrey Perloff, MODERN INDUSTRIAL ORGANIZATION (2005) at 356)

Would The Outcome Of The Coffee Case Been Any Different Today?

- Both economics and antitrust law have evolved since the early 1980s. Could this lead to a different outcome?
- Let's consider this by first reviewing some of the evidence in the *Coffee Case* and then considering this evidence in the light of more recent antitrust cases and policy (Merger Guidelines analysis).

Key Evidence In Coffee Case

- General Foods documents:
  - Planning documents provided direct insights into market structure
  - Planning documents provided insights into intent, and thus General Foods understanding of market structure
- Statistical analysis confirmed much of the discussion in the General Foods documents

Hot Documents: Predatory Intent

- Statements Describing Intent Of Strategy:
  - "Delay Folger expansion" (CPF 3-142)
  - "Force them [Folger] to carefully consider the financial wisdom of further eastern expansion." (CPF 3-163)
  - Western offensive was likened to "Bombing Hanoi" (CPF 5-10) and an "eye-for-eye" strategy. (CPF 5-11)
  - "Provide the dominance necessary to exert leverage, hold dealing down, restore long-term profitability." (CPF 3-114)

Hot Documents: Predatory Intent

- General Foods' Simulation Study Showing Sales Below Cost Increase Future Profits/ Prices (RX 518):
  - Showed General Foods considered alternative responses, some involving below cost sales
  - Showed the strategy of selling below cost was more profitable in the long run.
  - Showed that higher long-run profits were due to higher prices and lower advertising levels

Hot Documents: Regional Markets

- General statements about pricing strategy: "RMH [Regular Maxwell House] uses case rates [trade deals] tailored to each market to achieve parity shelf pricing." (CPF 10-19)

- Trade Dealing Principles (CPF 11-42) :
  a) If the competitive share is less than 30 percent of Maxwell House's share, the competitor is not a significant factor;
  b) If the competitive share is between 30 to 50 percent of Maxwell House's share (less than 3-1), Maxwell House's shelf pricing objective is to be within 10 cents per pound higher than the competitor;
  c) If the competitive share is between 50 and 70 percent of Maxwell House's share (less than 2-1), Maxwell House's shelf pricing objective is to deal to be within the same decile;
  d) If the competitive share is greater than 70 percent (less than 1.5-1), Maxwell House's shelf pricing objective is to deal for absolute parity.

RMH PRICE LEVELS OVER TIME

- SOLD BELOW COST OF UNROASTED GREEN BEANS: In February/March 1974, RMH price (List price less trade deals and retailer coupons, but excluding consumer coupons) in Pittsburgh averaged $2.095 per three pound can of coffee. The cost of the unroasted green beans in a three pound of coffee at that time was $2.10. (CPF-1-16)
- Time series prices were reported, showing how prices fell in regional markets, such as Youngstown, during the alleged predatory period (while they were maintained in other areas). Also, prices were restored at the end of the alleged predatory period.

Statistical Relationships

$$
\begin{aligned}
PRICE = a_0 &+ a_1 AD/S + a_2 RELSHARE \\
&+ a_3 HERF + a_4 RIVAL \\
&+ a_5 MARKETAD/S + a_6 RETAILC4 \\
&+ a_7 GREENBEAN.
\end{aligned}
$$

$$
\begin{aligned}
AD/S = b_0 &+ b_1 PRICE + b_2 MARKETAD/S \\
&+ b_3 MH1MARKAD/S + b_4 HERF \\
&+ b_5 RIVAL + b_6 ADCOST.
\end{aligned}
$$

Source: Philip Nelson, John Siegfried, and John Howell, *A Simultaneous Equations Model of Coffee Brand Pricing and Advertising*, 74 THE REVIEW OF ECONOMICS AND STATISTICS 54 (1992).

Why did Staff Lose?

- The Commission concluded that there was no ability to raise consumer prices.
- This conclusion was based largely on a conclusion that General Foods lacked the market power necessary for the strategy to raise prices at the consumer level. [No "Dangerous Probability of Success"]
- A commentator remarked: "General Foods was **doomed from the beginning because the majority could not agree with the staff's market delineation**." (David Roll, *Bread and Coffee—The FTC's Primer on Predatory Pricing*, 53 ANTITRUST LAW JOURNAL 875 (1984) at 876.)

Market Definition

- FTC Staff argued for regional geographic markets. ALJ and Commission found broader markets.
  - ALJ: "After considering all of the expert testimony on this point, I have come to the conclusion that the **Elzinga-Hogarty test describes more accurately** than any other fact or set of facts relied upon by complaint counsel's expert witnesses the primary forces which determine **the relevant geographic market for regular coffee**." (*General Foods Decision* at 234)
  - Commission: "In conclusion, virtually every characteristic of the market for ground roast coffee contradicts complaint counsel's contention that barriers to entry exist in the eastern sales districts of RMH. The **low cost of transportation put every area in the country within the economic reach of a single production plant**. ***Price disparities between areas prompted the transshipment of coffee from discounted regions to premium-priced locations***. Two major brands, Folgers and Hills Bros., successfully entered each of the areas in which attempted monopolization is alleged. Folgers became established in some areas with minimal promotional support. Regional roasters and supermarket chains also entered some areas and successfully expanded their shares of sales in others. Thus, **the evidence upon which we typically rely to define relevant markets indicates that those markets are larger than complaint counsel claim they are**." (*General Foods Decision* at 356)

What might be different today?

- Market definition analysis is more sophisticated. In particular, while evaluation of shipment patterns and transportation costs is still important, cases tend to look more at pricing patterns to define geographic markets under SSNIP analysis found in Merger Guidelines.
- Market definition in Staples/Office Depot Case is illustrative.

Staples/Office Depot and Coffee Case Employed Similar Economic Analysis

- In 1997, District Court adopted FTC position that the Staple/Office Depot merger should be analyzed in "regional, office super store markets."
- Based the following types of evidence:
  - Documentary evidence of retailer trade dealing principles that instructed the use of lower prices when there was another office super store in the area
  - Cross-Sectional/Regional variations in prices, with prices being lower where there were more office super stores
  - Time series variations in prices, with prices falling when there was entry by another office super store in the area
  - Econometric evidence confirming the above relationships

Is There Evidence of an Evolution in Antitrust Thinking That Reflects Interdisciplinary Learning?

- Evolution of Merger Guidelines
  - Evolution in Barriers to Entry from Stiglerian Barriers to "Timely, Likely, Sufficient" Entry Standard
  - Evolution of market definition exercise (with concept of looking at diversion rates)
  - Movement towards evaluating anticompetitive effects directly, rather than using market definition paradigm
- *Eastman Kodak Co. vs. Image Technical Services, Inc.* 504 U.S. 451 (1992).
  - Aftermarket parts case involving "life cycle" costing issues that depended on information consumers had at time purchases new copiers, consumer behavior, and switching costs.
- FTC's Investigation of Pharmaceutical Mergers (See Allan Shampine, *The Role of Behavioral Economics in Antitrust Analysis*, 27 ANTITRUST 65 (2013).)
  - FTC's 2001 investigation of Genzyme/Novazyme Transaction
    - Merging firms were only firms aggressively pursuing cure to Pompe Disease
    - Race since first firm to find cure would get 7 years of exclusivity under "Orphan Drug Act"
    - FTC look at "preferences" of new CEO of Novazyme to determine that continued high-paced effort would continue (CEO had two children that suffered from disease)
  - FTC 2006 investigation complaint against Ovation Pharmaceuticals acquisition of Indocin from Merck & Co.
    - Commissioners Rosch & Leibowitz argued that reputational concerns had restrained Merck's pricing and that this acquisition would lead to post-merger price increase because of removal of these reputational limitations because its product portfolio differed.

Increasing Cites To Behavioral Economics In Law Journals

Years	Number of BE appearances in text	Number of BE appearances in titles
1980-84	1	0
1985-89	14	0
1990-94	12	0
1995-99	103	9
2000-04	548	27
2005-09	917	26

Source: Douglas Ginsburg and Derek Moore, *The Future of Behavioral Economics in Antitrust Jurisprudence* 6 COMPETITION POLICY INTERNATIONAL 89, 94 (2010), using Westlaw search of American law journals.

Conclusion

- Multidisciplinary analysis, including "behavioral analysis," has long-standing and deep roots in economic thinking.
  - Concepts like "incomplete information," "search costs," and "reputational effects" effects are concepts that are now regularly recognized in economics teachings, including writings of some "Chicago" economists.
  - Analyses of "first-mover advantages" and other strategic relationships that are attributable to institutional characteristics of markets are now modeled and empirically estimated.
  - "Mobility Barriers" have entered into merger analysis in the form of the study of the ease of "repositioning," particularly when looking a unilateral effects theories in mergers involving differentiated products

Conclusion

- The issue is: <u>When</u> should the institutionally richer, multidisciplinary analysis be applied, <u>not whether</u> there are circumstances that could make it important to employ a richer institutional model.
- Given the current economics literature, the likely evolution of economic thinking, the fact that some antitrust cases and governmental guidelines have already relied on interdisciplinary analysis, and the way in which antitrust law changes, one would expect that antitrust law's increasing reliance on interdisciplinary analysis will continue to be "evolutionary," not "revolutionary." Moreover, the trend will not be reversed.

Award $100 to Winning Bidder

What was the point of this exercise?

- Economists have been performing behavioral studies of competition and consumer behavior for decades.
  - Experiment done in 1973-1974 in economics class.
  - Edward Chamberlin was discussing experiments in 1948. (Edward Chamberlin, *An Experimental Imperfect Market*, 56 THE JOURNAL OF POLITICAL ECONOMY 95 (1948).
  - Vernon Smith (who won the Nobel Prize in 2002) lab experiments starting in late 1950s.
- **Experimental studies of market behavior that draw on different social science literatures have a long and distinguished history in economics.**

Discussion