Review
Reviewed Work(s): New Developments in The Analysis of Market Structure: Proceedings of a Conference Held by The International Economic Association in Ottawa, Canada. by Joseph E. Stiglitz and G. Frank Mathewson
Review by: Marius Schwartz
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current concerns over the quality and reliability of airline service. Similarly, although Morrison and Winston briefly note that airline safety statistics show no signs of deterioration under deregulation, a more thorough treatment of airline safety would have been helpful to sort out the wheat from the chaff in this heated public discussion.

Morrison and Winston also estimate the effects of deregulation on the airlines and their employees. They conclude that the added flexibility accompanying deregulation allowed airlines to more efficiently adjust to sharp increases in fuel prices. Airlines were thus able to save approximately $2 billion (p. 40). No changes in overall wage rates were detected in their analysis, probably because in 1983 it was still too early to see the full effect of the notable changes in work rules and wages occurring in the early 1980s.

In sum, Morrison and Winston provide a careful assessment of the effects of airline deregulation through 1983, and find that the initial results confirm that airline deregulation significantly benefited the traveling public. As a retrospective assessment of deregulation, their study does not address in depth the ongoing problems and issues currently facing the industry and public policy makers. Nevertheless, this study is of more than historical interest: it serves as an important reminder of what deregulation has accomplished, providing a needed perspective on the public debate over the future course of air transportation policy.

DAVID R. GRAHAM
Institute for Defense Analyses

New developments in the analysis of market structure: Proceedings of a conference held by the International Economic Association in Ottawa, Canada. Edited by JOSEPH E. STIGLITZ AND G. FRANK MATHEWSON. Cambridge, MA: MIT Press, London: Macmillan Press, 1986. Pp. xxiv, 559. $37.50, cloth; $13.50, paper. ISBN 0-262-19241-1.

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Theoretical industrial organization has been a lively field these past fifteen years. This is vividly illustrated in the above volume, containing the proceedings of a conference held by the International Economic Association in Ottawa, Canada in May 1982. After an insightful introduction and overview by Joseph E. Stiglitz, there are seventeen papers each followed by a discussion that adds useful perspective. The conference's purpose was to survey broad developments and the papers generally are faithful to this goal. Consequently, the volume has not become dated. With a few exceptions, primarily concerning work on asymmetric information, it offers a representative sample of the issues addressed and the types of models employed in modern industrial organization. It also brings out the unsettled state of affairs.

Entry deterrence issues figure prominently in the papers by G. C. Archibald, B. C. Eaton and R. G. Lipsey; David Encaoua, Paul Geroski and Alexis Jacquemin; W. J. Baumol, J. C. Panzar and R. D. Willig; Richard Gilbert, and Partha Dasgupta. A monopolist's *incentive* to deter entry is clear. (The case of noncooperative oligopolists is trickier, raising issues of possible free-riding on deterrence activities, and has received attention only recently.) Assuming no diseconomies of firm size, a standard assumption in this literature, the incumbent monopolist could collect for itself whatever profit the entrant stood to earn—by replicating what the entrant would have done. In general, it can do even better by internalizing any externalities. For example, it could add the same plant but produce a lower output. Gilbert's paper lucidly illustrates the incentive to deter.

The *ability* to deter is more delicate. The incumbent would act as an unconstrained monopolist if it could deter entry by threatening a hostile response, e.g., by hiring "crazy" managers. Most authors assume that such hostile threats cannot be made credible. How entry threat affects the equilibrium is sensitive to the particular post-entry interaction assumed.

Contestability theory, presented in Baumol, Panzar and Willig's paper, postulates that an entrant can undercut the incumbent's initial price and capture the entire market before the incumbent can reduce price. Moreover, this hit phase heavily influences the profitability of entering. This is because the incumbent's price response is sluggish or because sunk costs are low, enabling the entrant to hit-and-run. To deter entry, the incumbent must keep price low.

Assuming nontrivial sunk costs and rapid price responses, the profitability of entry will be governed primarily by the equilibrium oligopoly interaction, not by a hit phase. Correspondingly, rather than focusing on price, entry deterrence will largely involve "preemptive investments"—actions that irreversibly alter cost or demand conditions in a way that makes the incumbent a tougher competitor given the assumed post-entry interaction. For example, the incumbent could reduce its marginal cost by investing in physical capital (e.g., Dixit 1980) or in R & D. Encaoua, Geroski and Jacquemin's paper provides a wide-ranging survey of the preemption literature.

A common finding in this literature is that the profitability of preemption increases with the degree of scale economies; without scale economies there would be unlimited entry, eliminating all profit. Also crucial are sunk costs, since preemptive investments provide commitment only if they are irreversible.

Most authors recognize that preemptive investments may not deter entry completely, because of the wide variety of possible post-entry interactions. For instance, as Archibald, Eaton and Lipsey, and Gilbert note, under Cournot interaction entry can be rational even if the incumbent has zero cost because the incumbent would not supply a prohibitive output in Cournot duopoly. An idea receiving increased scrutiny is the use of organizational structure to stiffen a firm's strategic posture, e.g., by rewarding managers partly according to sales or market share (Fershtman 1985) or by establishing competing divisions like General Motors (Schwartz and Thompson 1986).

There is little consensus on the empirical importance of preemptive investment. The prospective return depends on the degree of scale economies. The ability to alter marginal costs strategically depends on the underlying technology. And the irreversibility of one's investment (hence its commitment value) depends on the capital's durability and on the extent to which it is specific to the firm. Assessment of these factors is highly subjective. Encaoua, Geroski and Jacquemin conclude that preemption is likely and that dominant firms will remain so. Archibald, Eaton and Lipsey concur. Their paper advocates a spatial approach to monopolistic competition. Spatial models increase the scope for preemption relative to homogeneous-good models by shrinking the size of the market, thereby magnifying the relative importance of any scale economies, and by allowing early entrants to occupy less crowded locations. In contrast, Gilbert concludes that scope for preemption is rather limited unless incumbents can commit to aggressive responses to entry.

An important difficulty with preemption is noted by Dasgupta (see also Gilbert and Newbery 1982). While it always pays a monopolist to outbid and entrant for a single patent (by the mimicking argument earlier) it will not pay to outbid for many (say identical) patents, because buying them all requires paying for each the profit an entrant would earn as a duopolist. This distinction between a "single entry key" and "multiple entry keys" is often unappreciated.

Several discussants criticized the entire strategic competition literature for typically yielding ambiguous welfare implications. An important reason for the ambiguity is the tradeoff between more competitive pricing and duplication of fixed costs. Michael Spence's paper explores this same tradeoff in a model where firms can reduce marginal cost by investing in R & D. He concludes from simulations that competition in R & D reduces welfare by generating substantial wasteful duplication.

In contrast, Joseph Stiglitz' paper argues that competition in R & D may be desirable. Such competition enables firms to design internal reward structures that utilize information about relative performance. This achieves a better balance between risk, incentives, and flexibility and the benefits can offset the loss from duplication. Stiglitz sees this improved incentive structure as the primary advantage of competition over monopoly in promoting innovation.

Reinhard Selten's paper also applies organizational slack to advocate competition, albeit through a different channel. Selten considers a linear Cournot model with fixed costs and assumes that any profits would be eliminated by organizational slack that increases marginal cost. Under this admittedly extreme assumption, he elegantly shows that entry always increases welfare whereas it typically would reduce welfare in this model in the absence of slack (by duplicating fixed costs).

The papers by Oliver Williamson and by Frank Mathewson and Ralph Winter focus on vertical (i.e., buyer-seller) relations. Like the entry deterrence literature, Williamson focuses on the importance of sunk costs. He argues that capital is often specific to a particular transaction and that this specificity gives rise to bargaining over quasi-rents ex post ("opportunism") even if conditions are competitive ex ante. He argues that many vertical practices viewed suspiciously in traditional antitrust, e.g., reciprocal dealing and complete integration, are aimed at reducing such wasteful bargaining.

Mathewson and Winter begin with a lucid summary of prevailing economic and legal arguments regarding vertical control. They then sketch a model of a monopolist selling to spatially-differentiated retailers who in turn provide information to consumers. There are several externalities: a dealer's pricing and information provision affect the profits of both other dealers and the manufacturer. Mathewson and Winter show how vertical restraints such as resale price maintenance and territorial allocations can be used to internalize these externalities and duplicate the integration solution. For particular functional forms, they find that consumer surplus and overall welfare are typically increased by vertical control. This welfare exercise usefully complements their 1984 paper, where the model is presented in more detail.

While Williamson and Mathewson and Winter argue that suspicious-looking practices may be benign, Steven Salop's paper considers the reverse. He argues that price-protection policies ostensibly intended to help buyers, such as a most-favored-customer clause (MFCC) and a meeting-competition clause (MCC), can facilitate collusion among sellers by reducing the gains from price cutting. The role of an MCC is clear, since it assures rivals that their price cuts will be rapidly matched. An MFCC, however, raises a firm's cost of matching rivals' price cuts, since any current price reduction must also be granted to past buyers. If both firms adopt MFCC's collusion obviously is cemented, but there would seem to be a hold-out problem. Surprisingly, Cooper (1986) has shown that in a differentiated-products duopoly a firm can increase its profits even if it alone adopts an MFCC. Such adoption induces higher prices by both firms and, although the nonadopting rival undercuts the adopter, both firms benefit. (It remains true, however, that each firm prefers the other to adopt an MFCC.) These collusion arguments are noteworthy. But since price-protection clauses are also observed in unconcentrated markets, alternative explanations also should be explored, e.g., those involving reducing consumers' search costs.

Two excellent surveys of issues in nonprice competition are offered by Richard Schmalensee and Partha Dasgupta. Schmalensee considers advertising and reviews work on both the positive and welfare questions. He concludes pessimistically that further theoretical work is not likely to contribute to the formation of policy. Dasgupta examines technological competition. He presents some stylized facts about R & D to motivate the choice of models and proceeds to classify and analyze models of R & D competition according to whether payoffs are continuous (as in Spence's paper) or discontinuous ("winner take all"). A number of issues are addressed, including the gains from imitation and from preemption. The discussion is careful and elegant.

This collection should prove stimulating to most microeconomists. It reflects both the strengths and weaknesses of industrial organization today. Considerable theoretical progress has been made; models have been developed to rationalize numerous hitherto puzzling practices and to provide more rigorous analysis of old questions. For shaping policy the prognosis is less encouraging. A cynic might quip that our confusion is now more sophisticated (echoing Woody Allen's (?) definition of success as "striking out with a higher class of women"). The open challenge is to identify what factors are of first-order importance and use this to guide future work.

MARIUS SCHWARTZ
Georgetown University, and
U.S. Department of Justice

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The economics of telecommunications: Theory and policy. By JOHN T. WENDERS. Cambridge, MA: Harper and Row, Ballinger, 1987. Pp. x, 284. $34.95. ISBN 0–88730–119–3. *JEL 87–0881*

This book is an economic analysis of policy issues in the telecommunications industry, drawn primarily from Wenders' work as a consultant, teacher and seminar speaker. It deals with a broad range of issues that have arisen as the telecommunications industry has been transformed through the divestiture of AT&T, emerging competition, and regulatory changes. Particular emphasis is given to controversies associated with the Federal Communications Commission's efforts to reduce the recovery of fixed local exchange costs through usage sensitive long distance charges.

The first half of the book is a careful development of relevant economic theory in a readable nontechnical manner. The material is presented with extensive use of diagrams and clear explanations in the style of a good textbook. It is at a level suitable for undergraduates who have taken a principles course. The professional economist will find nothing new in this section, but should be impressed by the skill with which Wenders has translated the extensive formal literature on telephone externalities, Ramsey pricing, and telephone demand characteristics into simple economic concepts. This section is taken from Wenders' seminar on regulatory economics which is designed primarily for non-economists with a telephone industry background. Although some parts of it assume knowledge of the telephone industry and the policy controversies within it that will not be available to typical students, the material could be profitably used in a variety of microeconomics courses to illustrate the ability of basic economics to iluminate complex policy issues.

The second half of the book consists of Wenders' contributions to various telecommunications policy debates of the recent past. It is written in a lively polemical style, proving that a "one-handed economist" exists. Analyses inconsistent with the author's are brusquely dismissed:

> I dismiss as economic nonsense, and usually sheer demagoguery, arguments that there is an economic reason why toll service should be overpriced to support local service. (p. 168)

Wenders asserts that the traditional cost sharing mechanisms between state and federal jurisdictions amounted to a "regulatory cartel" and claims that the real defendant in the government antitrust suit against AT&T was not AT&T but the regulatory cartel. Wenders believes that the Modified Final Judgment that settled the antitrust case posed a threat to the regulatory cartel by creating the possibility of "bypass competition." The cost sharing arrangements in place at the time of the antitrust suit (with a substantial portion of local costs recovered in long distance usage charges) became infeasible in the post-divestiture industry. Those arrangements required local operating companies to charge such high fees to long distance companies for the origination and termination of long distance traffic that it was profitable for the long distance companies to bypass the local operating companies and provide end-to-end service for the largest customers. Wenders views bypass competition as a desirable limitation on the monopoly power of local exchange companies and advocates eliminating the recovery of fixed local costs through long distance usage rates. He denounces various attempts to stop bypass by means other than reducing the toll to local revenue flows as attempts to recreate the regulatory cartel.

Wenders devotes two chapters to an evaluation of the need for continued regulation and concludes that the deregulation of both long distance and local service would be desirable. These chapters are based primarily on theoretical rather than empirical arguments. With regard to long distance, Wenders asserts that entry is easy and that predatory pricing is practically impossible and concludes that regulation is unnecessary. For local markets, Wenders dis-