AEC 841--MODULE 3A

INDUSTRIAL ORGANIZATION

I. Introduction to the I-O framework of analysis as one element of the food systems framework.

A. I-O arose in late 1950s and early 1960s to look at issues of imperfect competition (e.g., oligopoly power) in industries (horizontal slices in the economy--e.g., of the food systems matrix).

B. What we will initially present is sometimes now referred to as "the old I-O" or "Bainsian" I-O, to distinguish it from the "New I-O", which is built more explicitly on:

1. Game-theoretic models of firm behavior

2. More explicit use of such models to structure empirical investigation, rather than a more "reduced-form" approach of the old I-O.

3. We will add some elements of the new I-O later in this section.

C. Basic Definitions in the I-O framework.

1. **Market**--a group of buyers and sellers of a particular product engaged in setting the terms of sale of that product. A lot of discussion in I-O about what the boundaries of the market is--i.e., what are similar products and hence the extent and competitiveness of a particular model.

2. **Industry**--sellers of a particular product or service are called an industry. (Horizontal slice in the food systems matrix)

3. I-O is the study of the way in which the organization of these sellers of a
particular product affects the performance of the market and hence the nation's economic welfare (hence the name industrial organization). I.e., it is the study of how productive activities are brought into harmony with society's demands for goods and services through some organizing mechanism such as the market, and how variations and imperfections in the organizing mechanism affect the degree of success achieved by producers in satisfying society's wants.

D. Much of the focus of the study of interaction in I-O focuses on pricing behavior.

I-O arose as a form of applied price theory, although it has since broadened its definition of performance to include more than just pricing behavior.

1. Pricing behavior is very straightforward in the world deterministic worlds of both perfect competition and monopoly in terms of conduct and performance.

2. I-O as an attempt to deal with intermediate cases of monopolistic competition and especially oligopoly, when price and output levels depend on reactions of rival's to a firm's actions and the firm's expectations of these actions by rivals.

   a. Attempt to quantify and test empirically some hypotheses from price theory.

   b. Way of dealing with questions of economic power.

   c. Yet in applying theory to the real world, we find that the world
does not fit the assumptions of our strictly deterministic models.

(1) This means we are going to deal with intermediate situations and, at times, not very clear-cut answers, which make many people uneasy.

(2) Often making judgement calls and value judgements (about what is "acceptable performance), but in reality all of economics does this. But we need to make these explicit.

E. The Basic Bainsian I-O Framework of Analysis

1. Basic hypothesis: causal link from mkt structure to conduct to performance. (Overhead).

2. Bain's basic model: $S \rightarrow C \rightarrow P$.
   a. Note it focuses on impact of industry structure on industry performance rather than being built up from an explicit model of firm behavior (criticism of this approach by New I-O theorists).
   b. Looks at a broader set of performance dimensions than just price and quantity outcomes and their affiliated dead-weight efficiency losses that price theory focuses on.
   c. Initial analyses did not pay too much attention to conduct. Focused on S-P linkages.
3. Scherer’s contributions -- greater emphasis on conduct and on feedback loops (use overhead)

Basic conditions

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Market Structure

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Market Conduct

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Market Performance

a. Lines of causality, stressing importance of conduct as well as structure and performance

b. Feedback loops, which make the model more dynamic and evolutionary.

4. Basic Conditions

a. These are basic underlying characteristics of the product and of the environmental setting that help to shape the type of market that evolves for the product.--similar to "environment" in systems models.
b. What Schmid calls "situation" in his model

c. No set list of variables to include here--overhead has some examples.

d. One convenient way of organizing them is by factors that influence the supply of and demand for the product.

(1) On the demand side, one critical variable is the cross-elasticity of demand for the product with respect to prices of other products. This basically defines what is an industry. The higher the cross-elasticity, the greater the competition among these. Lines between two products is a matter of degree with respect to cross-elasticities; no clear-cut line.

(2) Go through example of milk:

(a) Perishability

(b) Fixity of assets in production

(c) Inelasticity of demand

(d) Seasonality of production

(e) All these lead to:

   i) Desire on both sides of markets to negotiate long-term marketing agreements between buyer and seller
ii) Potential for exploitation by buyers

iii) Potential for volatile prices over the year.

(f) These create incentives for certain types of market structures--e.g., co-ops with long-term contracts with producers rather than spot markets (We will pursue this more with TCE discussion)

e. Students can develop their own lists.

F. Aim is application of postulates from micro theory for policy. But its use for policy based on certain postulates of theory, which we need to question:

1. **Profit maximization hypothesis**

a. Cf. perfect competition with oligopoly. With the shift from a horizontal to a downward sloping demand curve for the firm, there arises some discretion for where the firm will set prices and output.

b. Issue of whether the firm sets these to maximize profits raises questions of:

   (1) **Risk considerations**--Under conditions of risk aversion, firm (and esp. managers) may prefer strategies that are on average less profitable but also less risky. Straightforward conclusion from risk models and expected utility hypothesis.

   Utility maximization doesn't in this case correspond with
profit maximization.

(2) **Principal/agent problem** (see reading by Caswell and Cotterill)

(a) Note that simple micro theory of profit-maximizing firm is implicitly built upon model of entrepreneurial 1-person firm. Entrepreneur's goals are identical with firm's, so we can speak of "the firm seeking to maximize profits).

(b) In reality, in modern corporations ownership is to some degree separated from control:
   i) Separation achieved through dispersed stock ownership and inside directors
   ii) Nominal control through the board of directors may not be effective.

(c) This separation ===> management having some scope to follow its own goals if firm possesses some degree of monopoly power. **Principal/agent** problem. Incentives facing manager (agent) may not be consistent with goals of principals (stock owners). Possible alternative goals of the agent:
   i) Firm growth/sales maximization
(d) Even if top management has goals consistent with profit maximization, may be hard to achieve this within an organizationally complex firm, where each division's managers may have their own goals, reasons to distort information to top management, etc. So top managers are basically constrained to try to reach a compromise among competing demands within the firm.

(e) This leads to models of satisficing, where firm managers sequentially try to meet minimally acceptable levels of behavior on a series of performance measures--Use of SOPs to guide day-
to-day behavior. (Cyert and March, Behavioral Theory of the Firm).

c. Limits to shirking behavior.

(1) Degree of product and input market competition, including competition from imports (NB most work on satisficing, etc. was developed in late 60s and early 70s, when US faced much less import competition).

(2) Capital market--i.e., stock prices and their link to:

   (a) executive compensation (stock options)
   
   (b) Market for managerial talent
   
   (c) If the stock price falls, potential for:

      i) Action by the board of directors (rare)
      
      ii) proxy fights (rare)
      
      iii) takeover bids--more common, especially in 1980s and early 90s--Restructuring to take out middle management (slack?)

   (d) Much of agency theory stresses the role of these other (internal) markets in disciplining the firm.

   (e) Even with the discipline of the stock market, have length-of-run problem. Incentives may be to manage in a way to maximize short-term gain in
stock prices but not in way that necessarily increases long-run profits of firm (assuming imperfect information in stock market, with managers having informational advantage, and hence able to act in a way to inflate stock prices for short-term gain).

d. Scherer's conclusions

(1) Assumption of profit maximization is a good first approximation but:

(a) Deviations are large where competition is weak and where there is a sharp separation between ownership and control

(b) Ultimately, survival of the firm becomes a goal that puts some limitations from profit maximization.

(2) Hence, one can model assuming profit maximization, but need to realize that because of deviations from profit maximizing, models may not always be as predictive as we would like.

e. Also has given rise to whole field of agency theory, which looks at how to design incentives within large organizations to overcome conflicts between individual goals and organizational goals.

Straight application of model of utility maximizing individuals
within “internal market” of the firm.

2. **Theorem of the second best**
   
   a. 1st best is where all conditions of competitive model are met ==> $P = MC$, which maximizes welfare.
   
   b. Theorem of 2nd best states that where you can't meet all the conditions that give rise to $P=MC$ (i.e., perfect competition), it is not clear whether moving one element toward those conditions when other elements can't move will help lead to social optimal.

   (1) Whole range of analysis in economics working out second-best solutions that lead to maximization of social welfare under the constraint that you can't reach first best. (Most involve trying to assure proportionality of prices to marginal costs across all industries). But most of these solutions (as discussed by Scherer) only hold under very highly unrealistic assumptions (e.g., no substitution of goods, unitary elasticity of demand of all goods, etc.)

   (2) So, for real-world work, theorem of second best is, in Scherer's words, "a counsel of despair."

   c. Scherer and most economic policy types therefore argue for "3rd best" solution of faith--This is to choose among general policies those that on the average have the most favorable resource
allocation implications. These, he argues, tend to be those that are most pro-competitive. "On the positive side, if one has little or no prior information concerning the direction in which second-best solutions lie, eliminating avoidable monopoly power seems at least as likely to improve welfare as does encouraging new monopoly distortions where none existed previously. And on the negative side, it is easy for a policy that is permissive toward monopoly to get out of hand."

G. If we accept this 3rd-best approach of generally trying to move in a pro-competitive direction, yet at the same time realize that we cannot achieve perfect competition, then the question arises, "How much competition is enough?" This leads to the concept of workable competition. (See Scherer, pp. 40ff).

**Overheads and handout**

1. Define--"An industry can be judged to be workably competitive when, after all structural characteristics and dynamic forces that shaped them have been examined, there is no clearly indicated change that can be effected through public policy measures that would result in greater social gains than social losses." Jesse Markham, quoted in Scherer, p. 44.

2. Criteria for workable competition (Handout--from Scherer, p. 42)
   a. Structural Criteria
      (1) The number of traders should be at least as large as scale
(2) There should be no artificial inhibitions on mobility and entry.

(3) There should be moderate and price-sensitive quality differentials in the products offered.

b. Conduct Criteria

(1) Some uncertainty should exist in the minds of rivals as to whether price initiatives will be followed. (The essence of oligopoly is recognition of mutual interdependence among firms.)

(2) Firms should strive to achieve their goals independently, without collusion.

(3) There should be no unfair, exclusionary, predatory, or coercive tactics.

(4) Inefficient suppliers and customers should not be shielded permanently.

(5) Sales promotion should be informative, or at least not misleading.

(6) Persistent, harmful price discrimination should be absent.

c. Performance Criteria

(1) Firms' production and distribution operations should be
efficient and not wasteful of resources.

(2) Output levels and product quality (i.e., variety, durability, safety, reliability, and so on) should be responsive to consumer demands.

(3) Profits should be at levels just sufficient to reward investment, efficiency, and innovation.--One element of equity.

(4) Prices should encourage rational choice, guide markets toward equilibrium, and not intensify cyclical instability.--e.g., prices should not be sticky.

(5) Opportunities for introducing technically superior products and processes should be exploited.

(6) Promotional expenses should not be excessive.

(7) Success should accrue to those who best serve consumer wants.

d. Problems with these criteria

(1) Redundancy--e.g., first two criteria are watered down versions of conditions for perfect competition.

(2) Are these criteria operational?

(a) How do you decide what is "excessive"? Need to draw lines, yet these criteria don't tell you where
they should be drawn.

(b) What to do when some but not all criteria are met?

(3) Stigler's quip about graduate student theses as a way of testing for workable competition.

(4) Problem of agreeing on what constitutes good performance—we will spend quite a bit of time on this.

H. Now will move on to look at the SCP model in detail and ask questions about how to make it operational.