The I-O Model--Performance

I. Performance in perspective

A. In this section on performance, we will discuss:

1. The steps in evaluating performance
   a. Defining performance **dimensions** (what aspects of performance are important to you)
   b. Defining performance **norms** (what is the standard against which you define good performance)
   c. Defining performance **measures** (what metric do you use to measure performance)
   d. Weighing overlaps and tradeoffs between performance dimensions.

2. These steps involve going from more theoretically pure and general concepts of performance to the measurable and ad-hoc, which you have to deal with in reality.

3. Readings for this section stress these steps:
   a. Brandow's overview--that of an applied policy practitioner (chief of staff of the National Commission on Food Marketing)
   b. Sosnick's struggle to go from the theoretically pure to the workable and measurable
   c. Jesse's application--an attempt to set up concrete measures of performance.

B. Define performance *(overheads and handouts)*
1. Bain: "The composite end results which emerge when a group of firms pursue their respective lines of conduct."
   
a. Focus is on those end results that affect material human welfare (as opposed to purely structural or conduct variables).
   
b. Results are not final, but are connected via feedback loops to subsequent structure, conduct, and performance. (One type of performance in the SCP framework is a change in structure.)

2. Caves: "The appraisal of how far the economic results of an industry's behavior fall short of the best possible contribution to reach particular goals."

3. Brandow: "How well an industry does the things that society might reasonably expect it to do."

C. Performance as what we are ultimately interested in. It is the social valuation of systems outcomes. Structure and conduct are important insofar as they influence performance and are good predictors of it. They are *instruments* by which performance is influenced.

D. Multi-dimensional nature of performance (ref. to food system goals shown earlier on overhead)

1. Beyond just P & Q outcomes of price theory
2. Broadened to include dynamic as well as static aspects (cf. much of welfare
econ., which focuses on static efficiency--e.g., changes in consumer and producer surplus measures).

3. It is still partial equilibrium in that I-O typically looks at a single industry rather than the whole economy.

   a. This implies tradeoffs among dimensions.
   b. To evaluate tradeoffs, one needs common denominator in order to evaluate marginal rates of substitution with respect to some objective. This, in turn implies either:
      (1) Assigning value judgements on weights for difference performance dimensions, or
      (2) Displaying the performance with respect to different dimensions so that others can decide (i.e., not coming to a single determinate outcome).
   c. Problem this poses for economists (Brandow quotes--two overheads).

E. Need to distinguish what one might reasonably expect industry to do vs. what are performance objectives for the overall economy. Trying to force a particular industry to achieve economy-wide objectives when other industries are not may be counterproductive. E.g., expecting the grain industry to solve problems of poverty
by selling grain at less than it costs to produce it.

F. Making operational statements and recommendations about performance (e.g., on a consulting mission) requires reaching some agreement on three issues:

1. Performance **dimensions or criteria**--what outcomes types of outcomes from the industry are most important for society.

2. Performance **norms**--what are reasonable expectations or ideals of performance against which we can measure actual industry performance?
   a. Traditional use of perfect competition norms in much of marketing work, and limits of these
      (1) Perfect competition conditions don't exist in real world
      (2) Static norms--don't address dynamics
   b. More recent use of norms from the concept of workable competition.

3. Performance **measures**
   a. What scalar do you use to measure performance against norms?
   b. Can you aggregate these measures across dimensions into some sort of unified performance index?

II. Performance Dimensions or Criteria (**Overhead; handout**)

A. Similarity of lists (Jesse, table 1)

B. Sosnick's 12 dimensions  (Note struggle of this economist, well-schooled in 1st-
and 2nd-best solutions, to come up with workable dimensions and norms for performance--lots of qualifications, etc., based on economic theory and the literature)

1. **Production Efficiency** (Need to ask "Efficiency for whom?" Whose costs and benefits are entering into the calculus? Related to equity dimension)

   a. Types of production efficiency

      (1) *Technical or operational efficiency*--how closely do existing firms, as a group, achieve lowest possible costs?

      (Note Sosnick's qualifications about defining what "lowest possible costs" are given previous sunk investments, stochastic nature of ag. production, etc.)

      (a) Are they large enough to capture scale economies?

      (b) Is there too much unused capacity?

      (c) Are they located to minimize transport costs?

      (d) Labor efficiency?

         i) Is there organizational slack and X-inefficiency?

         ii) Restrictive work rules--e.g., union contracts about who can shelve what in stores.

   (2) *Allocative Efficiency*--how effectively are resources
allocated across industries and products? This gets at opportunity cost to the economy of having misallocation of too few or too many resources devoted to a particular activity.

b. Norm--no real costs persist that are clearly unnecessary to provide the use-values that are being provided.

c. Static concept from economics

2. **Exchange Efficiency**

a. Refers to the costs of arranging transactions (*transaction costs*), such as

   (1) inspection of goods to pair buyers and sellers--this is reduced if there are grades and standards that allow trading on the basis of description.

   (2) Information flows (related to *market transparency*)

   (3) Ability to trade openly vs. needing to keep multiple sets of books (e.g., in Senegal).

   (4) Tools for risk minimization--e.g., futures markets and forward contracting

   (5) Various forms of vertical coordination, including vertical integration.
b. Includes **pricing efficiency**--i.e., the degree to which prices accurately and rapidly transmit changes in supply and demand to participants in the market.

1. Affects allocative efficiency by inducing adjustments in consumption and production as supply and demand change. Allows matching of supply and demand and adjusts consumption to social scarcity.

2. An important aspect of this is the accurate transmittal of differential consumer demands to other actors in the system.

   a. Concept of *consumer sovereignty* as driving the system.

   b. Differential demands for different qualities of goods--e.g., fatness in meat; milk (move to multiple component pricing).

3. **Progressiveness**

   a. Definition: The extent to which an industry is generating and rapidly adopting new technologies and new organizational arrangements that reduce costs or improve products and services relative to consumer wants. Process is invention\(\rightarrow\)development\(\rightarrow\)
widespread adoption.

b. The norm is how well does an industry do relative to its opportunities?

c. Possible Indicators of progressiveness:

(1) R & D:
   (a) Could measure amount of effort by R & D budget.
   (b) Also have to look at type of research carried out--merchandising vs. fundamental improvements.
   (c) Look at impact of recent mergers on debt load of firms, with consequent reduction in R&D.

(2) Prompt exploitation of new developments as opposed to suppression of them.

(3) Incentives and constraints to innovation--e.g., tax incentives, patents.

d. Policy issues

(1) What kind of industry structure fosters progressiveness? Atomistic, oligopoly, monopoly? (see Scherer for some evidence on this--Related to Schumpeter's question of how to foster "creative destruction.")

(2) Role of public sector and private sector research in fostering
industry progressiveness? What is appropriate mix and relationship between the two?

4. **Product Suitability**

   a. Involves matching products with consumer preferences.

   b. Bain defined it as assuring that the quality level of products is neither too high or too low relative to consumer desires.

   c. Therefore related to pricing efficiency in a dynamic sense.

   d. Also related to progressiveness--designing new products, new handling methods, and even new varieties of crops and livestock to satisfy better changing consumer demands.

   e. Includes:

      (1) Freshness condition of food--food not deteriorated if consumers are willing to pay for the extra care to assure the freshness.

      (2) Safety of food products

      (3) Nutritional integrity of products

      (4) Not extreme proliferation of products (costly and trivial variations)--Related to the concept of exchange efficiency--
i.e., reducing transaction costs.

f. Norms

(1) Sellers should not suppress product inventions.

(2) Sellers should not persistently offer less than the maximum quality that is available for a given cost.

(3) Worthless and troublesome differences among sellers offerings should not persist.

(a) Need to balance variety and costs

(b) Role of grades and standards--e.g., in eggs and meat--in helping to make market more transparent and eliminate "excessive" variation. Also related to the dimension of participant rationality--i.e., participants should have the information necessary to make rational choices.

5. Profit Rates

a. Role of profits in a capitalistic system. A residual that serves as the:

(1) Returns to management and risk taking

(2) Returns to capital investment

(3) Signal to guide resource allocation in the economy.
b. Chronic excess profits represent a failure of the market system
   (1) Indicate too few resources are flowing into the industry
   (2) May be a result of concentrated market structure and high barriers to entry.
   (3) May have undesirable income distribution consequences (but need to view this in a dynamic sense—e.g., about 30% of Kellogg's profits go to Kellogg Foundation)

c. Chronic sub-normal profits may indicate a sick or declining industry.

d. Definitional and measurement problems
   (1) What is "chronic"? Periods of high or low profits are necessary to help guide resource allocation in the economy.
      (a) Periods of high and low profits therefore indicate that the market is working well. Problem arises when resource allocation does not change in response to these high or low profit rates.
      (b) Also want rewards for innovation and risk-taking.
      (c) Need long period of observation for to get "average" profit rates for risky businesses—e.g., studies of marketing in LDCs, based on case study snapshot
approach, typically show widely varying profit rates.

e. How to measure profits?

(1) Percent of sales? E.g., 1% on food retailing. Does not take account rotation of capital or degree of leverage.

(2) Return on investment (equity capital)

(3) Problems of using profits as measure of performance for small food businesses, esp. in LICs, where capital investment is low and returns to capital are volatile.

f. Norms

(1) Long-term interest rate in financial market (e.g., triple A bonds) or gov't bond rate +3% (Jesse)

(2) What other industries facing similar risk situations are earning.

6. Level of Output

a. The level of output is separate from profit levels because output level not necessarily directly related to profit levels in real world.

b. We are usually concerned with underproduction, but can also have situations of overproduction.

c. Key question becomes one of allocative efficiency--whether more or fewer resources are allocated to this industry than are warranted
by their social opportunity cost. I.e., the premise from welfare economics is:

"a `reasonable relation' between marginal cost and product price and between value of marginal product and input price" judged in relation to other industries.

7. **Costs of Sales Promotion**

a. This is a growing issue in high-income economies, as firms and commodity groups try to expand sales and increase market share. Tied closely to product differentiation

b. Types of sales promotion

(1) Advertising

(2) Sales force

(3) Distribution practices--getting shelf space, etc.

c. Advertising levels in the food industry

(1) Averages about 3% of sales in food manufacturing. Ranges from <1% for meat processing to >5% for breakfast cereals and beverages.

(2) Some commodity groups also advertise--e.g., beef council, eggs

d. Large economies of scale in use of TV and print advertising.
(1) Now moving to more differentiated and targeted advertising, given the proliferation of different marketing outlets, ways of reaching consumers (e.g., cable TV) and ability to identify market niches and target for them.

(2) May have reduced some of the scale economies in national TV advertising, but still substantial scale in developing big ad campaigns (e.g., for movies)

(3) Impact of growth of internet marketing? E.g., Virtual Vineyards?

e. Types of Advertising

(1) Informational messages--showing availability, prices, and alternative uses of products
   
   (a) Consumer information programs

   (b) More common in newspaper, magazine, and radio ads.

(2) Persuasive advertising

   (a) Psychological appeals--to lost youth, sex appeal, status (e.g., bear ads)

   (b) Exaggerated explicit or implied claims for the product (Related to unethical conduct norms).
(c) Attacks on competitors products--Question of whether this is ethical:

i) OK in certain industries in the US, but not in others (e.g., medicine)

ii) Cf. US and Japan in this regard.

(d) Problems of regulation in U.S.

i) Vested interests of advertising industry

ii) Defining "persuasive" vs. informational advertising

iii) Constitutional issues of free speech in U.S., although subject to some limits--e.g., on cigarette and liquor ads.

f. What are undesirable sales promotion efforts?

(1) Patently misleading or harmful messages--partly socially determined--e.g., portrayal of women in beer ads.

(2) Large percentage of sales rev. going to advertising--e.g., Sosnick's 5% norm?

g. Countervailing forces in the food system

(1) Private labels

(2) Generics

8. **Unethical Practices**

a. Use of pejorative term shows per se that such things are undesirable--Norm is obviously that they should not occur.

b. Examples

   (1) Undisclosed danger--related to food safety

   (2) Fraud and misrepresentation--related to advertising

   (3) Adulteration

c. What is ethical is culturally determined, which poses problems when different cultures try to trade, either within a country (e.g., across ethnic groups) or internationally. E.g., U.S. Foreign Corrupt Practices Act.

9. **Participant Rationality**

a. Norm: "Participants in the market should have a reasonable opportunity to be well informed and should exercise freedom of choice rationally in their own interests (except when private
advantage obviously conflicts with social welfare)."

b. Deals with adequate market info. to make rational choice and avoidance of misinformation. The need to provide market participants with a reasonable opportunity to make comparisons may require certain mandatory coordination and impartial types of information. E.g.,

(1) Inspection
(2) Grading
(3) Standards of identity
(4) Standardized containers and packing (truth in packaging law)
(5) Standardized quotations (e.g., unit prices, standard mileage estimates)
(6) price posting
(7) market news
(8) product tests

c. If this assumption is violated, then can't expect unfettered market to lead to efficient resource allocation (violation of perfect knowledge assumption). Also may discourage adoption of socially useful technologies (e.g., fertilizers) due to fear of being tricked.
10. **Conservation**
   
a. Norm: "No needless depletion or inefficient extraction plus exploration."

b. Condemns both exhaustion of renewable resource to the point where it cannot be sustained or wasteful extraction of nonrenewable resources.

11. **External Effects**—Deals with the issue of externalities, which the model of perfect competition assumes away.
   
a. Deals with costs or benefits imposed on those outside the firm or industry. E.g., in food system
   
   (1) air and water pollution from farm production and food processing
   
   (2) Traffic congestion from markets and processing plants
   
   (3) Encroachment of industry and commercial development into residential areas.

b. Whole area of economics deals with these. Involves
   
   (1) Debates over who has rights to what (law and economics)
   
   (2) Rules to impose restrictions and costs on those responsible for the bad external effects and reward those for positive external benefits.
c. The norm: "No obviously and grossly excessive amount of uncompensated injury or an obviously and grossly insufficient amount of uncompensated benefit."

12. Labor Relations

a. Covers equal opportunity, working conditions, wage levels and wage structure, work rules

b. Norm includes fair treatment (no race, sex discrimination), mutual fair treatment, reasonable communication and respect.

C. We could re-group these performance dimensions in many different ways.

1. Note that many of Sosnick's norms (e.g., labor relations, external effects, participant rationality, unethical practices, etc.) could be grouped under the broad rubric of equity (fairness), which is often cited as a performance dimension (N.B. equity is not the same as equality.)

a. How should the benefits flowing from the industry or system be shared among participants? E.g.,

(1) Stockholders vs. management vs. employees vs. customers within a corporate system.

(2) Differential impacts on consumers. E.g., in food distribution systems, treatment of poor vs. rich:

(a) Do the poor pay more for food? Retailing studies
often show this.

(b) Do subsidies and tax breaks favor the rich? (both consumers and producers, in both industrialized and low-income countries)

(c) Who has access to credit and technical assistance (small vs. large entrepreneurs)?

(3) The position of farmers in the system

(a) They receive a residual payment, by definition.

(b) Are they relatively disadvantaged due to lack of market power?

(c) What is condition of small vs. large farmers?

(d) Are there problems of chronic excess production and low incomes? If so, why?

2. Possible measures?

a. Income levels and stability

b. Prices?

c. Access to supporting services?

D. It is relatively easy to make lists of criteria. Trick is to go from laundry lists of performance dimensions to meaningful norms.

E. Performance Norms
1. Human nature is to want easy ways of measuring performance—e.g., read a dial; have one measure of performance.

2. Standard neoclassical economics reverts to welfare theory—consumer and producer surplus.

3. Brandow quote (Overhead)—These measures do not work because of
   a. Dynamic, non-equilibrium nature of the dynamic world that I-O attempts to model.
   b. No social agreement on aggregating all aspects into a single common denominator (e.g., income-distribution objections to ignoring who gets a dollar of benefit or pays a dollar of cost). I.e., the breadth of concern covers several dimensions of performance. Not just a question of efficiency, but efficiency in doing what?
   c. No need to aggregate into a single indicator if we are interested in improving performance along particular dimensions, although we still need to deal with questions of tradeoffs among dimensions.

4. Response of others in the economics profession
   a. J.M. Clark's concept of workable competition in 1940s and 1950s—Norms examined earlier.
   b. Sosnick's writings
      (1) Note his words like reasonable, unnecessary persistent,
excessive

(2) Attempts to put some bounds around good and bad performance

5. Where is the profession today?

a. Jesse approach, as influenced by Shaffer

(1) History of Jesse paper--NC117 and Shaffer

(2) Move from broad dimensions (Shaffer bill of rights) to norms to setting of extremes on those dimensions (table 2)

(3) Design measures (table 3)

(4) Present these and let others judge where the measures fall relative to the extremes

(5) Note that of his 40 measures, only 15 are above 5 on his 1-10 difficulty index.

(6) Problem of information overload--How do you communicate such a broad array of information?

b. Narrow the I-O analyses to those criteria that are generally understood and somewhat measurable--e.g., revision to structuralist S→P orientation with econometric estimations (e.g., Fritz Mueller).

III. Performance and I-O in perspective

A. Ways to judge performance
1. **Absolute terms**--optimal standard, which everyone knows and everything is measured against this
   a. Much of economics focuses here (e.g., indicators from perfect competition). Problem with this approach is that everything in the real world looks inefficient by comparison with the standard.
   b. Often such efforts fail in policy work
      (1) Complexity of real world
      (2) Noncongruence with the policy issues--i.e., policy makers are motivated by pressing concerns and are not seeking perfection, but something that is "good enough."

2. **Relative terms**--comparing performance in one entity with that in others
   a. E.g., across industries--for example, comparing earnings across industries
   b. Reflects social opportunity costs broadly defined--Can we improve by shifting resources from one industry to another?
   c. Problem of the "average" problem, when everything is going down hill--How to get useful comparisons?

3. **By exception**--Performance is acceptable unless something is wrong (If it ain't broke, don't fix it.--Ann Landers’ criterion.)
   a. This is the way the political process works and the political
demands for I-O work

b. Recognition of a problem and a quest for a solution.

c. The economist's solution is to tell them what else is wrong by absolute standards, when the client wants to understand the problem, not get more problems--But need to balance this, as client may only perceive part of much broader problem than needs addressing.

B. Need to strike balances to do socially useful work, but still not descend into pure ad hoc-ism.

C. I-O as an analytical tool to examine power relationships in the political economy.

1. We'll see this in the case studies.

2. But before moving to the case studies, we want to look at two more elements of the food systems approach

   a. Extension of the I-O approach to deal with vertical issues (subsector approach), and

   b. Examining the reasons for the evolution of different types of coordination systems (e.g., market structures) for different products (transaction-cost economics).