I. Market Structure
   A. As with the "basic conditions, there are different lists of what to include in the structure component of the I-O framework. We will concentrate on those elements which are most critical to performance, organized around the concepts of concentration and barriers of entry.
   B. **Concentration**--number of buyers and sellers.
      1. Indicates the potential degree of competition in the market.
      2. But, to be meaningful, must be considered in relationship to level of **barriers to entry and exit**. High concentration but with low entry and exit barriers may result in close to competitive pricing due to threat of entry. (Theory of Contestable Markets--see Baumol reading on optional reading list).
      3. But most often, more concentrated industries are marked by significant barriers to entry and exit.
      4. Key issues in concentration: how do we measure it and how much concentration is “too much”
      5. Measurement (see handout) - Two main measures, CR and HHI
         a. Concentration ratio--% of an industry's sales controlled by the top X number of the largest firms in the industry
(1) i.e., array firms from top to bottom by level of sales and calculate a cumulative sales figure for the top X firms, e.g.,

(2) CR-4, CR-8

(3) Can also be calculated with respect to assets or employment. Some problems of interpretation--e.g., cf.

(a) CR-4 = 50% for an 8-firm industry with

(b) CR-4 = 50% for a 200-firm industry.

b. \[ HHI = \text{Herfindahl Hirschman Index} = \sum s^2 \] sum of squared market shares

(1) Measure of relative concentration, varying from \( \frac{1}{n} \) (\( \rightarrow 0 \) as \( n \rightarrow \infty \)) to 1 (latter indicates pure monopoly), or 0 to 10,000 if shares are calculated on a % basis.

(2) Gives greater weight than C.R.s to larger firms. E.g., CR4 for 4 firms each with 20% market share is same as for 1 firm with 74% and 3 each with 2%, but HHI will be much greater in latter case.

(3) HHI is used by US Justice Dept and FTC in evaluating concentration levels resulting from proposed mergers (see: http://www.usdoj.gov/atr/public/guidelines/horiz_book/hmg1.html)
6. Critical levels of concentration--At what point does the level of concentration have a significant effect on market conduct and performance?

   a. Empirical research to relate concentration to profit levels. Hypothesis is that profits are positively related to concentration. See paper by Mueller and Marion for synopsis of results.

   b. Classification of concentration levels

   (1) Bain:

   \[
   \begin{array}{ccc}
   \text{CR-8} & \\
   \text{High} & >70\% & \text{Approx. CR4 = 50\%} \\
   \text{Medium} & 33-69\% & \\
   \text{Low} & <33\% & \\
   \end{array}
   \]
(2) HHI Standards of US Dept. of Justice & FTC:
   (a) Under 1000 is unconcentrated
   (b) 1000 to 1800 is moderately concentrated
   (c) 1800 and above is concentrated.
   (d) Any merger leading to an increase of 100 or less in
       a market with post merger concentration of under
       1800 will likely not raise competitive concerns.
   (e) Mergers that increase HHI by more than 100 points
       in concentrated industries (those over 1800)
       presumptively create competitive concerns and
       trigger reviews. Even increases of 50 may lead to
       reviews.
   (f) The basic issue is at what level (threshold) does
       competitive behavior take on different
       characteristics as a result of different degrees of
       market concentration.

(3) A key question is what is the relevant scope of the market?

(See DOJ website for US guidelines)

(a) Nature of the product
(b) Geographically
(c) Role of imports
7. Factors tending to increase concentration
   a. Scale economies in production, distribution, and promotion
      (advertising)
      (1) Critical Issues
         (a) Minimum plant size necessary to achieve minimum ATC relative to the size of the market (and hence desirable governance mechanism for plant--e.g., co-op of users vs. private monopoly, public utility)
         (b) How long the ATC curve is flat before it eventually turns upward. In this flat range the firm can continue to expand without barrier.

   b. Economies of multi-plant firms
      (1) Procurement advantages (scale economies)
(2) Scale economies in advertising and promotion

(3) Ability to attract more able managers

c. Advantages of vertical integration—e.g., Pepsico owning CFC and Pizza Hut.

(1) Reduce transaction costs

(2) Closer coordination of different stages of production

(3) Assure outlets and/or foreclosure of inputs to competitors.

d. Ability and motivation to use market power and financial abilities to eliminate rivals, discourage new entrants, force mergers, and increase market share. I.e., ability to gain greater control over their business environment—e.g., conglomerate mergers in the U.S. system of food and non-food firms—E.g., RJR-Reynolds.

(1) Recent breakup of some large conglomerates due to

(a) Managerial problems

(b) Huge debt burdens (optional readings in this area)

8. Factors tending to deter or slow down concentration

a. Economic growth, which may stem from technological change or greater foreign trade, income growth, etc. This leads to expanding markets and tends to attract new entrants.
(1) Challenge in developing countries--How to benefit from
expansion of scale without dangers of exploitation through
monopoly--role of trade here.

b. Broadening of the market through free-trade agreements
c. Legal restrictions
   (1) Anti-merger actions of the FTC
   (2) Anti-trust regulations
d. Difficulties (transaction costs) in arranging mergers and takeovers.

C. **Product differentiation**

1. **Definition**--The extent to which a seller has some degree of independence
   in pricing and other marketing decisions.

2. Usually articulated through the price elasticity of demand for the product
   relative to that of competing products.
   a. In perfect competition, the price elasticity of demand is infinite, so
      the seller has no discretion in setting prices.
   b. Product differentiation is an attempt to decrease the price elasticity
      of demand for the product--i.e., an attempt to get some slope to the
      demand curve by convincing customers that the product is
      different from competing products. This allows for some scope for
      independent price setting and non-price competition:
3. Differences may be real or perceived
   a. Role of advertising--e.g., for beer
   b. Business school approach

4. Product differentiation is everywhere in the I-O approach. Examples:
   a. Food retailing
      (1) Location
      (2) Hours of operation
      (3) Full service vs. self-service
   b. Food manufacturing--branding
      (1) Differs greatly by commodity
      (2) Usually increases with the degree of manufacturing or processing involved because:
(a) Product differentiation demands tighter control over the product, its inputs, and marketing to assure consistent quality in order for the brand to have value—*consumer franchise*

(b) May be able to protect manufactured products with patents, which usually you can’t do with raw commodities—Although note recent changes allowing patenting of varieties, such as the Flavor-Saver tomato. (Bio-tech).

(c) Relate this control over product quality to LIC export-marketing attempts to develop a name for their products—e.g., Colombian coffee

i) Role of producer association in helping assure that quality.

ii) Easy to lose reputation and hard to build it up again subsequently (e.g., Malian mangos in Europe)

iii) Similar role in the U.S. of producer associations and co-ops (e.g., Washington State Apple Commission, Sunkist)
iv) May also be done with joint ventures with private firms--e.g., Starbuck’s coffee.

(d) Some successful raw product brand names in the U.S. (e.g., Sunkist), but developing these demands careful control and money to advertise (free rider problem).

(e) Current efforts through putting stickers on fruit.

D. **Barriers to entry and exit**

1. **Definition**--the degree to which an existing firm can raise prices before other firms can profitably enter the market.

2. **Types of barriers to entry** (first 3 were the ones most stressed by Bain)
   a. *Absolute cost advantage*--established firm has lower cost at any level of output:
(1) Sources:

(a) Patents

(b) Learning curve and other types of critical knowledge
   i) Formulae and trade secrets (e.g., Coca Cola)
   ii) Traditions with certain enterprises--e.g., Fulani with livestock.
b. *Product differentiation*—established firms’ products are considered better.

(1) This is particularly true when the incumbent firm was the first in the industry, and hence only had to convince customers that its products was better than an imperfect substitute (e.g., first microwave ovens vs. convection ovens; vacuum cleaners vs. brooms), whereas the new entrant has to compete with essentially the same type of product.

(2) New entrant has to charge lower prices and often incur higher costs (e.g., advertising) to woo clients away from the incumbent firm.

(3) Example: Tylenol vs generic acetomenehen.

c. *Economies of scale.* What is critical here is the scale of the minimum efficient sized plant (min. ATC) relative to the size of the market. The larger the minimum-sized plant relative to the demand for the industry’s product, the greater the barrier to entry.

(1) Capital constraint

(2) The potential for the new entrant to plunge the industry into overcapacity, thereby reducing price levels for output below those needed to earn a profit.
Here, institutional changes that broaden the size of the market (e.g., through restricting international trade barriers) may be pro-competitive by reducing the size of the minimum efficient sized plant relative to the market. E.g., effect of EC 1992 in broadening the size of the market.

d. Licensing and other administrative barriers to entry

e. Control of critical locations for plants or stores (e.g., close to ports)

f. Control of critical inputs

g. Capital constraints, especially where capital markets function poorly. Some groups (e.g., women) may be particularly excluded if capital markets discriminate against them.

h. Traditional social roles (Cf. our discussion on middlepersons and ethnicity)

(1) Effects on competition depend on the size of the excluded group

(2) Even if they don’t affect competition in the short run, the effects of such restrictions on equity and other aspects of performance may be severe.

i. Exit barriers, which in the face of uncertainty may deter entry

(1) Labor contracts

(2) Asset fixity.
3. Height of barriers
   a. Refers to how high above minimum ATC that established firms can maintain prices without attracting new entrants.
   b. Related to the concept of “limit pricing”, which we will discuss under conduct.
   c. Much empirical work in I-O goes into trying to measure the height of these barriers.

E. **Vertical arrangements** (We will look at this more in the subsector section of course--here we are looking at the intersection of a horizontal and a vertical analysis of the food system))

1. How are members of the industry linked to other levels of the food system?
2. Large array of possible arrangements. which we’ll talk about more later:
   a. *Vertical integration*--ownership of two or more stages of production or levels of the marketing channel by one firm--e.g., Pepsico owning both Pepsi Cola and Taco Bell
   b. *Long-term contracts*
   c. *Franchising*--May have strict as to what the franchisee can and cannot do; where she gets supplies, etc.
   d. Spot markets
3. As we shall see, the higher the degree of vertical control, the more degrees of freedom the firm has with respect to conduct (behavior)—i.e., vertical arrangements are important in that they influence conduct and performance (vertical coordination).

F. **Degree of Conglomerateness**
   
   1. **Definition**—A conglomerate is a multiple-industry, -market, or -product firm. It typically goes beyond the boundary of one industry.
   
   2. It is a structural element because of the discretionary power it gives the firm.
   
   3. It can be a pro-competitive element (e.g., entering new markets to challenge “lazy” incumbents), depending on the behavior of the firm.

G. **Structure in Perspective**
   
   1. Structure determines the sources of discretionary economic power that firms in the industry can exercise.
      
      a. In neoclassical terms, this can be seen as the firms’ power to influence market equilibrium solutions.
      
      b. In the terms of Schmid and Shaffer, it refers to the opportunity sets open to these firms.
   
   2. Power is operationalized through conduct.