

Course title: International financial regulation

Lesson 11. The industrial organization approach to
banking

Lecturer: PhD. Nargiza Dalmuradova

What is industrial organization? Defining the concepts

Industrial organization is the field of economics that builds on the theory of the firm in examining the structure of, and boundaries between, firms and markets.

Industrial organization adds to the perfectly competitive model real-world frictions such as transaction costs, limited information, and barriers to entry of new firms that may be associated with imperfect competition. It analyzes determinants of firm and market organization and behavior as between competition and monopoly, including from government actions.

http://en.wikipedia.org/wiki/Industrial_organization

What is industrial organization? Defining the concepts

Industrial organization focuses on understanding and evaluating the behavior of businesses, the markets that they participate in, and the interaction between the two. The goal is to increase the internal efficiency of the business so it is poised to compete more effectively in the marketplace. This is managed by not only refining the structure and operating processes of the business, but also adapting them so they can more effectively address what is happening within the wider market.

<http://www.wisegeek.com/what-is-industrial-organization.htm>

What is industrial organization? Defining the concepts

“Industrial organization is concerned with the workings of markets and industries, in particular the way firms compete with each other.” Luis Cabral (2000)

“Industrial organization or industrial economics is the study of the operation and performance of imperfectly competitive markets and the behavior of firms in these markets.” Church & Ware (2000)

www.cassey.com/io1.pdf

What is industrial organization? Defining the concepts

WHAT is Industrial Organization

- Study of How firms behave in markets
- Whole range of business issues
 - price of flowers; payment to be official sponsor of major events
 - which new products to introduce
 - merger decisions
 - methods for attacking or defending markets
- Industrial Organization takes a *Strategic view* of how firms interact

<http://www2.dse.unibo.it/barigozzi/corsi/IndustrialOrganization/Pepa1101f.pdf>

What is industrial organization? Defining the concepts

Contemporary Industrial Organization

- WHAT:

The study of imperfect competition and strategic interaction

- HOW:

- Build on game theory foundation
- Derive empirically testable propositions
- Econometric estimates of relations predicted by theory

- WHY:

- Motivated largely by antitrust concerns
- Also interest in private solutions to inefficient market outcomes

<http://www2.dse.unibo.it/barigozzi/corsi/IndustrialOrganization/Pepa1101f.pdf>

The Demand for Industrial Organization

“The field of industrial organization emerged after the establishment of national markets in manufactured goods at the turn of the century. These national markets had two important distinguishing characteristics: (i) products were differentiated and (ii) often there were only a few relatively large suppliers. These features suggest that the theory of perfect competition, which assumes homogeneous products and large numbers of small buyers and sellers is inapplicable. In general we would expect that markets in which there are only a few firms or markets in which products are differentiated will be characterized by firms that are price makers, not the price takers of the perfectly competitive model.”

Church & Ware (2000)

The Demand for Industrial Organization

“By withholding supply, large firms which produce homogeneous products recognize that prices will increase. A firm that produces a differentiated product will not experience a decline in sales to zero if it raises its price, since some consumers will still prefer its product, even at a higher price, than the products produced by its competitors. In both of these cases, firms correctly perceive that they face downward sloping demand curves. Small numbers of competitors or the preference of consumers for a specific product bestows some degree of market power on firms, and competition will be imperfect. Market power is the ability to profitably raise price above marginal cost. **Industrial organization** is the study of the creation, exercise, maintenance, and effects of market power.”

Church & Ware (2000)

The different approaches to the subject of industrial organization

- **the descriptive approach**: providing an overview of industrial organization, such as measures of competition and the size-concentration of firms in an industry.
- **the usage of microeconomic models**: explain internal firm organization and market strategy. As to strategic firm interaction, non-cooperative game theory has become the standard unifying method of analysis.
- **the orientation to public policy as to economic regulation and antitrust law**

The development of industrial organization as a separate field owes much to Edward Chamberlin, Edward S. Mason, and Joe S. Bain.

http://en.wikipedia.org/wiki/Industrial_organization

For consideration

Read carefully different concepts of industrial organization and write a short presentation on the new industrial organization and its distinguishing features.

Industrial Organization: A Strategic Approach

By: Church, Jeffery and Roger Ware

ISBN: 0-07-116645-9, 926 p.

Publisher: McGrawHill, 2000.

A pdf copy of the book can be downloaded at:

<http://homepages.ucalgary.ca/~jrchurch/page4/page5/page5.html>

A historical perspective

The early ideas for Industrial Organization are developed by **Schumpeter (1958)**.

“**Cournot (1838)** was the first in proposing a solution concept to determine market prices under oligopolistic interaction. By means of an example of two producers of mineral water deciding production levels and competing *independently*, Cournot proposes that the price arising in the market will be determined by the interplay of aggregate supply and demand. Also, such a price will be an equilibrium price when every producer’s production decision maximizes its profits conditional on the expectation over the production of the rival. It is worth noting that this equilibrium involves a price above the marginal cost of production. This concept of equilibrium is precisely what Nash (1950) proposed as solution of a non-cooperative game when we consider quantities as strategic variables.”

A historical perspective

[Schumpeter (1958)]

Cournot (1838)

Nash equilibrium (1950) solution concept in oligopolistic markets

A historical perspective

Next, Cournot tackles the case of complementary products. Interestingly enough he assumed in this case that producers would choose prices and applied the same solution concept, namely a Nash equilibrium with prices as strategic variables. In this case, the equilibrium price is larger than the monopoly price.

Cournot's contribution was either ignored or unknown for 45 years until **Bertrand (1883)** published his critical review where he claims the obvious choice for oligopolists competing in a homogeneous product market such as the proposed by Cournot would be to collude, given that the relevant strategic variables must be prices rather than quantities. In particular, in Cournot's example, the equilibrium price will equal marginal cost, i.e. the competitive solution.

A historical perspective

The criticism of the Cournot model continued with Marshall (1920) and Edgeworth (1897). Marshall thought that under increasing returns, monopoly was the only solution; Edgeworth's main idea was that in Cournot's set up the equilibrium is indeterminate regardless of products being substitutes or complements. For substitute goods with capacity constraints (Edgeworth (1897)) or with quadratic cost (Edgeworth (1922)) he concludes that prices would oscillate cycling indefinitely. For complementary products the indetermination of the equilibrium is "at least very probable" (Vives (1999)).

A historical perspective

Critics

Bertrand (1885) → no production costs: collusion

Edgeworth (1897) → capacity constraints
(1922) → diminishing returns } price cycles

Marshall (1920) → increasing returns: monopoly

A historical perspective

This demolition of Cournot's analysis was called to an end by Chamberlin (1929) and Hotelling (1929) after the observation that neither assumption of quantities or prices as strategic variables are correct in an absolute sense:

* Equilibrium in the Bertrand model with a standardized product is quite different from equilibrium in the Cournot model. The Cournot model emphasizes the number of firms as the critical element in determining market performance. Bertrand's model predicts the same performance as in long-run equilibrium of a perfectly competitive market if as few as two producers supply a standardized product.

A historical perspective

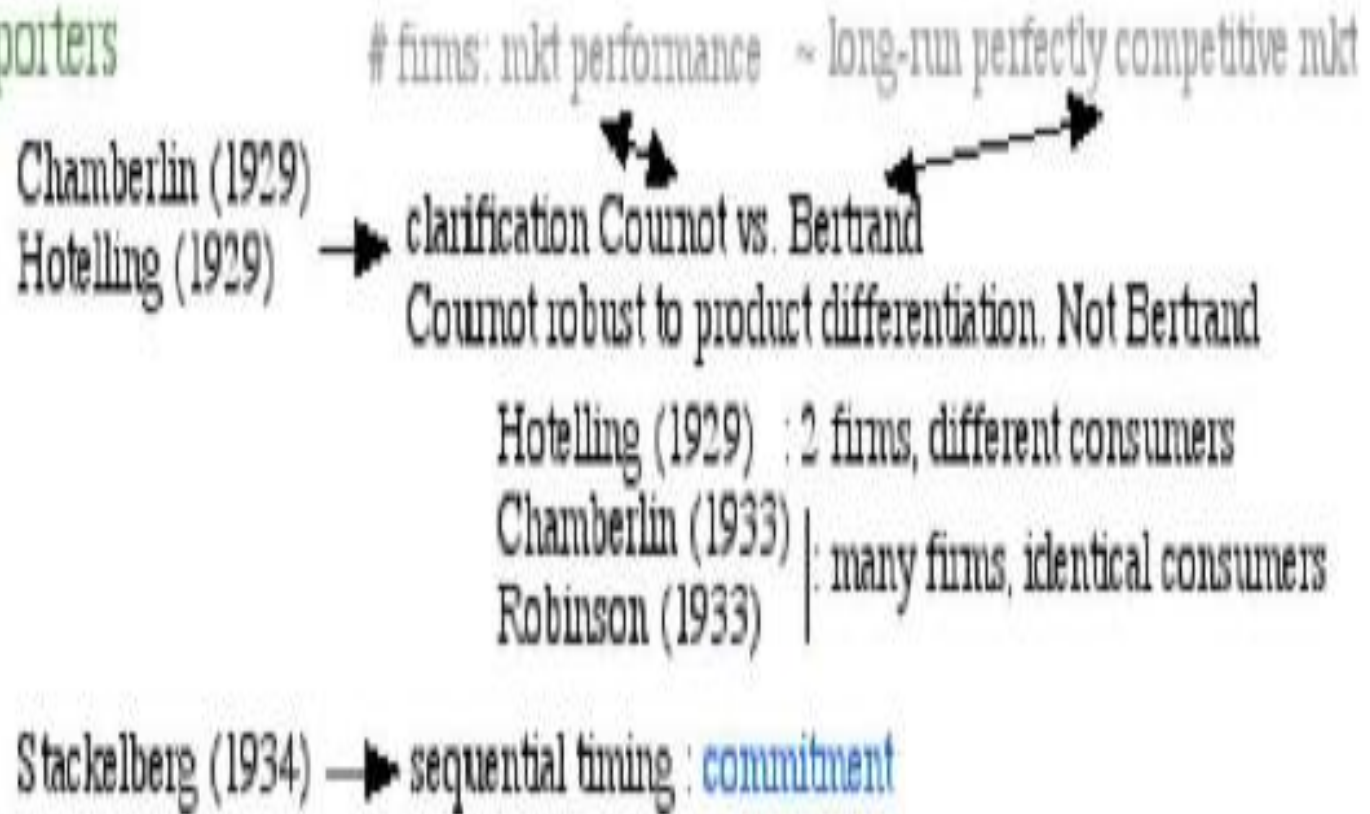
* The qualitative nature of the predictions of the Cournot model are robust to the introduction of product differentiation. The same cannot be said of the Bertrand model. (Martin (2002)).

A historical perspective

From that point Cournot's model served as a departure point to other analysis. Hotelling (1929), Chamberlin (1933), and Robinson (1933) introduced product differentiation. Hotelling's segment model introduces different preferences in consumers and provides the foundation for location theory by assuming consumers buying at most one unit of one commodity; Chamberlin and Robinson considered a large number of competitors producing slightly different versions of the same commodity (thus allowing them to retain some monopoly power on the market) and assumed that consumers had convex preferences over the set of varieties. Stackelberg (1934) considered a sequential timing in the firms' decisions, thus incorporating the idea of commitment.

A historical perspective

Supporters



A historical perspective

Some years later, von Neumann and Morgenstern (1944) and Nash (1950, 1951) pioneered the development of game theory, a toolbox that provided the most flourishing period of analysis in oligopoly theory along the 1970's.

Refinements of the Nash equilibrium solution like Selten's subgame perfect equilibrium (1965) and perfect equilibrium (1975), Harsanyi's Bayesian Nash equilibrium (1967-68), or Kreps and Wilson's sequential equilibrium (1982) have proved essential to the modern analysis of the indeterminacy of prices under oligopoly.

Also, the study of mechanisms allowing to sustain (non-cooperative) collusion was possible with the development of the theory of repeated games lead by Friedman (1971), Aumann and Shapley (1976), Rubinstein (1979), and Green and Porter (1984).

A historical perspective

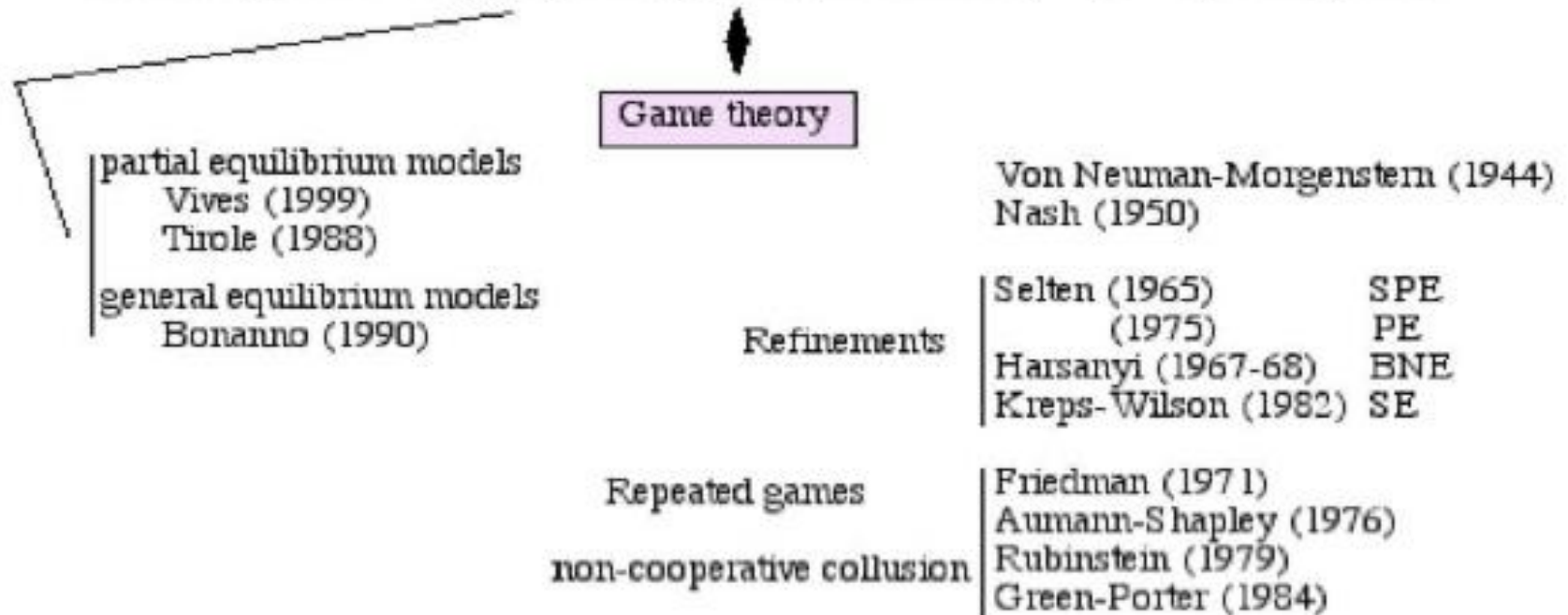
Synthesis

Industrial Economics

Origin: Mason (1939), Bain (1949, 1956) → Monopolistic competition revolution

Classic approach : SCP paradigm → '40s, '50s, '60s [survey, Schmalensee (1989)]

Modern approach : Oligopoly theory (strategic interaction) → '70s, '80s, present



The Structure-Conduct-Performance (SCP) approach

According to the structure-conduct-performance approach, an industry's performance (the success of an industry in producing benefits for the consumer) depends on the conduct of its firms, which then depends on the structure (factors that determine the competitiveness of the market). The structure of the industry then depends on basic conditions, such as technology and demand for a product. For example: in an industry with technology that the average cost of production falls as output increases, the industry tends to have one firm, or possibly a small number of firms.

http://en.wikipedia.org/wiki/Industrial_organization

The Structure-Conduct-Performance (SCP) approach

Components of the structure, conduct, and performance model for industrial organization include:

- **basic conditions:** consumer demand, production, elasticity of demand, technology, substitutes, raw materials, seasonality, unionization, rate of growth, product durability, location, lumpiness of orders*, scale of economies, method of purchase, scope economies
- **structure:** number of buyers and sellers, barriers to entry of new firms, product differentiation, vertical integration, diversification

* Orders are lumpy when sales occur relatively infrequently in large batches as opposed to being smoothly distributed over the year. Lumpy orders reduce the frequency of competitive interactions between firms.

The Structure-Conduct-Performance (SCP) approach

- **conduct:** advertising, research and development, pricing behavior, plant investment, legal tactics, product choice, collusion, merger and contracts
- **performance:** price, production efficiency, allocative efficiency, equity, product quality, technical progress, profits
- **government policy:** government regulation, antitrust, barriers to entry, taxes and subsidies, investment incentives, employment incentives, macroeconomic policies

The Structure-Conduct-Performance (SCP) paradigm

Structure Conduct Performance Paradigm is an approach used to analyze the relation among market performance, market conduct, and market structure. It indicates that market structure determines the market conduct, and thereby sets the level of market performance. Working backward, we find that market performance is determined by market conduct, which in return depends on market structure. SCP has been applied to a diverse range of problems, from helping businesses become more profitable to helping understand the subprime mortgage crisis in the United States.

The Structure-Conduct-Performance (SCP) paradigm

BASIC CONDITIONS	
SUPPLY Raw materials Technology Product durability Value/weight Business attitudes Unionization	DEMAND Price elasticity Rate of growth Substitutes Marketing type Purchase method Cyclical and seasonal character

The Structure-Conduct-Performance (SCP) paradigm

MARKET STRUCTURE

Number of sellers and buyers
Product differentiation
Barriers to entry
Cost structures
Vertical Intergration
Conglomerateness

The Structure-Conduct-Performance (SCP) paradigm

CONDUCT

Pricing behavior

Product strategy

Research and Innovation

Advertising

Legal tactics

The Structure-Conduct-Performance (SCP) paradigm

PERFORMANCE

Productive and allocative efficiency

Progress

Full employment

Equity

The Structure-Conduct-Performance (SCP) paradigm

Economists are especially interested in studying the SCP paradigm because they think that seller concentration affects the industry's social performance. The economic theorists express that effect in terms of higher profits earned by the monopoly. On the other hand, Industrial Organization economists express the effect in terms of locative inefficiency.

The Structure-Conduct-Performance (SCP) paradigm

However, economists who use the Structure Conduct Performance (SCP) approach disagree on the emphases that they give to each of the three elements. Some give market structure and market conduct an equal importance in determining market performance. Others argue that market conduct is largely determined by market structure, hence, market performance depends heavily on market structure, and that leads them to pay little attention to market conduct.

Market Structure Conduct and Performance framework was derived from the neo-classical analysis of markets.

Oligopoly theory versus the SCP paradigm

Industrial Economics deals with the study of the behavior of firms in the market. The field as a separate area within microeconomics appears after the so-called monopolistic competition revolution, linked to the names of Mason (1939) and Bain (1949, 1956) (“Harvard tradition”). Barriers to entry was the central concept giving rise to market power. The approach is essentially motivated by stylized facts arising from an empirical tradition seeking how the structural characteristics of an industry determine the behavior of its producers that, in turn, yields market performance. This framework of analysis is the Structure-Conduct-Performance paradigm (Scherer (1970); Schmalensee (1989); Martin (2002)).

Oligopoly theory versus the SCP paradigm

This paradigm dominated the evolution of the field for three decades. During these years research was mainly discursive and informal and independent of the formal microeconomic analysis of imperfect markets. Basically, the SCP provided a general framework allowing the implementation of public policies from empirical regularities observed in many industries. The early seventies witnessed a major revolution in the analysis, leading to the so-called “new industrial economics”.

Oligopoly theory versus the SCP paradigm

Following Martin (2002), three factors are behind this evolution. (i) the conclusions of the formal microeconomic models are not qualitatively different from those of the SCP paradigm.; (ii) empirical economists held that market structure should be treated as endogenous rather than exogenous with respect to conduct and performance. This raised the need for a theoretical foundation of the econometric models (to be found in the microeconomic models of oligopoly); (iii) last but not least, the application of game theory to the modeling of oligopolistic interaction provided the definite element to replace the SCP paradigm and place Oligopoly Theory (understood as the analysis of strategic interactions being central to the determination of market performance) and the standing methodology.

Business Dictionary's Meanings

- **Oligopoly** - market situation between, and much more common than, perfect competition (having many suppliers) and monopoly (having only one supplier). In oligopolistic markets, independent suppliers (few in numbers and not necessarily acting in collusion) can effectively control the supply, and thus the price, thereby creating a seller's market. They offer largely similar products, differentiated mainly by heavy advertising and promotional expenditure, and can anticipate the effect of one another's marketing strategies. Examples include airline, automotive, banking, and petroleum markets.
- **Oligopsony** - market situation where presence of few buyers and many suppliers creates a buyer's market.

<http://www.businessdictionary.com/>

Theory about development

The two decades from the early 1970's until the late 1980's has been the most flourishing period of theoretical development in industrial organization. The main methodological difference with respect to the SCP paradigm is that game theoretical models are rather specific and their predictions about equilibrium behavior often not robust to minor changes in the set of underlying assumptions. During 1980-90 game theory took center stage with emphasis on strategic decision-making and Nash equilibrium concept. After 1990, empirical industrial organization with the use of economic theory and econometrics led to complex empirical modeling of technological changes, merger analysis, entry-exit and identification of market power.

Review questions

1. Describe the essence of the SCP paradigm and components of this model for industrial organization.
2. Discuss the need of oligopoly theory versus the SCP paradigm.
3. Explain the different ideas for industrial organization in a historical perspective.

Market structure

The Market structure consists of the relatively stable features of the market environment that influence rivalry among the buyers and sellers operating within this market. The main elements that influence market structure are, seller concentration, product differentiation, barriers to entry, barriers to exit, buyer concentration, and the growth rate of market demand. Other elements of market structure exist, but they are usually unstable and therefore ignored either because they can't be measured or because they are hard to observe.

Elements of market structure

First, Seller concentration

Refers to the number and size distribution of firms in the market. The most widely used device is determining seller concentration is the Concentration Ratio. To compute the concentration ratio, the firms are ranked in order of size “usually measured in terms of sale”, starting from the largest in the industry at the top and going down to the smallest firm at the bottom. Concentration ratios are usually given for the largest 4, largest 8, and sometimes the largest 20 firms. Usually industries that are highly concentrated in one advanced economy tend to be highly concentrated in another.

Elements of market structure

Second, Product differentiation

A differentiation or distinguishing a product from the products of other competing firms. Differentiation of products along key features and minor details is an important strategy for firms to defend their price from leveling down to marginal cost.

Whether or not products (that are described by certain features or characteristics) are differentiated depends on consumer preferences. One source of product differentiation is heterogeneity among consumers. Consumer preferences are specified on the underlying characteristics space. This approach is often called *the characteristics approach**

* Belleflamme, P., Martin Peitz. *Industrial Organization: Markets and Strategies*. Cambridge University Press, 2010; <http://203.128.31.71/articles/0521681596.pdf>

Elements of market structure

It has the advantage – new product introduction and product modifications can be analysed without ambiguities. Such ambiguities may arise if preferences are only defined over products. In addition, consumers typically are assumed to make a discrete choice among products (and possibly an outside option), i.e. they decide which brand or product to buy and do not mix between different products. This approach is therefore called *the discrete choice approach*. Most models in this approach have the additional property that consumers buy zero or one unit of the product; however, also models with variable demand and discrete choice can be analysed. An alternative approach is to model each consumer with a variable demand for all products but to assume that all consumers are identical. This is called *the representative consumer approach*.

Elements of market structure

A) Horizontal differentiation

When products are different according to features that can't be ordered in an objective way, or in other words, at the same price, some consumers would prefer the product while others would prefer a different substitute. Horizontal differentiation can be differentiation in colors (different color version for the same good), in styles (e.g. modern/antique), or in tastes. A typical example is the ice cream offered in different tastes. Chocolate is not better than Mango.

Horizontal product differentiation is a situation in which each product would be preferred by some consumers.

Elements of market structure

If for equal prices consumers do not agree on which product is the preferred one, products are horizontally differentiated.

B) Vertical differentiation

Vertical differentiation occurs in a market where the several goods that are present can be ordered according to their objective quality from the highest to the lowest. It's possible to say in this case that one good is "better" than another.

If everybody would prefer one over the other product, products are vertically differentiated.

Elements of market structure

If for equal prices, all consumers prefer one over the other product, products are vertically differentiated.

We are in a situation of vertical product differentiation if all consumers prefer one over the other product if prices are set at marginal costs.

Although the distinction between horizontal and vertical differentiation is useful for research purposes, it is not easy to draw this distinction in practice. Indeed, as illustrated in case below, many real-world products or services combine elements of the two types of differentiation, as they are defined by more than one characteristic (all consumers may prefer to have more of each characteristic, which indicates vertical differentiation, but they may differ in how they value different characteristics, which indicates horizontal differentiation).

Elements of market structure

C) Mixed differentiation

Certain markets are characterized by both horizontal and vertical differentiation. For instance, apparel, and shoes have a rich combination of shapes, colors, materials, and appropriateness to social events. In such markets, the differences in colors or shapes are horizontal differentiation, while the quality of the materials is usually perceived as vertical differentiation.

Case 1. Coffee differentiation*

Examples for horizontal and vertical product differentiation are even found in some markets for raw materials, which at first glance may look like the perfect example of a homogeneous product market. Take coffee (for those who prefer tea, the phenomenon is less recent). Coffee drinkers in rich countries have been made aware (or, depending on your view, made believe) by specialty roasters including mass phenomena like 'Starbucks' that origin and type of coffee matter for taste. This trend has led to prizes for the best coffee in various competitions and protected trademarks (and even disputes along the vertical supply chain about these trademarks).

Case 1. Coffee differentiation*

This suggests that, while the commodity market still plays an important role for coffee producers, some growers have definitely left this market and stepped up the ladder of vertical product differentiation (and, in addition, have horizontally differentiated). Take for instance Fazenda Esperanca, who won first prize in Brazil's Cup of Excellence competition for the 2006 harvest. It made close to US\$2000 per bag (of 60 kg), more than ten times the commodity price in an online auction in January 2007 (the winning bidders came from Japan and Taiwan).

* Belleflamme, P., Martin Peitz. *Industrial Organization: Markets and Strategies*. Cambridge University Press, 2010; <http://203.128.31.71/articles/0521681596.pdf>

Elements of market structure

Third, Barriers to entry / Entry Deterrence

A set of economic forces that create a disadvantage to new competitors attempting to enter the market. These forces could be government regulation such as IP rights, or patent, or they could be large economies of scale in a specific industry, or high sunk costs required to enter the market. Sometimes firms within a specific industry adopt certain pricing strategies to create barriers to entry, one of the most widely adopted strategy is limit pricing by lowering prices to a level that would force any new entrants to operate at a loss, this strategy is especially effective when the existing firms have a cost advantage over potential entrants.

Case 2. Entry Deterrence

*Alcoa Convicted of Monopolization: Judge Learned Hand Rules
Aggressive Capacity Expansion Illegal*

Alcoa was the sole producer of aluminum in the United States from 1912 to 1937 and in the latter year, the United States Department of Justice charged it under Section 2 of the Sherman Act with monopolization. Its dominance over the period 1912 to 1938 is suggested by its market share. Except for three years its market share over this period always exceeded 80%. In 1912 its market share in the sale of virgin aluminum ingot was 91% and from 1934 to 1938 its average market share exceeded 90%. Competition from imports peaked in 1921 when Alcoa's market share dipped to 68%.

Case 2. Entry Deterrence

What accounted for its dominance? Earlier entry had been deterred by intellectual property rights and—perhaps—collusion and illegal contracting practices. Alcoa's patent on aluminum excluded any other producer of aluminum before 1906 and a process patent excluded any other producer from using its substantially superior production process before 1909. In 1912 Alcoa agreed to a consent decree enjoining it from entering into agreements with foreign producers that limited imports into the U.S. and from entering or enforcing agreements with power companies not to sell electricity to other aluminum producers. But what accounted for its dominance after 1912? One clue: in 1912 Alcoa's production capacity was 42 million pounds of ingot, but by 1934 its capacity had increased almost 8 times to 327 million pounds.

Case 2. Entry Deterrence

In 1945, Judge Learned Hand ruled that Alcoa was a monopolist and that it had unlawfully monopolized the market for aluminum ingot in the United States. Its weapon: aggressive expansion of capacity:

It was not inevitable that it [Alcoa] should always anticipate increases in the demand for ingot and be prepared to supply them. Nothing compelled it to keep doubling and redoubling its capacity before others entered the field. It insists that it never excluded competitors; but we can think of no more effective exclusion than progressively to embrace each new opportunity as it opened, and to face every newcomer with new capacity already geared into a great organization, having the advantage of experience, trade connections and the elite of personnel.

Case 2. Entry Deterrence

Hand's finding raises two interesting sets of questions:

- How can a monopolist raise or create barriers to entry to preserve its dominance? More specifically in the *Alcoa* case, how did Alcoa's investment in capacity deter entry? Under what circumstances is Alcoa's threat to produce at capacity credible?
- What are the efficiency implications of strategic behavior that deters entry, preserving a dominant position? Even though the creation of entry barriers is *anticompetitor*, is it necessarily *anticompetitive*? More specifically in the *Alcoa* case, what are the welfare effects of preemptive investment in capacity that deter entry? Should an incumbent be condemned merely for expanding to meet growing demand?

Elements of market structure

Definitions of Church & Ware (2000)

An **entry barrier** as a structural characteristic of a market that protects the market power of incumbents by making entry unprofitable. Profitable **entry deterrence**—preservation of market power and monopoly profits—by incumbents typically depends on these structural characteristics and the behavior of incumbents postentry.

Requirements for profitable entry deterrence:

- *if* products are homogeneous, and
- *if* both incumbent and entrant have the same cost functions—economies of scale and the ability of the incumbent to commit to act sufficiently aggressively postentry.

Elements of market structure

The Role of Investment in Entry Deterrence

Central to the finding that Alcoa monopolized the market for primary aluminum was Alcoa's investment in capacity. Investment in capacity was also the basis for an unsuccessful monopolization complaint against Du Pont brought by the Federal Trade Commission in the market for titanium dioxide. NutraSweet's aggressive expansion of its capacity played a role in the finding by the Competition Tribunal in Canada that there were substantial barriers to entry into the production of aspartame*.

* **Aspartame** is an artificial, non-saccharide sweetener used as a sugar substitute in some foods and beverages.

Elements of market structure

Two different versions that an incumbent might use capacity to deter entry:

The first is that an incumbent will invest in excess capacity — which it then holds in reserve until entry. If an entrant should dare enter, the incumbent uses this capacity to meet demand when it launches a price war, so excess capacity is a signal of postentry aggression. *The second version* is more subtle. An incumbent might overinvest in capacity to lower its short-run marginal costs of production*. This provides it with a commitment to produce the limit output if there is entry. However, this variant does not necessarily imply that the firm has excess capacity in the absence of entry. Given that capacity costs are sunk, even a monopolist might find it profitable to produce at capacity.

Elements of market structure

* Marginal costs of production

The change in total cost that comes from making or producing one additional item. The purpose of analyzing marginal cost is to determine at what point an organization can achieve economies of scale. The calculation is most often used among manufacturers as a means of isolating an optimum production level.

The first version has been criticized on theoretical grounds: the threat to utilize capacity postentry may not be credible. Entry likely means that an incumbent will find it profit maximizing to reduce its output, not increase it. The key issue in entry deterrence is the ability of an incumbent to maintain or increase its output postentry.

Elements of market structure

The modern treatment of entry deterrence begins with models by Spence (1977) and Dixit (1980) that address the issue of whether incumbents could or would invest in capacity to deter entry. The question they considered is whether or not an incumbent can strategically invest in capacity in order to credibly threaten to act aggressively—produce the limit output—if there is entry. The difference between the two approaches is the nature of the postentry game. Spence assumes that firms postentry are price takers. Dixit, on the other hand, assumes that the postentry game is Cournot.

Elements of market structure

Dixit demonstrates how and when investments in capacity can provide the means for an incumbent to deter entry by credibly committing it to behave aggressively if an entrant should enter, thereby rendering entry unprofitable. This strategic approach emphasizes how the sunk expenditures* of the *incumbent* provide it with a cost advantage postentry by reducing its variable costs.

* **Sunk expenditures** are unrecoverable past expenditures. These should not normally be taken into account when determining whether to continue a project or abandon it, because they cannot be recovered either way. It is a common instinct to count them, however.
<http://economics.about.com/od/economicsglossary/g/sunkcosts.htm>

Elements of market structure

Strategic Investment and Monopolization

The *Alcoa* decision represents the high-water mark in antitrust enforcement against dominant firms in the United States. It seemed to imply that a firm that innovates and establishes a new market—and that by virtue of creating the market will have a large market share—will be found guilty of monopolization if it expands capacity to maintain market share. The implication appears to be the paradox that antitrust law requires that innovating firms not compete to avoid antitrust liability, but instead are to encourage or induce entry. A firm that attains dominance—even if its dominance is due to efficiency and its effectiveness as a competitor—could be guilty of monopolization.

Elements of market structure

The U.S. Supreme Court in *Grinnell* distinguished between lawful and unlawful **monopolization**. According to the U.S. Supreme Court:

The offense of monopoly under § 2 of the Sherman Act has two elements: (1) the possession of monopoly power in the relevant market and (2) the willful acquisition or maintenance of that power as distinguished from growth or development as a consequence of a superior product, business acumen, or historical accident.

Elements of market structure

This formulation requires monopoly — establishing that a firm is a monopolist in an antitrust market. However, mere possession of monopoly power does not establish liability. Instead the firm must have monopolized the market not by being an effective competitor, but through exclusionary or predatory conduct.

Elements of market structure

In *Aspen Ski* the U.S. Supreme Court observed that “If a firm has been attempting to exclude rivals on some basis other than efficiency, it is fair to characterize its behavior as predatory.” Moreover, exclusionary behavior must not only be anticompetitor, it must be anticompetitive:

“it is relevant to consider its impact on consumers and whether it has impaired competition in an unnecessarily restrictive way.” However, at least in the following case, the Court gave short shrift to whether investments in capacity might ultimately be *socially* inefficient—through their effect on entry barriers—even though they appear to be consistent with the expected behavior of an efficient competitor.

Case 3. *A Movie Monopoly? Cinemas in Las Vegas*

Read the case study and think about:

1. What factors favor the transformation of the Syufy in monopsonist?
2. Do you agree with the praise that Robert Syufy is a “local hero”? Why?
3. Are there specific barriers to entry the Film Industry? Indicate them.

Elements of market structure

Fourth, Barriers to exit

A set of economics forces that influence the firms decision of exiting the market, such forces make it cheaper for the existing firm to stay in the market than to exit the market. Although sunk costs could be barriers to entry, especially when the sunk costs are too large, sunk costs could be a huge barrier to exit as well, because large investments in fixed plant and equipments commits the firm to stay in the market. Barriers to exit increase the intensity of competition in an industry because existing firms have little choice but to stay and fight when market conditions have deteriorated.

Elements of market structure

The loss of business reputation and consumer goodwill, could be a barrier to exit especially if the firm is planning on reentering the market later, or when the firm exits a specific market but still operating in other markets. In such a situation, the decision to leave the market can seriously hurt the reputation of the firm among current consumers in other markets, and affect the goodwill among previous customers, not least those who have bought a product which is then withdrawn and for which replacement parts become difficult or impossible to obtain.

Elements of market structure

Fifth, **Buyer concentration** (The number of buyers in a market)

Buyer concentration is as equally important as seller concentration, especially in markets with a few buyers. The term was used by Michael E. Porter in 1979 in his “Five Forces Analysis”. Porter’s analysis proposes that in markets with high buyer concentration, the firms earn lower level of profits than in markets with low buyer concentration.

Elements of market structure

Sixth, The growth rate of market demand

The market structure in industries with a relatively static demand or low growth rate of demand is different from the market structure in industries with an accelerated demand growth. That's because when the demand grows fast enough, the firms have their hands full just expanding their production capacities, in this case, if new entrants are coming in, there will be little incentive to fight for market share. Also, firms are likely to honor oligopolistic agreements with each other, and profits tend to be high. All these elements of market structure tend to be stable over time. However, they are all interrelated. Any change in one tends to bring about changes in another. By realizing this relation among the different elements of market structure, it becomes easier to understand why market structures change over time.

Elements of market structure

Seventh, Conduct

Conduct means what firms do to compete with each other. It includes pricing, advertising, research and development investment, decisions on product dimensions, merger and acquisition, etc. Conduct also can include collusion both explicit or tacit.

Elements of market structure

Eighth, Performance

The performance of an industry or firm is measured by profitability. Profit is the difference between revenue and cost, and revenue is determined by price. Thus performance can be influenced through changing costs or prices. Profitability can also be affected by a firm's agility (i.e. ability to adjust to things like changes in market demand). Research and development, and availability of capital and resources are factors that greatly influence whether or not a firm is agile. The ability to measure performance between industries is important in understanding the SCP relationships.

Elements of market structure

For example, if an industry is dominated by one firm or cartel does not see higher costs than a competitive industry yet has monopoly prices, then that non-competitive industry will see higher profits, whereas if costs increase, then profitability levels will be relatively similar. This comparison is the driving force behind anti-trust legislation. Structure-Conduct-Performance paradigm (SCPP) predicts that performance increases with concentration of the industry. This is in contrast with the efficiency hypothesis that states that a firm's performance is based on how well and efficiently it produces its product for the consumer.

Elements of market structure

Ninth, SCP Interaction

There are two hypotheses in the Structure-Conduct-Performance (SCP) paradigm: *the traditional “structure performance hypothesis”* and *“efficient structure hypothesis”*.

The structure performance hypothesis states that the degree of market concentration is inversely related to the degree of competition. This is because market concentration encourages firms to collude. This hypothesis will be supported if positive relationship between market concentration (measured by concentration ratio) and performance (measured by profits) exist, regardless of efficiency of the firm (measured by market share). Thus firms in more concentrated industries will earn higher profits than firms operating in less concentrated industries, irrespective of their efficiency.

Elements of market structure

The efficiency structure hypothesis states that performance of the firm is positively related to its efficiency. This is because market concentration emerges from competition where firms with low cost structure increase profits by reducing prices and expanding market share. A positive relationship between firm profits and market structure is attributed to the gains made in market share by more efficient firms, but not to the collusive activities, as the traditional SCP paradigm would suggest (Molyneux and Forbes, 1995).

Elements of market structure

Tenth, Relationship of structure to performance

Early studies by Bain (1951; 1956) hypothesized a positive relationship between industry concentration, barriers to entry and profits. Though his studies are flawed in the measurement of profit rates and choice of industries (Brozen (1971)), later papers supported this hypothesis (Mann (1966); Weiss (1974)).

Elements of market structure

However, the differential in the performance measures between concentrated and non-concentrated industries fell substantially overtime (Brozen (1971); Hubbard and Petersen (1986)). Moreover, studies based on more recent data tend to find only a weak relationship or no relationship between the structural variables and performance (Salinger (1984); Kwoka and Ravenscraft (1985)). As a result, some econometric studies began to look at other factors impacting industry performance. These studies commonly found that high rates of return and industry growth are related.

Elements of market structure

Other researchers studied the structure-performance relationship using alternative measures of performance, for example, the speed of adjustment of capital. They found that the capital-output ratio is positively related to concentration. The explanation for this phenomenon has not been verified, but it is possible that in highly concentrated markets, there are more specialized capital which is more difficult to adjust, thus in these markets high profits take longer to fall back to the industry average. Similarly, if concentrated industries take longer time to react to demand changes, then, all else equal, good economic news should raise the value of a company more in a concentrated industry than in a non-concentrated industry (Lustgarten and Thomadakis (1980)).

Elements of market structure

Eleventh, **Relationship between structure and conduct**

Conduct is influenced by market structure since firm strategies differ with competition. Inversely, conduct can influence market structure because firms can make entry cost endogenous by choosing different levels of quality, advertising and so on, thus affect the potential entrant number.

Elements of market structure

Twelfth, Relationship between conduct and performance

Conduct is related to performance. For example, advertising expenditure is usually higher in highly profitable industries, because firms with more profits can afford higher advertising costs, and in order to keep their profits and prevent new entrants into the profitable market, these firms would use advertising investments as endogenous sunk costs. Econometric studies linking profit to market structure often conclude that measured profitability is correlated with the advertising-to-sales ratio and with the Research & Development (R&D) expenditures-to-sales ratio.

Elements of market structure

The top managers' perceptions of the market structure and the firm's strengths and weaknesses jointly determine their choice of *corporate strategy* (its long-run plan for profit maximization) and *organizational structure* (the internal allocation of tasks, decision rules, and procedures for appraisal and reward, selected for the best pursuit of that strategy). Both corporate strategy and organizational structure influence the economic performance of the firm and the market in which it sells.

Richard Caves, Harvard University, 1980

Conclusion

In essence, with the SCPP we seek to find the answer to how firms interact and compete with each other in different situations, and the results of these interactions, and are these results consistent with an ideal competition or not. That way, an argument can be supported on whether or not action should be taken to alter the market structure or regulate market conduct. It is interesting there is such a debate on the emphasis on market structure vs. market conduct on the influence of performance since it is clear that structure and conduct are themselves influenced by each other. Joseph Bain was one of the first to realize this and his work led to the re-evaluation of public policy that had been fostered by the SCP framework. In industrial organization, real world, imperfect competition is studied, and there are so many different examples that the way markets are evaluated is continually evolving and changing.

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THANK YOU FOR THE ATTENTION