

WELCOME TO THE REAL WORLD OF MONOPOLISTIC COMPETITION AND OLIGOPOLY



THE MAJORITY OF CANADIAN INDUSTRIES DO
NOT QUALIFY AS "PERFECTLY COMPETITIVE"
NOR AS A "PERFECT MONOPOLY"

MONOPOLISTIC COMPETITION

STRUCTURE:

- Relatively Large Numbers of Sellers
 - Small Market Share
- Product Differentiation
 - Product Quality
 - Services
 - Location
 - Advertising and Packaging
- Easy Entry and Exit

CONDUCT:

- No collusion
 - Independent actions
- Non-price competition

PERFORMANCE:

- Allocative inefficiency
- Productive inefficiency
 - Excess capacity

OLIGOPOLY

STRUCTURE:

- Few Sellers
 - Large Market Share
- Product Differentiation
 - Homogeneous (standardized) or
 - Heterogeneous (differentiated)
- Difficult Entry and Exit
 - Generally high sunk costs

CONDUCT:

- Strong sense of interdependence
- Non-price competition

PERFORMANCE:

- Allocative inefficiency (price not equal to marginal cost)
- Productive (technical) efficiency (not clear)
- Dynamic efficiency (not clear)

MEASURES OF CONCENTRATION

Two measures commonly used:

- Concentration Ratio
- Herfindahl Index

CONCENTRATION RATIO

CR_x = % of market accounted for (i.e., market share) by the largest x firms.

For example,

CR_4 = % of market accounted for by the four largest firms.

CR_4 often published based on national production.

Problems:

- Some markets are local rather than national
- World trade has increased competition
- Interindustry competition not captured by CR_4
- CR_4 gives no information on relative sizes of top four (e.g., with a $CR_4 = 80\%$, the largest firm might have 65% and the other three just 5% each; or, all might have 20% each).

HERFINDAHL INDEX

H index =

$$(\%S_1)^2 + (\%S_2)^2 + (\%S_3)^2 + (\%S_4)^2 + (\%S_5)^2 + \dots (\%S_n)^2$$

Where S_1 is the market share of the first firm, S_2 is the market share of the second firm, and so forth.

In the case of a monopoly, $H \text{ index} = (100)^2 = 10,000$. This is the maximum value the H index can take.

If there were two firms in the industry, with market shares of 75% and 25% respectively, the H index would be:

$$(75)^2 + (25)^2 = 5,625 + 625 = 6,250$$

If there were 100 firms with 1% of the market each, the H index would be:

$$(1)^2 + (1)^2 + (1)^2 + (1)^2 + (1)^2 + (1)^2 + (1)^2 + \dots + (1)^2 = 100$$

CR ₄ Range	CONCENTRATION LEVEL	STRUCTURAL DESCRIPTION
75% - 100%	very high	tight oligopoly
50% - 74%	high	tight oligopoly
25% - 49%	moderate	loose oligopoly
< 25%	low	atomistic

INDUSTRIAL CONCENTRATION IN CANADA - 1996 (Mining, Manufacturing, Logging)

CR ₄ Range	Industries (number)	% of Industries
75-100	51	22%
50-74	73	32%
25-49	82	35%
<25	25	11%

CONCLUSION: ONLY 11% OF CANADIAN MANUFACTURING INDUSTRIES (or 15% of sales) ARE "MONOPOLISTICALLY COMPETITIVE" OR APPROACH "PERFECT COMPETITION" (N.B. services are not included)

54% of industries (accounting for 59% of sales) are characterized as "tight oligopolies".

OLIGOPOLISTIC INTERDEPENDENCE

THE QUESTION IS HOW THEY ACT UPON THAT INTERDEPENDENCE

GAME THEORY IS ONE METHOD OF MODELING OLIGOPOLISTIC INTERDEPENDENCE

TWO EXTREME CASES

- PERFECT COLLUSION
- OUTRIGHT WARFARE (PREDATION)

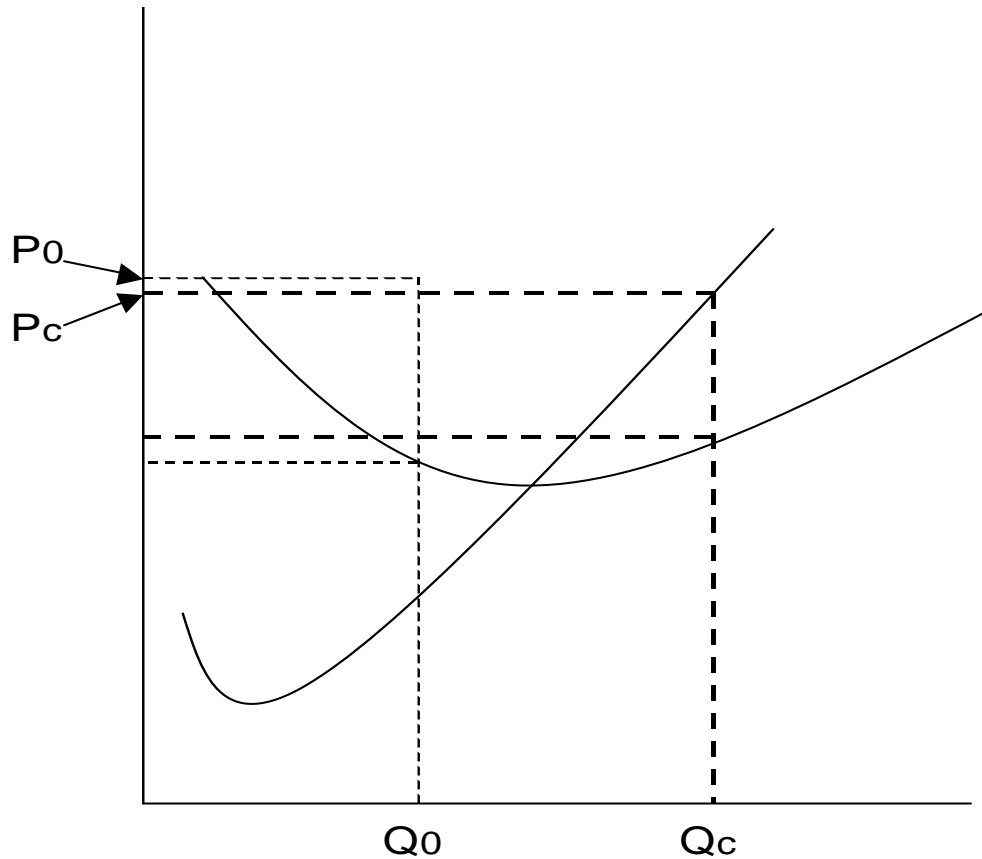
Figure 9-5

PRISONER'S DILEMMA PAYOFF MATRIX

		<u>Al's strategies</u>	
		<u>Confess</u>	<u>Not confess</u>
Bruno's strategies	Confess	<div>A</div> <div>4</div> <div><u>4</u></div>	<div>B</div> <div>1</div> <div><u>12</u></div>
	Not confess	<div>C</div> <div>12</div> <div><u>1</u></div>	<div>D</div> <div>2</div> <div><u>2</u></div>

Numbers in the cells are years in prison.

The Incentive to Cheat



P_0 is the cartel price. Q_0 is the firm's output share under the cartel. The cartel member makes economic profits.

But, if the firm could cheat (undercut the cartel price), it could sell as much as it wanted at the lower price (since the cartel members are assumed not to cheat).

P_c is the cheating price. Q_c is the firm's output at the cheating price (Note, it is profit maximizing because $MC = MR$ ---- in this case the firm can sell all it wants at P_c so P_c is MR)

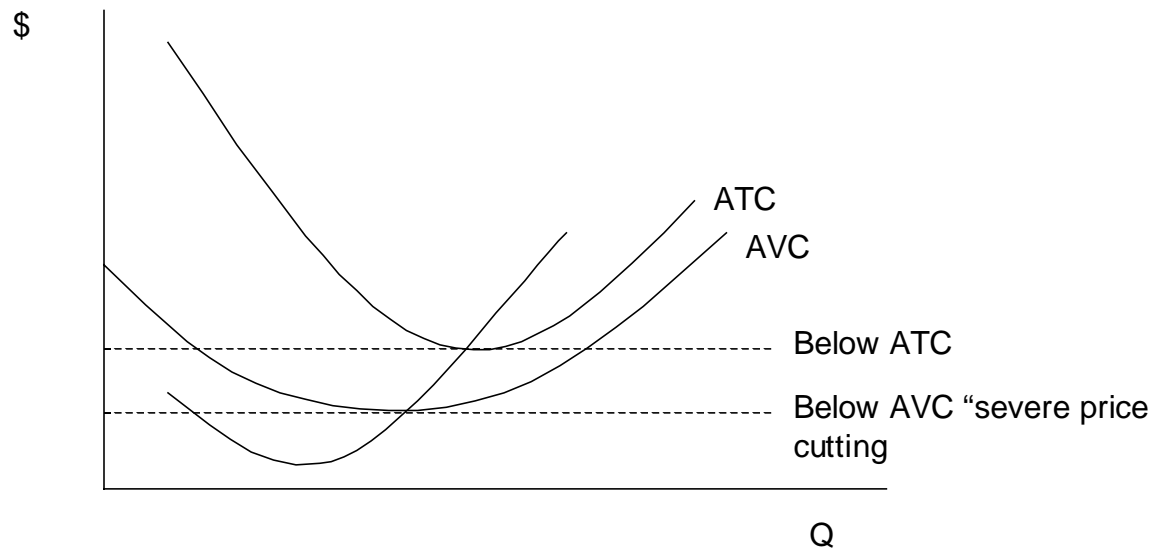
Look at the difference in profits..

PRICE WARS AND PREDATION

PREDATION MEANS PRICING TO DRIVE A RIVAL FROM THE MARKET

BUT, A FIRM MIGHT PRICE BELOW COST FOR MANY REASONS

- SHORT RUN LOSS MINIMIZATION
- BUILD MARKET SHARE AT TIME OF ENTRY
- DISCIPLINE RIVALS



METHODS TO FACILITATE “COOPERATION”

1) AGREEMENT

- OVERT COLLUSION (a formal cartel, but difficult to enforce and illegal)
- COVERT COLLUSION

2) DOMINANT FIRM PRICE LEADERSHIP

- INFREQUENT CHANGES
- COMMUNICATIONS
- LIMIT PRICING (EXCLUDE NEW ENTRANTS)

3) FORMULA PRICING

- PRICE BOOKS
- COST-PLUS PRICING
- DELIVERED PRICING

OLIGOPOLIES AND ADVERTISING

- GIVEN THEIR INTERDEPENDENCE, OLIGOPOLISTS AVOID PRICE COMPETITION
- THEY DO USE NON-PRICE COMPETITION (MODEL CHANGES, ADVERTISING, BETTER GUARANTEES, ETC. ETC.)
- ADVERTISING: POSITIVE EFFECTS
 - MORE INFORMATION IS BETTER (MOST ADVERTISING IS INFORMATIVE)
- ADVERTISING: NEGATIVE EFFECTS
 - MISLEADING ADS
 - BARRIERS TO ENTRY

EMPIRICAL TESTING OF THE RELATIONSHIPS

STRUCTURE

Number of Sellers
Barriers to Entry
Product Differentiation
Number of Buyers

PERFORMANCE

Technical Efficiency
Allocative Efficiency
Dynamic Efficiency
Equity

1. Can we find a relationship between the number of sellers (measured by the CR, and the level of technical efficiency? How do we measure technical efficiency?

a) Percent of industry at or above MOS

b) Extent of X-inefficiency

Data shows no strong relationship between the CR and a), but some relationship with b)

2. Can we find a relationship between the number of sellers (measured by the CR), and the level of allocative efficiency? How do we measure allocative efficiency?

a) $P = MC$ is the goal. When $P > MC$ this is associated with economic profits. The existence of economic profits is a measure of allocative inefficiency

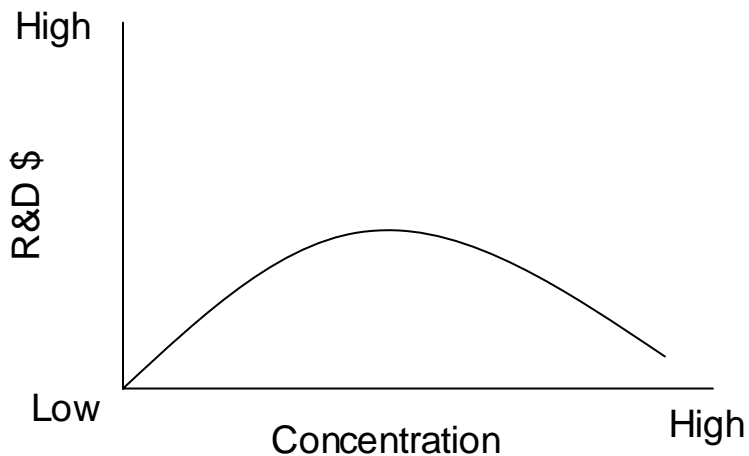
The CR and economic profit are positively related.

3. Can we find a relationship between the number of sellers (measured by the CR, and the level of dynamic efficiency? How do we measure dynamic efficiency?

a) Patents

b) Expenditures on R&D

The relationship between the CR and R&D is concave (R&D goes up as concentration goes up - to a point - and then declines.



SUMMARY

Structural Characteristic	Performance dimension	Relationship
CR	technical efficiency	not clear
CR	allocative efficiency	negative
CR	dynamic efficiency	not clear
Barriers	allocative efficiency	negative

COMPETITION POLICY AND REGULATION

GOVERNMENT HAS TWO BROAD POLICY
METHODS TO DEAL WITH MARKET POWER

1. PROTECT COMPETITION

- COMES UNDER THE HEADING OF
“COMPETITION POLICY” REFLECTED IN
THE *COMPETITION ACT*

2. DIRECT REGULATION OF MONOPOLIES

- REVIEW CHAPTER 8 (PAGES 220-221)

IN ADDITION GOVERNMENT IMPLEMENTS
POLICIES TO "IMPROVE" THE MARKET: SOCIAL
REGULATION

COMPETITION POLICY: TWO MAIN TYPES

I Conduct (aimed at firm behaviour)

A Price fixing is illegal

1 Reasonableness of the price is no defence

2 Extent of the market controlled is an issue

B Other types of conduct are illegal (predatory pricing)

C Some types of conduct are reviewable (vertical restraints such as exclusive dealing, exclusive territories, tying, resale price maintenance)

II Structure (aimed at industry structure)

Up to 1986 no effective control of merger or monopoly

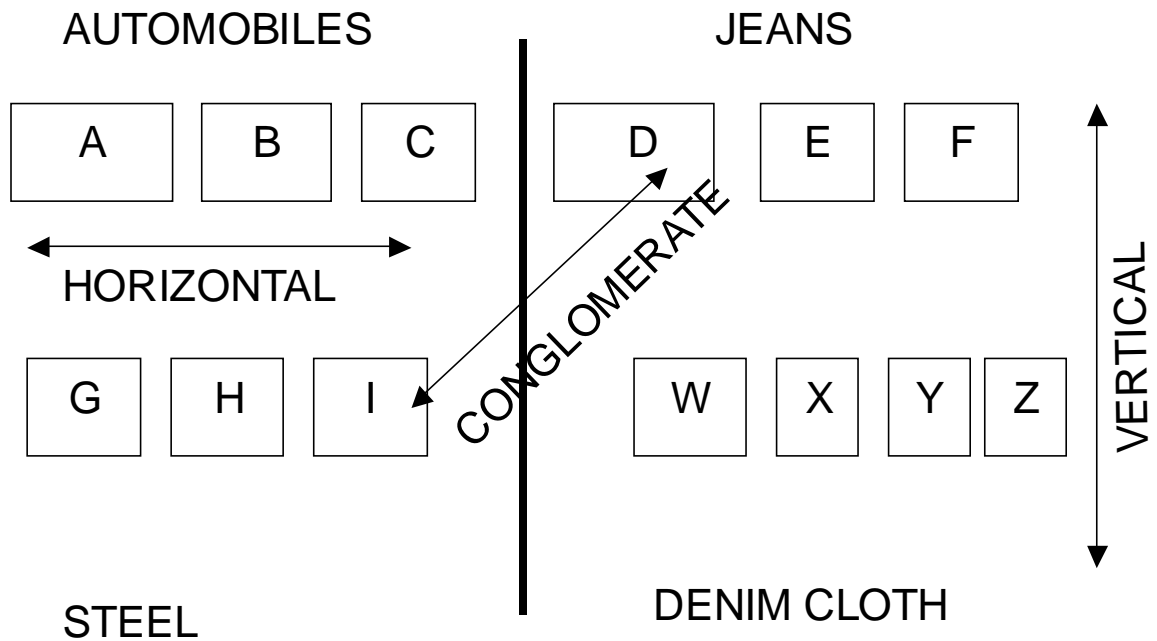
A Merger

- 1 Reviewable, a civil not criminal matter.
- 2 Government does a cost benefit analysis: anti-competitive effects versus efficiency gains.
- 3 Hundreds of mergers are reviewed each year.

B Monopoly

- 1 Monopoly is not illegal, "abuse of a dominant position is"
- 2 "Abuse" can include a lot of practices -- generally includes practices the monopolist employs to maintain its position (e.g., predatory pricing, tying, etc.).
- 3 Only a few big cases.

Types of Mergers



Horizontal Mergers are the main concern

- They increase industry concentration
- They can increase interdependence
- They can result in monopoly or near monopoly

CONSPIRACY

Amount	Date	Product	Company Convicted
\$48,000,000	1999	Bulk Vitamins	F. Hoffmann-LaRoche Ltd
\$18,000,000			BASF Aktiengesellschaft
\$14,000,000			Rhône-Poulenc S.A.
\$14,000,000	1998	Lysine	Archer Daniels Midland Company
\$5,200,000	2000	Bulk Vitamins	Takeda Chemical Industries, Ltd.
\$4,700,000	1998	Citric Acid	Haarmann & Reimer Corp.
\$3,500,000	1998	Lysine	Ajinomoto Co. Inc.
\$2,900,000	1999	Citric Acid	F. Hoffmann-LaRoche Ltd
\$2,500,000	1995	Pipe	Canada Pipe Company Ltd.
\$2,500,000	1999	Bulk Vitamins	Daiichi Pharmaceutical Co., Ltd.
\$2,500,000	1999	Sorbates	Hoechst AG
\$2,460,000	2000	Sorbates	Daicel Chemical Industries, Ltd.
\$1,900,000	1998	Citric Acid	Jungbunzlauer Int'l A.G.
\$1,833,000	1996	Ready Mix Concrete	Lafarge Canada Inc.
\$1,833,000			Ciment St-Laurent Inc.
\$1,733,000			Ciment Québec Inc.
\$1,700,000	1991	Compressed Gas	Union Carbide Canada Limited
\$1,700,000	1991		Canadian Liquid Air Ltd.
\$1,700,000	1991		Liquid Carbonic Inc.
\$1,500,000	2001	Sodium Erythorbate	Pfizer Inc.
\$1,250,000	2001	Sorbates	Ueno Fine Chemicals Industry Ltd.
\$1,000,000	1999	Choline Chloride	BASF Aktiengesellschaft
\$1,000,000	2000	Bulk Vitamins	Merck KGaA

CONSPIRACIES DIRECTED FROM ABROAD

Amount	Date	Product	Company Convicted
\$12,500,000	2000	Graphite Electrodes	SGL Carbon Aktiengesellschaft
\$11,000,000	1999		UCAR Inc.
\$1,250,000	1993	Chemical Insecticide	Sumitomo Canada Ltd.
\$1,250,000	1993		Chemagro Limited
\$370,000	1999	Bulk Vitamins	Roussel Canada Inc.
\$250,000	1994	Fax Paper	Mitsubishi Canada Ltd.
\$250,000	2001	Graphite Electrodes	Tokai Carbon Co., Ltd.

RECENT BIG MERGER CASES

Superior Propane and ICG, disputed, Superior won on the basis that efficiency gains outweighed anti-competitive effects

TD Bank and Canada Trust, had to sell off a number of CT branches

BIG ABUSE OF A DOMINANT POSITION CASES

(i.e., abusing monopoly position)

Tele-Direct (Publications) Inc. (1994) (the Yellow Pages)

The D & B Companies of Canada Ltd. (NIELSEN) (1994) (grocery store scanner info)

Laidlaw Waste System Ltd. (1991) (garbage pickup on Vancouver Island)

The NutraSweet Company (1989) (aspartame, the artificial sweetener)

SOCIAL REGULATION

WORKPLACE SAFETY

PRODUCT SAFETY

ENVIRONMENTAL REGULATION

OVERREGULATION? SOCIAL REGULATION WAS
THE MAIN THE ISSUE.

DEREGULATION: LIFTING OF RULES WHERE
COMPETITIVE MARKETS COULD WORK

- Trucking, airlines, railroads
- Telecommunications (long distance)
- Natural gas (production)

INDUSTRIAL POLICY: REALLY THE COMPOSITE
OF

COMPETITION POLICY

DIRECT REGULATION

SOCIAL REGULATION

INTERNATIONAL TRADE POLICY

LABOUR POLICY

ENERGY POLICY

R&D POLICY

ENVIRONMENTAL POLICY

AGRICULTURAL POLICY

TRANSPORTATION POLICY

ETC., ETC., ETC.