

EE481: Industrial Economics

Overview

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Contact Information

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Textbooks

- Textbooks

- Carlton, D.W. and J.M. Perloff, *Modern Industrial Organization*, 4th Edition, Pearson Addison-Wesley Press, 2005. (Maintext, abbreviation = CP)
- Osborne, M.J., *An Introduction to Game Theory*, Oxford University Press, 2004.
- Church, J. and R. Ware, *Industrial Organization: A Strategic Approach*, International Edition, McGraw-Hill Press, 2000. (Supplement text, CW)
- Tirole, J., *Industrial Organization*, The MIT Press, 1989.

Other Readings

- Harvard Business Review (<http://hbr.org/>)
- The Economist (<http://www.economist.com/>)
- Prachachat Online (<http://www.prachachat.net/>)
- Bangkokbiznews (<http://www.bangkokbiznews.com/home/>)

Grading

- 30% Homework and Pop quizzes
- 30% Midterm Exam
- 40% Final Exam

The Works

- Late homework = 50% of the earned points

The Purpose of this Course

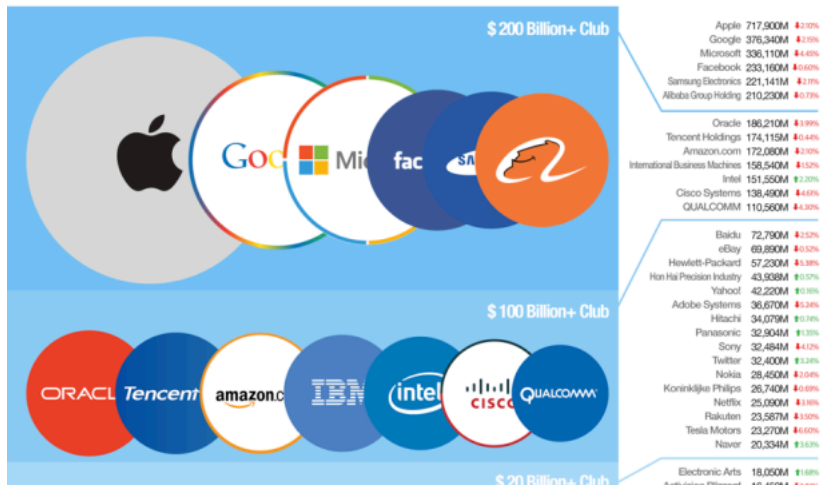
- The purpose of this course is **NOT** to teach you how to do business.
- This course will teach you how to apply economics theory to explain firms behaviors.
- This course will enable you to view business situations from the society's perspective using economics tools.
- Most importantly: “What matters is how much you learn, not how much I teach.”

Large Companies in the US market

WEEKLY

March 27, 2015

Market Capitalizations of Leading Tech Companies



What is Industrial Organization?

- “The Study of the structure of firms and markets and of their interactions” (Carlton and Perloff, 2005)
 - For example: a study of how **convenient store chains** in Thailand **compete** in the **grocery market**.
 - firms -> convenient store chains
 - market -> grocery market
 - interactions -> how firms compete, strategies they use
 - Or .. a study of how **car companies** set price of their products.

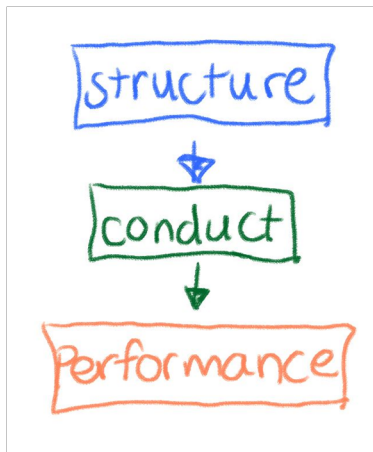
Major tools used in this course

- ① Structure-Conduct-Performance (SCP)
- ② Game Theory
- ③ Price Theory
- ④ Transaction Costs Theory

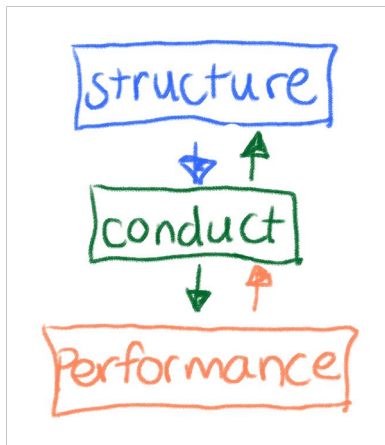
Structure-Conduct-Performance

- Structure = Factors that determines competitiveness of the market, i.e. number of firms, barriers to entry, etc.
- Conduct = behavior of firms, i.e. whether they are collusive, type of competition strategies used, etc.
- Performance = Competition outcomes, i.e. whether firms can deliver the most efficient outcome or the highest benefits to the consumers.

Structure-Conduct-Performance



Structure-Conduct-Performance



Transaction Costs

- Transaction costs are the expenses of trading with others above and beyond the price, such as the cost of writing and enforcing contracts.
- Ronald M. Coase (1973) explained that a firm and a market are alternative means of organizing economic activity. The costs help to determine market structure. (make or buy decision)

Oliver Williamson (1975)

- Four Basic Concepts
- ① Markets and firms are alternative means for completing related set of transactions. For example, a firm can either buy a product or a service or produce it.
- ② The relative cost of using markets or a firm own's resources should determine the choice.
- ③ The transaction costs of writing and executing complex contracts across a market “vary with the characteristics of the human decision makers who are involved with the transaction on the one hand, and the objective properties of the market on the other.”
- ④ These human and environmental factors affect the transaction costs across markets and within firms.

Oliver Williamson (1975)

- This approach aims to identify a set of environmental and human factors that explain both internal firm and industrial organization.
- The key environmental factors are uncertainty and number of firms.
- The key human factors are bounded rationality and opportunism.

Bounded Rationality

the limited human capacity to anticipate or solve complex problems.

- Problems arise when uncertainty is combined with bounded rationality or where the managers of few firms in an industry behave opportunistically (take advantage of a situation)

Reliance on markets is more likely when

- 1 There is little uncertainty and
- 2 There are many firms (competition) and limited opportunities for opportunistic.

What will you learn in this course?

- 1 Learn how to analyze the **market structure** of an industry
 - Monopoly, duopoly, oligopoly, perfect competition
 - Barriers to entry
 - Product differentiation
 - Vertical integration
- 2 Learn about different competition strategies (**conducts**) firms adopt to compete
 - Collusion, Merger, Advertising, R&D, Pricing behavior, etc.
- 3 Learn how we can assess firms' **performance** from the society's point of view
 - Price, Production Efficiency, Equity, etc.
- 4 Learn what the government can do in order to promote for more desirable outcomes (**performance**).

Questions we will explore (for example)

- Why do firms offer price match deals?
- Why do firms sometimes sell their products in bundles?
- Why do firms form a cartel?
- Why do manufacturers set price for their retailers?

The Objective of a Firm

What do you think is the main objective of a firm?

The Objective of a Firm

- Firm = an organization that transforms inputs into outputs
- Neo-Classical Theory of the Firm (we use this theory in this course)
 - Most firms maximize profits
 - Firms utilize its resources in the most efficient way
- There are some other theories of the firm, for example, managerial and behavioral theories. We don't use them in this course.

Ownership and Control

Who owns firms?

Ownership and Control

Three Basic Forms of Ownership

- 1 Sole proprietorships - owned by 1 owner
- 2 Partnerships - owned by multiple owners
- 3 Corporations - companies whose capital is divided into shares. A corporation raises funds through two channels
 - 1 from shareholders (equity owners)
 - 2 from debt holders (banks, people who buy the company's corporate bonds)

Separate Ownership and Control

If the owners are not the ones who run everything,
how do you think the owners should control their firm?

Separate Ownership and Control

- Managers (employees) may not have an incentive to maximize the owners' (shareholders') profits.
- The owners have to find ways to make the managers maximize their owners' interests.

How?

- Use performance-related benefits (compensation depends on company's performance).
 - profits
 - ranking
 - revenue
 - etc.

How do firms grow?

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By Appointment to His Majesty the King

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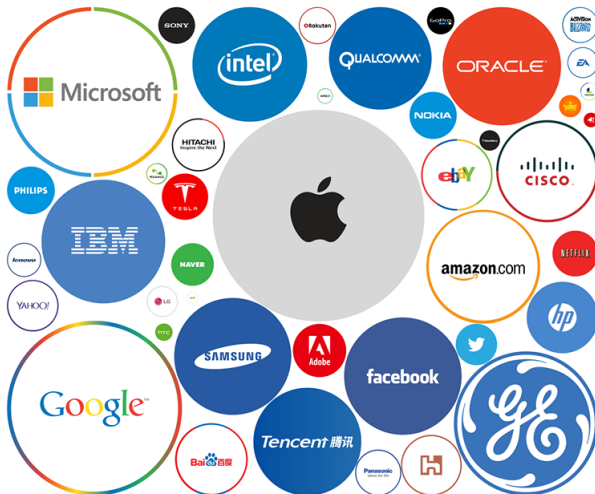
Size of Firms, Mergers and Acquisitions

- Smaller firms are easier to administer but larger firms can 1) do more activities and 2) experience economy of scale/scope.
- How do firms increase their size?
 - Keep accumulating assets and invest
 - Vertical Merger
 - Horizontal Merger
 - Conglomerate Merger

Why do firms grow?

MARKET CAPITALIZATION OF LEADING TECH COMPANIES

July 18, 2014



Valueize Graphic

Activision Blizzard	16,410M
Adobe Systems	38,000M
Amazon	165,040M
AMD	2,900M
Apple	167,500M
Baidu	66,900M
BlackBerry	5,200M
Cisco Systems	132,560M
Daum Communications	1,625M
EA	12,945M
eBay	65,230M
Facebook	128,387M
General Electric	265,300M
Google	389,370M
Gigamon	9,400M
Hitachi	35,750M
Hon Hai	47,157M
HP	65,140M
HTC	3,856M
IBM	117,200M
Intel	167,500M
King Digital Entertainment	6,250M
Koninklijke Philips	23,945M
Lenovo	14,799M
LG Electronics	12,658M
Microsoft	369,160M
Naver	23,115M
Nintendo	26,630M
Nexon	4,002M
Nokia	28,349M
Nuance Communications	5,640M
Oracle	122,945M
Panasonic	27,038M
Qualcomm	134,000M
Rakuten	17,535M
Samsung Electronics	114,230M
Sony	17,143M
Tencent	148,387M
Testa Motors	27,300M
Twitter	21,830M
Yahoo!	33,000M
Zynga	2,700M

Original data from Google Finance

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How do you define market?

Types of Costs (you should know about this already)

- Firms minimize costs in order to operate efficiently. However, what kind of cost it minimizes? Some important types of costs:
 - 1 Fixed Costs (F)
 - 2 Variable Costs (VC)
 - 3 Total Costs ($C = F + VC$) or ($TC = F + VC$)
 - 4 Average Cost ($AC = \frac{C(q)}{q}$) or ($ATC = \frac{TC(q)}{q}$)
 - 5 Average Variable Cost ($AVC = \frac{VC(q)}{q}$)
 - 6 Average Fixed Cost ($AFC = \frac{F}{q}$)

Types of Costs (Fill in the Blank)

Output	F	AFC	VC	AVC	TC	ATC	MC
0	100	-	0	-	100	-	-
1	100	100	10		110		10
2	100		19	9.5	119	59.5	
3	100	33.3	25	8.3	125	41.7	6
4	100		32		132	33	
5	100		40	8.0		28	8
6	100	16.7	49	8.6	149	24.8	
7	100	14.2	60	9.1		22.9	11
8	100	12.5	73	9.8	173	21.6	13
9	100	11.1	88	10.8	188	20.9	

Short Run vs. Long Run

- Short Run - not enough time to change the factors of production or production technology.
- Long Run - long enough time to allow change in the factors of production or production technology.

Economy of Scale

- Economies of scale (or increasing returns to scale) - AVC falls as output increases
- Constant returns to scale - AVC is constant
- Diseconomy of scale (or decreasing returns to scale) - AVC increases as output increases
- Minimum Efficient Scale (MES) - the minimum units of output required to produce in order to achieve the lowest long-run average cost.


Economy of Scope

- There are positive spillovers (cost-saving, cost-sharing) effects when 1 firm produces more than 1 type of products.

$$C(q_1, q_2) < C(q_1, 0) + C(0, q_2),$$

where $C(\bullet)$ is the cost function, q_1 is output of product 1, q_2 is output of product 2.

Reference and Further Reading I

 Carlton, D.W. and J.M., Perloff.
Modern Industrial Organization. 4th Edition.
Pearson Addison Wesley Press, 2005.

 Church, J. and R. Ware.
Industrial Organization: A Strategic Approach. International Edition.
McGraw-Hill Press, 2000.