



Transaction Costs, Imperfect Information, and Market Behavior

Rationale for the Firm and its scope of operation

Market behavior with imperfect information

Asymmetric Information in Product Markets

Asymmetric Information in Labor Markets



Rationale for the Firm

- ⊕ **In a perfect competition world**
 - ▣ Individual knows everything (MP, MC ...)

- ⊕ **In a world: perfect competition and information, constant return of scale**
 - ▣ Consumer could bypass the firm

- ⊕ **Why is most production carried out within firms?**

- ⊕ **Why do people organize in the hierarchical structure of the firm and coordinate their decisions through a manager rather than market exchange?**



Rationale for the Firm

⊕ **Ronald Coase answered**

- **Organizing activities through the hierarchy of the firm is often more efficient**
- **because production requires the coordination of many transactions**

⊕ **The firm is selected**

- **Transaction costs in using the price system exceeds**
- **the cost of organizing those activities within a firm**

3



Rationale for the Firm

⊕ **do-it-yourself**

- **If inputs are easily identified, priced, and hired, production can be carried out through a price-guided approach using the market**

⊕ **Produce in the firm**

- **If the costs of identifying the inputs and negotiation are high,**
- **Consumer minimizes transaction costs by purchasing the finished product from a firm**

4



Rationale for the Firm

- ⊕ **The more complicated the task, the greater the ability to economize on transaction costs through specialization and centralized control**

- ⊕ **At the margin, some activities could go either way: (例如粉刷房子)**
 - ⊞ some consumers using firms
 - ⊞ some hiring resources in the markets
 - ⊞ Choice depends on each consumer's skill and opportunity cost of time

5



Bounds of the Firm

- ⊕ **What are the efficient bounds of the firm?**

- ⊕ ***Vertical integration***
 - ⊞ the expansion into stages of production earlier or later than those in which it has specialized
 - ⊞ ***Backward integration:*** steel company mines its own iron ore or even coal
 - ⊞ ***Forward integration*** by forming raw steel into various components

6

Bounds of the Firm

- ⊕ **How does the firm determine**
 - ▣ which activities to undertake
 - ▣ which to purchase from other firms?

- ⊕ **Comparison of the benefits and costs of**
 - ▣ internal production
 - ▣ market purchases

Which method is more efficient

- ⊕ **Factors that influence the bounds of the firms are discussed as follows:**

7

Bounded Rationality of the Manager

- ⊕ **To direct and coordinate activity in the firm,**
 - ▣ **Manager must understand how all the pieces of the puzzle fit together**

- ⊕ **As the firm takes on more activities,**
 - ▣ **the manager may start losing track of things**
 - quality of managerial decisions suffers
 - The more tasks the firm takes on, the longer the lines of communication

- ⊕ **One constraint on vertical integration is the manager's *bounded rationality***

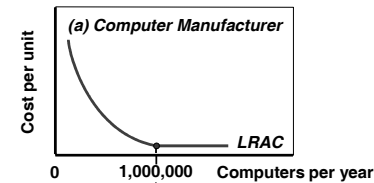
8

Minimum Efficient Scale

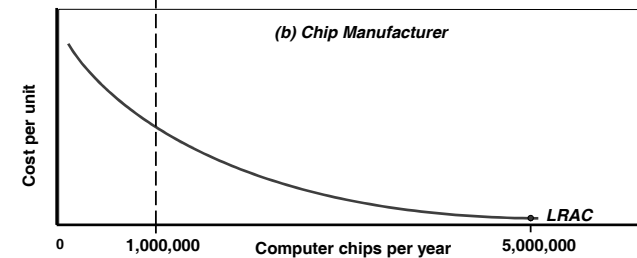
- ⊕ The minimum efficient scale is the minimum level of output at which economies of scale have been fully exploited
- ⊕ A firm should buy an input if the market price is below what it would cost the firm to make
 - ⊞ See next slide

9

Minimum Efficient Scale and Vertical Integration



PC producer requires 1,000,000 chips
LRAC of the chips is not minimized unless 5,000,000 are produced,
The firm is better off purchasing the chips



10



Easily Observable Quality

- ⊕ **If an input is well defined and its quality is easily determined when purchasing, (例如:小麥)**
 - ▣ **More likely to be purchased in the market than produced internally**

- ⊕ **Firms whose reputations depend on a key component (肯德基:炸雞佐料)**
 - ▣ **likely to produce that component,**
 - ▣ **especially if the quality varies widely and cannot be easily observable by inspection**

11



Number of Suppliers

- ⊕ **A firm wants an uninterrupted source of component parts**

- ⊕ **If there are many interchangeable suppliers**
 - ▣ **more likely to purchase in the market**
 - ▣ **Otherwise: Produce it internally**

- ⊕ **Competition also keeps the price down**

12



Economies of Scope

- ⊕ **Economies of scope exist**
 - ▣ **if it is cheaper to combine more product lines in one firm than to produce them in separate firms**

- ⊕ **Tends to occur because the cost of some fixed resources, such as specialized knowledge, can be spread across product lines**

13



Rationale for the Firm and its scope of operation

Market behavior with imperfect information

Asymmetric Information in Product Markets

Asymmetric Information in Labor Markets

14

Market Behavior with Imperfect Information

- ⊕ **We previously assumed that market participants have full information about products and resources**
- ⊕ **In reality, reliable information is costly for both consumers and producers**
- ⊕ **In some markets, one side of a transaction has more information than does the other side**

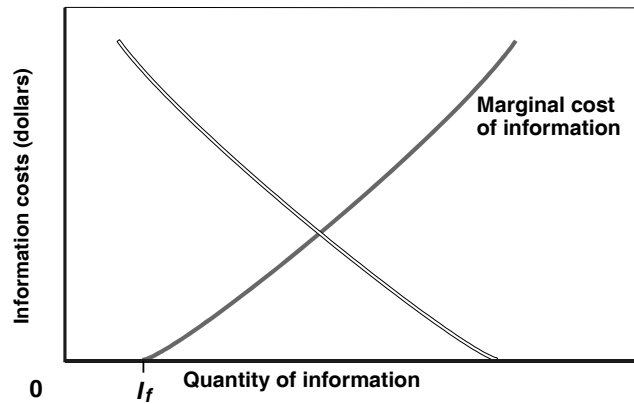
15

Marginal Cost of Search

- ⊕ **Individuals gather the easy and obvious information first**
- ⊕ **As the search widens, the marginal cost of acquiring additional information increases**
 - ⊕ **Individuals may have to travel greater distances to check prices and services**
 - ⊕ **The opportunity cost of their time increases as they spend more time acquiring information**
- ⊕ **Thus, the marginal cost curve for additional information slopes upward (See next slide)**

16

Optimal Search with Imperfect Information



The marginal cost curve for additional information slopes upward.

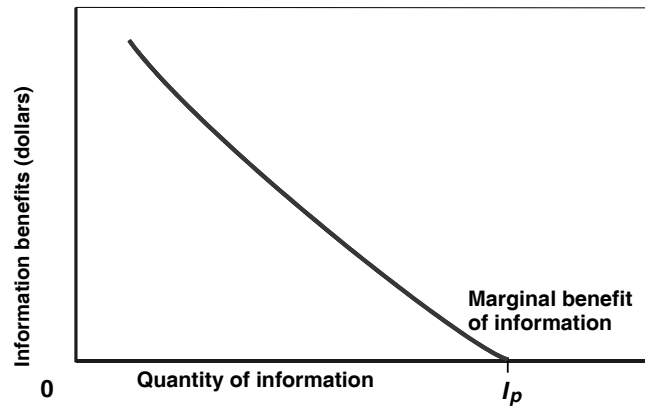
17

Marginal Benefit of Search

- The marginal benefit is relatively large at first,
- As more information is gathered
 - additional information yields less additional benefits
- Thus, the marginal benefit curve for additional information slopes downward (See next slide)

18

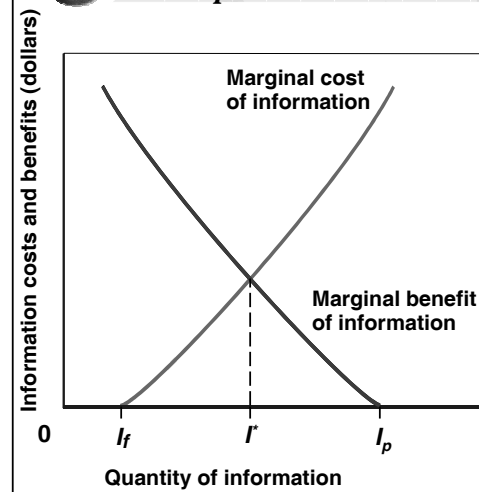
Optimal Search with Imperfect Information



The marginal benefit curve for additional information slopes downward.

19

Optimal Search with Imperfect Information



Market participants will continue to gather information if $MB > MC$

→ optimal search occurs when the marginal benefit equals the marginal cost at point I^* .

At search levels exceeding the I^* , the MB of additional information is still positive.

At I_p , MB of additional information is 0. This level of information is identified as perfect information.

20



Implications

- **Previous model was developed by George Stigler (winner of 1982 Nobel Prize)**
- **He showed that the price of a product can differ among sellers**
 - **Some consumers are unaware of lower prices offered by some sellers (due to search cost)**
- **Search costs result in different prices for the same product**

21



Implications

- **Some sellers call attention to price difference by claiming**
 - **to have the lowest prices or**
 - **to match any competitor's price**
 - **Ex: 屈臣氏**
- **Search costs also lead to quality differences across sellers, even for identically priced products,**
 - **Consumers find it too costly to shop for the highest quality product**

22



Implications

- ⊕ **The more expensive the commodity,**
 - → the greater the price dispersion
 - → the greater the incentive to shop around

- ⊕ **Consumer's wage increases,**
 - → so does the opportunity cost of time
 - → marginal cost of additional information increases
 - → less searching and more price dispersion

23



Implications

- ⊕ **Change in technology that lowers the marginal cost of information**
 - → more information and less price dispersion

- ⊕ **Consider the impact of the Internet shopping sites**

24




Winner's Curse

A story

- ⊕ **In 1996 the federal government auctioned off leases (租賃) on the scarce radio spectrum**
 - ⊞ **for newly invented personal communication services**

- ⊕ **Face of much uncertainty about**
 - ⊞ **future competition in the industry,**
 - ⊞ **potential size of the market,**
 - ⊞ **future technological change**
 - ⊞ **bidders had little experience with the potential value of such leases**

25



Winner's Curse

Winners end up losers

- ⊕ **At the time, 89 companies made winning bids totaling \$10.2 billion for 493 leases**

- ⊕ **By 1998 it became clear that**
 - ⊞ **many of the winning bidders couldn't pay,**
 - ⊞ **dozens of licenses were tied up in bankruptcy proceedings**

- ⊕ **Why do many "winners" end up losers?**

26



Winner's Curse

- ⊕ **The actual value of space on the radio spectrum was unknown and could only be estimated**
- ⊕ **For example, suppose the average bid was \$10 million, with some bidding more and others bidding less**
- ⊕ **Suppose also that the winning bid was \$20 million**

27



Winner's Curse

- ⊕ **The winning bid > average bid,**
 - ⊞ **Average bid = most reliable estimate of the true value**
- ⊕ **The highest bid was the most optimistic estimate of the value**
- ⊕ **Winners of such bids are said to experience the *winner's curse***
 - ⊞ **lose money after winning the bid,**
 - ⊞ **since they were overly optimistic**

28



Rationale for the Firm and its scope of operation

Market behavior with imperfect information

Asymmetric Information in Product Markets

Asymmetric Information in Labor Markets

29



Asymmetric Information in Product Markets

● **The issue of costly and limited information becomes more complicated under *asymmetric information* (資訊不對稱)**

❖ **One side of the market has more reliable information than does the other side**

30

Two Types of Asymmetric Information

⊕ **Two types of information that a market participant may want but lack**

- ❏ **One side of the market may know more about characteristics of the product**

→ *hidden characteristics*

- ❏ **One side of a transaction can pursue an action that affects the other side but that cannot be observed by the other side**

→ **hidden actions**

Described as follows:

31

Hidden Characteristics: **Adverse Selection** (逆向選擇, i.e., 劣幣驅逐良幣)

⊕ **Assume that sellers know more about the quality of the product than buyers,**



⊕ **Take the market for used cars as an example**

- ❏ **The Seller has much personal experience with important characteristics of the used car**

- ❏ **Buyers have much less information**

32



Hidden Characteristics: Adverse Selection

- ⊕ **Suppose there are two types of used cars:**
 - ❏ good ones → Buyer pays \$10,000
 - ❏ bad ones → Buyer pays \$4,000
- **Only the seller knows which type is for sale**
- **A buyer who believes that**
 - ❏ The ratio between good and bad cars: 50%:50%
 - ❏ He would \$7,000, for a car on an unknown type
- ⊕ **Would \$7,000 be the equilibrium price of used cars?**

33



Hidden Characteristics: Adverse Selection

- ⊕ **Sellers of good cars:**
 - ❏ Get \$7,000 for cars worth \$10,000 on average,
 - ❏ Choose to keep their cars or to sell them to friends or relatives
- ⊕ **Sellers of bad cars**
 - ❏ \$7,000 is an attractive price,
 - ❏ they know their cars are worth only \$4,000 on average

34



Hidden Characteristics: Adverse Selection

- ⊕ **Therefore, The proportion of good cars on the market will fall and the proportion of lemons will rise**
 - ▣ **Average value of used cars on the market will fall**

- ⊕ **As buyers come to realize the mix has shifted toward lemons,**
 - ▣ **→Reduce what they are willing to pay for a car of unknown quality**
 - ▣ **→the sellers of good cars will become even more reluctant to sell**

35



Hidden Characteristics: Adverse Selection

- ⊕ **The process continues until there are very few good cars sold on the open market**

- ⊕ **Generally, when sellers have better information about a product's quality than buyers,**
 - ▣ **Lower-quality products tend to dominate the market**

- ⊕ **The informed side of the market self-select in a way that harms the uninformed side**
 - ▣ **→ have the problem of *adverse selection***

36



Hidden Actions:
Principal-Agent Problem (代理人問題)

- **There are tasks that**
 - individuals do not perform for themselves
 - others do them better and have a lower opportunity cost (Ex:修理機車)

- **This leads to the second problem:**
 - one side of a transaction can pursue *hidden actions* that affect the other side

37



Hidden Actions:
Principal-Agent Problem

- **When buyers have difficulty monitoring and evaluating the quality of goods or services**
 - Suppliers may substitute poor-quality resources or exercise less diligence in providing the service

- **This is called the *principal-agent problem***
 - One party, the principal, contracts with another party, the agent, in the expectation that the agent will act on behalf of the principal
 - The problem arises when
 - the goals of the agent are incompatible with those of the principal
 - the agent can pursue hidden actions

38



Asymmetric Information in Insurance Markets

- ⊕ **In the insurance market:**
 - ⊞ Buyers have more information about the characteristics (例如身體健康) and the actions(例如自殘) that predict their likely need in the future
 - ⊞ Combine adverse selection and principal-agent problem

- ⊕ **If the insurance company has no way of distinguishing among applicants**
 - ⊞ charge those who are good health the same as those who are poor ones

39



Asymmetric Information in Insurance Markets Adverse selection problem

- ⊕ **This price is attractive to poor health risks, but too high to good health risks,**
 - ⊞ some (some with good health) will choose not to buy insurance

- ⊕ **As a result,**
 - ⊞ the insured group becomes less healthy
 - ⊞ Insurance premiums must rise
 - ⊞ → insurance is even less attractive to healthy people
 - ⊞ → *adverse selection* tends to make insurance buyers less healthy

40



Asymmetric Information in Insurance Markets *Moral hazard (Principal-agent problem)*

- ⊕ **Once people buy insurance,**
 - behavior may change in a way
 - increases the probability that a claim will be made
 - referred to as *moral hazard*
 - Ex: 金手指

- ⊕ **Generally, moral hazard is a principal-agent problem**
 - One side of a transaction have an incentive to shirk(規避) their responsibilities
 - the other side is unable to observe them

41



Coping with Asymmetric Information

- ⊕ **There are ways of reducing the consequences of asymmetric information**
 - An incentive structure or an information-revealing system can be developed
 - Lemon laws that offer compensation to buyers of new or used cars that turn out to be lemons
 - Health insurance companies use a variety of tools
 - Physical exams and filling out questionnaires
 - Insurance for a group (like company)
 - To avoid self-selection
 - Deductibles(自負額)

42



Rationale for the Firm and its scope of operation

Market behavior with imperfect information

Asymmetric Information in Product Markets

Asymmetric Information in Labor Markets

43



Asymmetric Information in Labor Markets

⊕ **Differences in the ability of labor present no particular problem if these differences can be observed by the employer**

❖ **if the productivity of each worker is easily quantified, that measure can be used and serves as a basis for pay**

❖ 業務:業績獎金

❖ 侍者:小費

44



Asymmetric Information in Labor Markets

- ⊕ **However, production often takes place through the coordinated efforts of several workers,**
 - ⊞ → employer may not be able to attribute specific outputs to each worker

- ⊕ **An adverse-selection problem arises**
 - ⊞ Labor suppliers have better information about their own productivities
 - ⊞ A worker's ability is not observed prior to employment
 - hidden characteristics

45



Asymmetric Information in Labor Markets

- ⊕ **In a labor market with hidden characteristics, employers might be better off offering a higher wage**
 - ⊞ Makes the job more attractive to more-qualified workers
 - ⊞ Paying a higher wage avoids the problem of hidden actions by workers
 - Not to goof off or you will lose the job

- ⊕ **Paying a higher wage to attract and retain more-productive workers is called paying *efficiency wages***

46

Communicating Reliable Information ***Signaling and Screening***

- ⊕ **Both sides of the market have an incentive to develop credible ways of communicating reliable information about qualifications**
 - ⊞ **Signaling**
 - ⊞ **Screening(审查)**

47

Signaling

- ⊕ **The informed side communicates information that the other side would find valuable**
- ⊕ **True requirements for many jobs are qualities that are unobservable,**
- ⊕ **Offer evidence by relying on proxy measures:**
 - ⊞ **years of education,**
 - ⊞ **grades, and letters of recommendation**
 - ⊞ ***proxy measures which become signals***

48

Screening

- ⊕ **An attempt by the uninformed side to uncover the relevant but hidden characteristics of the informed party**

- **Ex: employers try to screen applicants**

- ⊕ **The ways of screening:**

- **Education**

- **Spelling and typo errors in the resume.**

49

與「獵人」打交道 (MGR總經理 許書揚)

- 目前在就業市場上，以仲介白領階級為主要的管理顧問公司，如雨後春筍般相繼設立，且多集中於台北地區。
- 對於大部分的上班族而言，也許對這類俗稱Head Hunter的公司略有耳聞，但實際的瞭解程度還是極為有限，因此在正式進入本文的主題——如何與「獵人」打交道之前，先以部分篇幅介紹人材顧問公司，讓讀者對「獵人頭公司」有更深一層的認識。
- 一、認識「獵人頭公司」
- 歐美國家由於人材顧問公司已發展得相當成熟，因此一般而言會再細分為Search Firm及Selection Firm。
- Search Firm也就是所謂的Head Hunter分公司，乃以網羅高階經營管理人材為主，其方式通常是「獵人」憑藉多年累積的經驗及人脈，主動去發掘，接觸「人選」(candidate)；至於Selection Firm其所招募的職務涵蓋面就寬廣的多，從最基層的助理、職員，乃至中階主管，都屬於其業務範圍。
- 顧問公司服務的內容還包括替客戶代為執行人員招募的前置作業(如：登報、測驗、面談等)，最後再將合適的一至數名人選推薦給客戶，由客戶進行最後的甄選。以台灣的現況而言，較難在兩者間作一明顯的劃分，因為台灣大部分的人材顧問公司都兼具Search Firm及Selection Firm的性質。
- Check <http://tw.knowledge.yahoo.com/question/?qid=1005013102478> for details.

50



課堂報告

- ⊕ 請解釋何謂vertical integration, forward integration和backward integration
- ⊕ 請解釋並舉例說明何謂bounded rationality
- ⊕ 請說明何謂winner's curse
- ⊕ 請解釋並舉例說明何謂 asymmetric information
- ⊕ 請說明P313, Case study: The reputation of a Big Mac 的大意

51



Homework

- ⊕ Problem 13, 14: Discuss searching with imperfect information

52