Topics

• Income sorting
• Racial-ethnic sorting
• The Tiebout model (discussed later)
• Drivetime areas
• Commute times
• Wasteful commuting – part 1
Figure 3.1 Locations of rich and poor
Why do the poor reside closer to the CBD?

- When the two groups face the same prices, the rich consume more housing than the poor, i.e., \( q_R > q_P \); housing is a normal good.
- Because the slope of the housing price line is equal to \(-t/q\), and both rich and poor face the same money cost of commuting, \( t \), \(-t/q_R > -t/q_P\).
- Thus, the respective groups’ price housing curves must relate as in Fig 3.1.
Why do the poor reside closer to the CBD?

• This result does not require older housing in the CBD
• This result does require the same marginal cost of commuting, \( t \), for rich and poor
• Whose cost of commuting is likely to be higher (rich or poor)? Explain.
• What effect would differential commuting cost this have on location of rich and poor? Explain.
Other Factors that Lead to Sorting by Group

• Different preferences (a different trade-off of housing for the composite non-housing good)
• Utility depends on other than consumption of housing and non-housing good – for example, a preference to be located where a majority is of your group: utility depends on your consumption bundle and the neighborhood characteristics (e.g., whether your group is the majority)
Racial-Ethnic Sorting

• If income is correlated with the racial-ethnic group, then income sorting implies a degree of racial-ethnic sorting

• If there is a preference to reside in an area in which your group is the majority, there will be a tendency to self-segregate into “ghettos”

• If there is a tendency for one group to reside in an area in which that group is the majority, then ghettos will also form
Effect of a Freeway

• Freeway catchment areas
• Non-radial commuting
• Irregular shape of drivetime areas
Figure 3.2 City with freeway
Drivetime Areas Around SJSU

Generated using Esri’s Business Analyst Online
Figure 3.3 Subcenter

Note post-WWII suburbanization of population and employment in US.
Jurisdictional Fragmentation

Suburb 1
Suburb 2
Suburb 3
Central City
Suburb 4
Suburb 5
Figure 3.4 Wasteful commuting
Wasteful Commuting

• Definition of Efficiency
• Can there be inefficiency in equilibrium?
Efficiency

- Efficient Allocations
- Market Allocations and Market Prices
- Externalities (spillovers)
- Market Failures
Economically Efficient Allocations

• The term “efficiency” is used to mean many different things by different speakers. The concept often contains some sense that an efficient allocation is “best” but this can be deceptive.

• Economists contribute to the confusion by talking about different kinds of efficiency
  – Technical efficiency – e.g., producing a given output without wasted or redundant resources
  – Allocative efficiency (efficiency in allocation) – allocating (producing* and distributing) resources in a way that does not leave any resources wasted (in a sense describe more precisely below) or redundant

Allocative efficiency subsumes technical efficiency. This is also called Pareto efficiency (discussed below); this is the most common meaning of the term “efficiency” when used by economists.

* Production is included in allocative efficiency because we can speak of allocating inputs to produce output.
Pareto Efficiency (Pareto Optimality)

• Named for Italian Economist Vilfredo Pareto (1848-1923) who defined the concept

• An allocation of resources is efficient (or optimal) in the sense of Pareto if there is no feasible re-allocation such that at least one person can be made better-off by the re-allocation and all other people would be made no worse-off by the re-allocation.
Pareto Efficiency (Pareto Optimality)

What it says and what it does not say

• An allocation of resources is efficient (or optimal) in the sense of Pareto if there is no feasible re-allocation such that at least one person can be made better-off by the re-allocation, and all other people would be made no worse-off by the re-allocation.
  – Appears convoluted: says an allocation is efficient if you cannot do something – if you cannot redistribute the available resources and thereby make at least one person better-off and leave everyone else no worse-off
  – If you can make such a re-distribution, then the new proposed allocation would be preferred at least by the person who would be made better off, and everyone else would be at worst indifferent to having the new allocation. This shows that the original allocation is not efficient (but does not show that the new allocation is efficient).*

* The new proposed allocation Pareto dominates the original allocation.
Pareto Efficiency (Pareto Optimality)

What it says and what it does not say

• An allocation of resources is efficient (or optimal) in the sense of Pareto if there is no feasible re-allocation such that at least one person can be made better-off by the re-allocation, and all other people would be made no worse-off by the re-allocation.

  – Possible indicators of inefficient allocations
    • Non-market price formation
    • Excess demand (quantity demanded greater than quantity supplied)
    • Frustrated trades

  – There is not necessarily (and not generally) only one efficient allocation, so we speak of an efficient allocation rather than the efficient allocation
Pareto Efficiency (Pareto Optimality)

Examples of Efficient and Inefficient Allocations

• An allocation of resources is efficient (or optimal) in the sense of Pareto if there is no feasible re-allocation such that at least one person can be made better-off by the re-allocation, and all other people would be made no worse-off by the re-allocation.

  – Allocation of students to seats in classes at San Jose State University*

    • Checklist of possible indicators
      – Non-market price formation
      – Excess demand (quantity demanded greater than quantity supplied)
      – Frustrated trades

  – Allocation of electricity by rolling blackouts (apply checklist)

* SJSU uses a form of the First-Come, First-Served (FC-FS) allocation mechanism in assigning students to seats.
Pareto Efficiency (Pareto Optimality)
Solving the Problem of Inefficient Allocations

- An allocation of resources is efficient (or optimal) in the sense of Pareto if there is no feasible re-allocation such that at least one person can be made better-off by the re-allocation, and all other people would be made no worse-off by the re-allocation.

  - One view of each of the examples given previously is that they are related to a pricing problem – really an incentive problem of sorts
  - Allocation of students to seats in classes at San Jose State University
    - Possible solutions
      - SJSU charges (market-determined) peak-load or congestion prices
        - Kellogg Graduate School of Management, Northwestern University
      - Allow secondary market (resale market) to operate
      - Professors sell seats (a la Adam Smith) or accept bribes (Soviet example)
  - Allocation of electricity by rolling blackouts
    - Peak-load or congestion pricing (non-regulated retail prices)
Pareto Efficiency (Pareto Optimality)

Comparing the Inefficient and Efficient Allocations

• An allocation of resources is efficient (or optimal) in the sense of Pareto if there is no feasible re-allocation such that at least one person can be made better-off by the re-allocation, and all other people would be made no worse-off by the re-allocation.

  – Allocation of students to seats in classes at San Jose State University

    • Who benefits and who loses when

      – Moving from FC-FS to allocation associated with market determined peak-load prices
      – Moving from FC-FS to allocation determined by operation of secondary market
      – Moving from FC-FS to allocation determined by Professor sale of seats (Professor accepts bribes)
Pareto Efficiency (Pareto Optimality)

Did we solve the problem of inefficient allocations through pricing?

• An allocation of resources is efficient (or optimal) in the sense of Pareto if there is no feasible re-allocation such that at least one person can be made better-off by the re-allocation, and all other people would be made no worse-off by the re-allocation.

– Allocation of students to seats in classes at San Jose State University
  • Consider the pricing solutions with the following additional element: the composition of the class affects the performance of each student in the class (peer-group effect); in other words, your classmates exert (either positive* or negative**) externalities on you [Brown (1975), Lazear (2000) “disruption model” of education]

* Asking a question no one else thought to ask.  * Asking a question everybody else already knows the answer to.
Public Goods

• Public goods vs. publicly-provided goods like a consumption spillover
  – National defense
  – Non-proprietary research
  – Education?

• Impure public goods (crowding)

• Tiebout Model: Efficient allocation of local public goods
Simple Graphical Analytics of (Partial Equilibrium) Welfare Analysis and Market Failure

Additional Benefit, Additional Cost

MC = marginal cost

MB = marginal benefit

Q* is the optimal level of the output or activity.
Simple Graphical Analytics of (Partial Equilibrium) Welfare Analysis and Market Failure

MC_{social} = marginal social cost

MC_{private} = marginal private cost

MB = marginal benefit

Q^* is the *individually* optimal level of the output or activity. Q^ is the *socially* optimal level of the output or activity
The “Golden Rule”

• Why equate the marginal benefit and the marginal cost?

• Teaser Question: In the previous slide too much was produced from society’s point of view. Can you give an example (and accompanying graph) which illustrates too little being produced?
Market Allocations and Efficiency

• Two famous theorems are in economists’ heads when they discuss markets and efficiency [see Campbell (1987) for precise statements of the theorems]:

  – The **First Welfare Theorem**, which says that *under some circumstances*, market allocations are economically efficient.

  – The **Second Welfare Theorem**, which says that under some circumstances, any efficient allocation can be achieved as a market equilibrium.
Efficiency and Market Prices

- What makes it work?
  Market allocations are efficient under some circumstances because market prices are capable of conveying subtle information
- There is an informational role played by correct prices
- Under some circumstances the information conveyed by prices is corrupted
Externalities (Spillovers)

Externalities Defined:
An externality is an effect (positive or negative) by one economic agent (e.g., a firm or an individual) on another economic agent that operates in some way other than through the price.

- My purchase and consumption of an apple potentially affects other consumers of apples (adversely) because my demand for the apple increases market demand for apples, and thereby raises the price of apples. But that effect is captured entirely in the price of apples, so my apple consumption does not constitute an externality.

- My getting a flu shot is an action that benefits me: I have a lower probability of getting the flu. However, other people are affected (positively) because they have a lower probability of getting the flu from me. This positive effect is not captured in the price of flu shots (which we suppose are determined only by market demand and market supply for the shots – governed solely by the private benefits* to demanders and suppliers).

* Below we will develop a more complete analysis based on concepts of private vs. social benefits and costs.
Externalities, Market Failure, and Economic Development Policies

Externalities are important in the discussion of economic development because they are one of the sources of, or causes of, market failure.

**Market failure** is a situation in which the unfettered (unregulated) market fails to achieve an allocation of resources that is economically efficient.

Market failure is the rationale usually cited by economists as justification for intervention in the market (for example, through regulation).
Market Failures

Market failure is a situation in which the unfettered (unregulated) market fails to achieve an allocation of resources that is economically efficient.

- Some* causes of market failure
  - Externalities
  - Public goods**
  - Scale economies (increasing returns to scale)

* Not a complete list  ** defined formally later in lecture
Market Failures

Market failure is a situation in which the unfettered (unregulated) market fails to achieve an allocation of resources that is economically efficient.

That the market allocation leaves someone in poverty, or that the market allocation makes someone worse-off compared with some other allocation, is not, *per se*, a market failure.