# Efficiency and Equity in a Competitive Market

FSG 16

# Outline

- Chapter 16.4
- Economic Efficiency (pareto efficiency)
  - Exchange efficiency – edgeworth box
  - Input efficiency
  - Substitution efficiency
- First fundamental theorem of welfare economics
- Second fundamental theorem of welfare economics
- Theory of the second best

# Welfare Economics

- Concerned with how well an economy operates in terms of *efficiency* and *equity/ social justice*
- Efficiency - allocation of resources
- Equity - distribution of income

# Why Are We Concerned

- Efficiency questions in health care sector arise because costs are high.
- Equity questions arise because cost are high, and many people are uninsured or under insured.

# Why Are We Concerned

***To really understand these concerns we need to:***

1. Know the definition of efficiency
2. The assumptions behind efficiency
3. Role of equity

# Outline

- Pareto efficiency
  - Definition
  - Edge-worth box
- First fundamental theorem of welfare
- Second fundamental theorem of welfare
- Assumptions behind the competitive equilibrium
- Theory of the second best
- Equity

# Definition Pareto Efficiency

Definition:

1. An economically efficient (optimal) outcome in society is one under which it is impossible to make someone better off without making someone worse off.
2. An efficient economy is one that has exhausted all means of mutual gains (trade)

# Three Conditions for Efficiency

- **Consumption Efficiency**
  - **“maximum” utility**
- Production Efficiency
  - “maximum” output
- Product-Mix (Substitution) Efficiency
  - optimum mix of commodities

# Consumption Efficiency

- An allocation of commodities is *consumption efficient* if the only way to make one person better off is to make another person worse off.
- The MRS between each pair of goods must be equal for all consumers.

# Edgeworth Box

- Is a graphical tool used to understand what this definition of efficiency means.

(rest of notes done on chalk board)

# Consumption Efficiency Condition

- The MRS between the two goods must be equal for all people

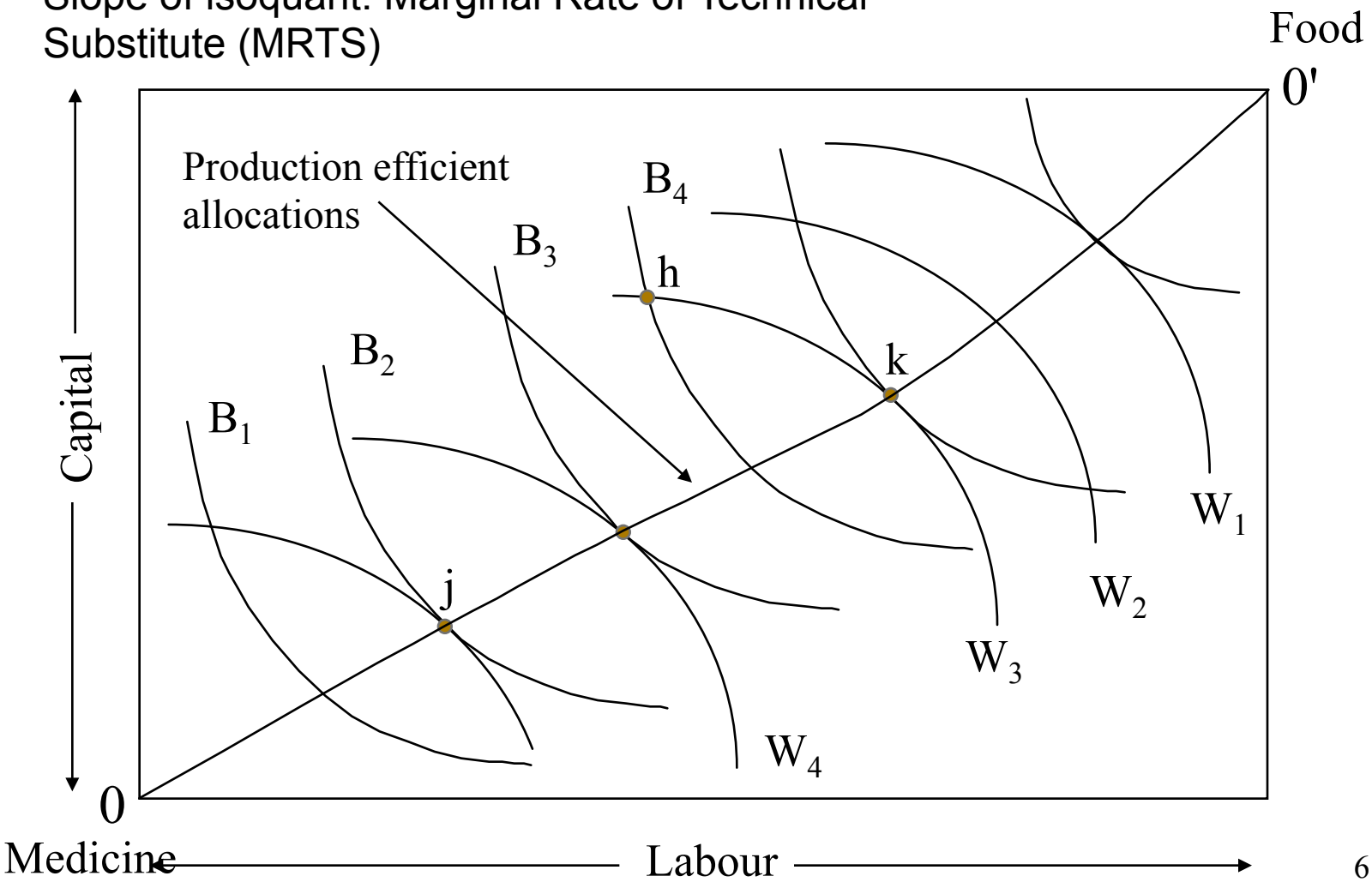
$$MRS^{A}_{M,F} = MRS^{B}_{M,F}$$

# Production Efficiency

- An allocation of inputs is *production efficient* if the only way to increase the output of one commodity is to decrease the output of another commodity

# Production Efficient Allocations

Slope of isoquant: Marginal Rate of Technical Substitute (MRTS)



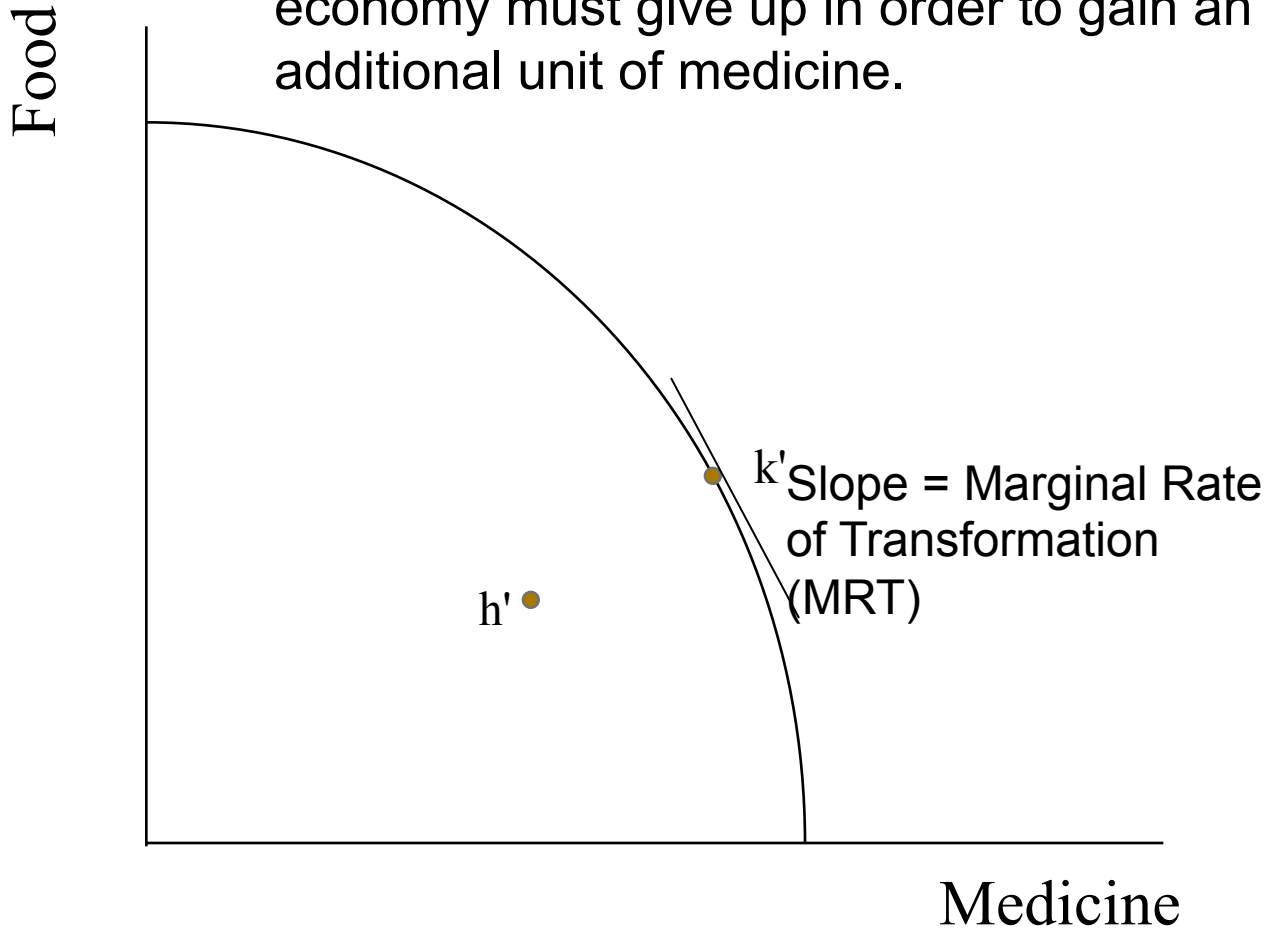
# Production Efficiency Condition

- The MRTS between capital and labor must be equal for all commodities

$$MRTS_{K,L}^{Medicine} = MRTS_{K,L}^{Food}$$

# Production Possibilities Curve

MRT: show the amount of food that the economy must give up in order to gain an additional unit of medicine.



# Marginal Rate of Transformation

- The MRT is the rate at which the economy can transform one output into another by shifting its resources
  - the (negative of the) *slope* of the production possibilities curve
  - If it equals 2, to have one additional unit of medicine, we need to give up two units of food

# Product-Mix Efficiency

- A mix of commodities is *allocation efficient* if the MRT between any two goods is equal to consumers' common MRS between the two commodities. (the ratio in which goods are being produced is the same as people want to consume).

$$MRT_{M,F} = MRS_{M,F}^{Amber,Brent}$$

# First Fundamental Theorem of Welfare Economics

- This theorem says:

  That an competitive equilibrium is Pareto efficient

- Great, so as long as we have a competitive market, our markets left all to themselves will be efficient –economists mean Pareto efficient. The famous “invisible hand solution”

# First Fundamental Theorem of Welfare Economics

But,

1. Is the health care market competitive?
2. Would a competitive market solution be equitable, or would there be a lot of people left with no health care?

Lets address point 2 first, then come back to point 1.

# Second Fundamental Theorem of Welfare Economics

Things are not so bleak

- Theorem states that given an appropriate endowment any Pareto efficient outcome can in principle be achieved
- This means, that for any given endowment, we can redistribute the endowment to get to the efficient outcome we want

(Back to chalk board)

# How To Redistribute?

Should we subsidize certain services? (health care)

- We can but it is not consistent with Pareto efficiency.
- Why? well to get to a Pareto efficient point, we had to find a tangency between both people's indifference curve.
- When everyone faces the same prices this will happen.
- If they face different prices, there will not be a tangency point, i.e. there will be an inefficient outcome.
- Income transfers are a superior way to redistribute because doesn't change prices

# How To Redistribute

- Some policy makers hesitate to make large-scale income redistribution because of incentives.
- Transferring wealth away for one group may provide a disincentive to work, and giving money to another group may provide a disincentive to work.
  - assumes we are only stimulated by money

# Theory of the Second Best

- Q1: So should we try to adhere to as many of the assumptions as possible for competitive markets?
- Q2: Does removing a distortion of competitive markets make competitive markets work better?
- Answer: Not necessarily
  - Theory of the Second Best tell us why

# Theory of the Second Best

- Say we have more than one departure from competitive market (more than one assumption does not hold).
  - Call this departure a distortion
- Now there is a policy that tries to correct on of these distortions.
- Theory of the Second Best says: that such a correction *may not* improve welfare i.e. we can't assume welfare will be improved or that we get any closer to a competitive market.

# Theory of the Second Best
# Classic Example

***Classic Example: Polluting Monopolist***

- Suppose we have a monopolist who is in an industry where they make a lot of pollution due to the process of how the good is made.

- Monopolist is a departure from perfect competition assumption.
  - Only one firm in the market not many.
  - First distortion

- Polluter – pollution is a negative externality.
  - Second distortion

- Monopoly prices are higher than under perfect competition and monopolists produce less than would be produced under perfect competition.
  - They can set prices because have market power

# Theory of the Second Best
# Classic Example

- Now, suppose we introduce more firms so the market is not a monopolistic anymore, but competitive (price takers).

- Well if we do that, output will increase and prices go down, but the amount of pollution will also increase which could be a big problem.
  - So we made one problem better (prices) but another problem worse (pollution)

# Theory of the Second Best
# Health Example

## *Health example: licensure laws*

- Create a monopoly
- At same time there is imperfect information in the market about quality of doctors.
- If get rid of licensure laws, more doctors can practice, we may solve the monopoly problem.
- But, there may be unqualified doctors and you may receive poor quality if not dangerous health care.
  - Problem in developing countries

# Theory of the Second Best

- Can't assume that making the health care market look more like a competitive market will be a good thing.
- Each policy and all the implications must be considered first and one should not implement a policy just because it promotes competition.
- MANY policy makers fail to really realize this and don't examine ALL implications.
- One of the reasons economists don't like politicians, they use our vocabulary as proof (i.e. competitive markets are efficient), but don't use the theory correctly.

# Competitive Model Assumptions

1. Free entry and exit of firms
   - No barriers to entry
2. Perfect information of firms on consumers
   - You know the price of all doctors visits in Boulder and the quality of each doctor, and know what product you need.
3. A homogenous product
   - All doctors visits are the same
4. Lots of buyers and sellers out there so firms and consumers are price takers (perfect competition)
   - No one has market power

# Competitive Model Assumptions

5. Consumers maximize their utility
6. Firms maximize profits
7. There are no significant externalities.
   - Externality occurs if we receive benefits or are harmed by the actions of others.
     - e.g. vaccinations

# Competitive Model Assumptions Do they hold for health care?

1. **Barriers to entry:** licensure laws, price controls, facility construction is expensive.
2. **Lots of buyers and seller:** Not lots of hospitals in a town, so some degree of market power. Drugs on patents are a monopoly.
3. **Firms max. profits:** There is more than profit motivation out there (university hospitals often looking for prestige). There are not-for-profit hospitals.
4. **No uncertainty:** Lots of uncertainty in this market.
   - This is why we have insurance markets
   - This distorts prices so we are no longer efficient.
   - Often prices are negotiated between supplier and consumer, so price is not determine by the market

# Competitive Model Assumptions
# Do they hold for health care?

5. **Perfect information:** There is not perfect information, we don't know prices often!
6. **No externalities**
   - (i.e. vaccinations, viruses)