# Efficiency

# Three Core Questions

1. **What do we mean by saying "the economy is efficient"?**
2. **What are the conditions that make market efficient?**
3. **Why competition leads to efficiency?**

- In most industrial economies, production and distribution of goods lie with the private sector.
- Presumption: This form of economic organization leads to efficient allocation of resources
- Why do we require the role of a government then?

# Invisible Hand

- Adam Smith (1776): competition would lead the individual in the pursuit of his private interests (profits) to pursue the public interest, as if by an invisible hand….
- Prior to Smith: Government to should promote industry and trade – achieving the best interest of the public requires an active government
- European Colonies
- Some prospered, others didn't.
- Some with passive government also prospered

# Invisible Hand

- Contradiction
- Smith asked – "Can society ensure that those entrusted with governing actually pursue public interest"?
- The experiences were contradicting! Often those in position opted for private interest at the expense of public interest.
- Sometimes even good intentions turned out to be catastrophic for the country
- Smith: If each pursue self interest, public interest would be served!

# Invisible Hand

- Pursuing self interest is easy!
- Value and price and cost of producing a good
- No Government is required to decide on the production of any commodity then..
- Nor the Government needs to monitor production efficiency – market forces will drive them out
- Economists believed that competition leads to efficiency also encourages innovation

# Welfare Economics

- Pareto Efficiency
- Pareto improvements
- Belief that Pareto improvements should be institute is called Pareto principle
- Pareto Efficiency and Individualism
- 1st and 2nd fundamental theorems of welfare economics

# Fundamental Theorems

- 1st fundamental theorem of welfare economics: ***any competitive equilibrium is Pareto efficient***

- 2nd fundamental theorem of welfare economics: ***every Pareto efficient resource allocation can be attained through a competitive market mechanism, with appropriate initial redistributions***

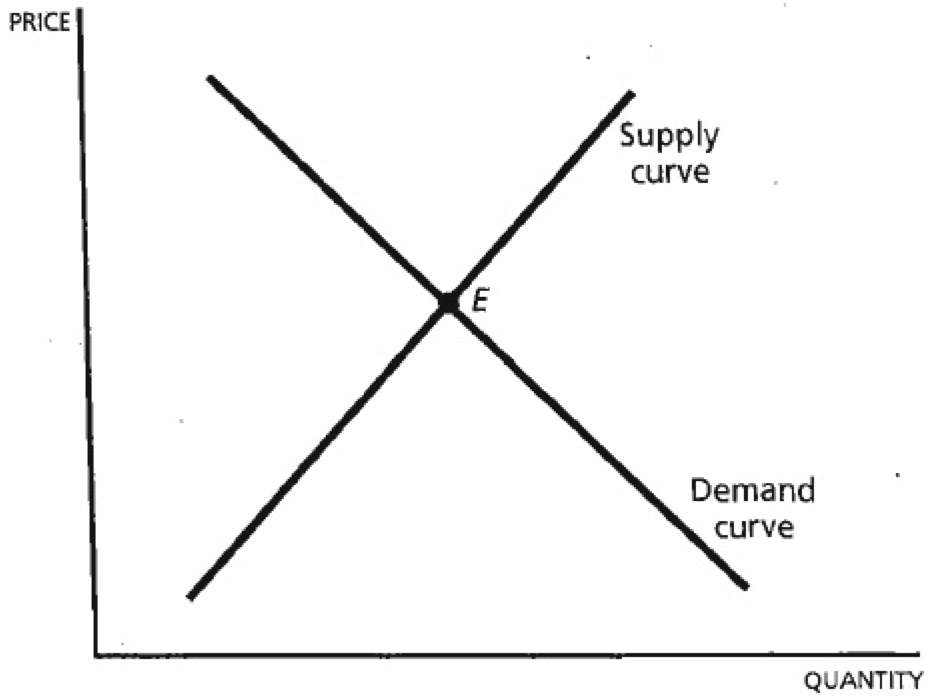
- Centralised versus decentralised market mechanisms

- Decentralised market mechanism and the 2nd welfare theorem

# Efficiency

- Question: **Why does competition leads to Pareto efficiency**?

- First we will re-consider economic efficiency



# Efficiency

- Demand curve: marginal benefit by consuming one extra unit equated to marginal cost of purchasing that extra unit

- Supply curve: while deciding how much quantity to be produced, competitive firms equate marginal benefit (price) they receive from producing one extra unit to marginal cost of producing that extra unit

- Efficiency requires this marginal benefit to be equalized to marginal cost

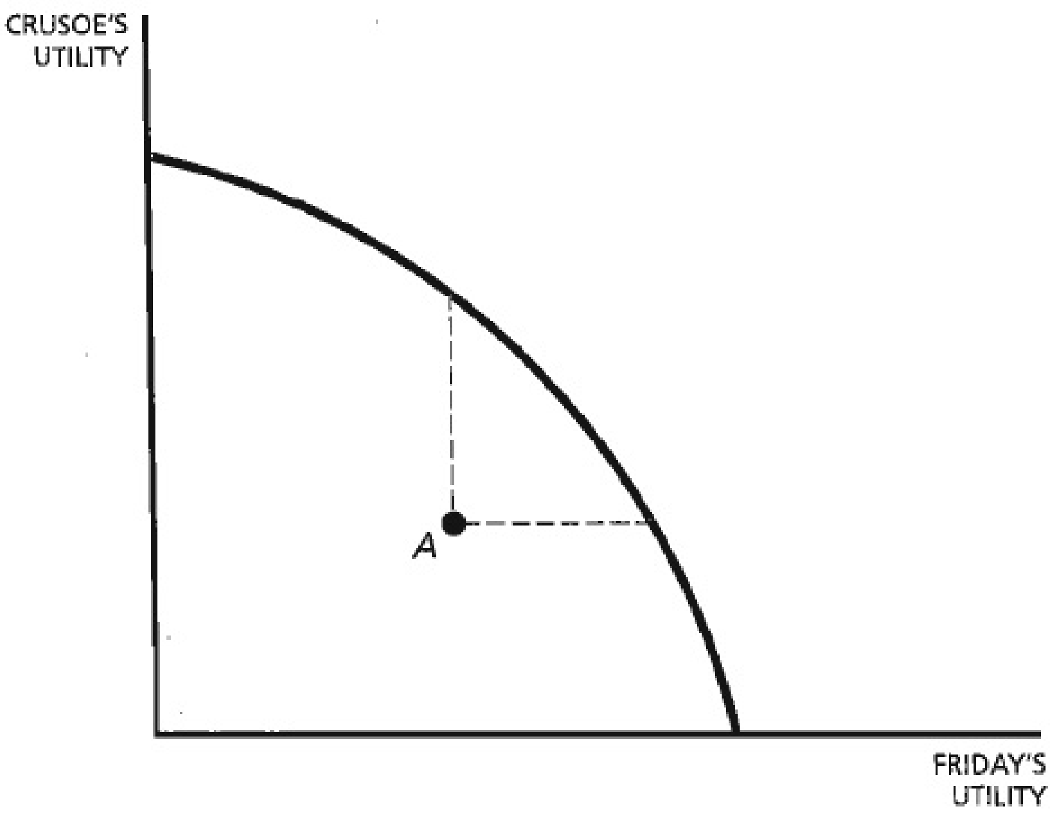
- At equilibrium E: marginal benefit and marginal cost each equals to price  - condition for economic efficiency

# Efficiency

- Three aspects of efficiency – all required for Pareto efficiency
- ***Exchange efficiency***: goods produced should go to individuals who value them most
- ***Production efficiency***: given resources, production of one can't be increased without reducing that of the other
- ***Product mix efficiency***: goods produced correspond to those valued by the consumers

# Utility Possibilities Curve

- The maximum utility 1 can achieve given some specific level of utility of 2



# Utility Possibilities Curve

- Pareto Efficiency: One can't be made better off without making the other worse-off

- If an economy is Pareto efficient, then, it must be operating along the utility possibilities curve

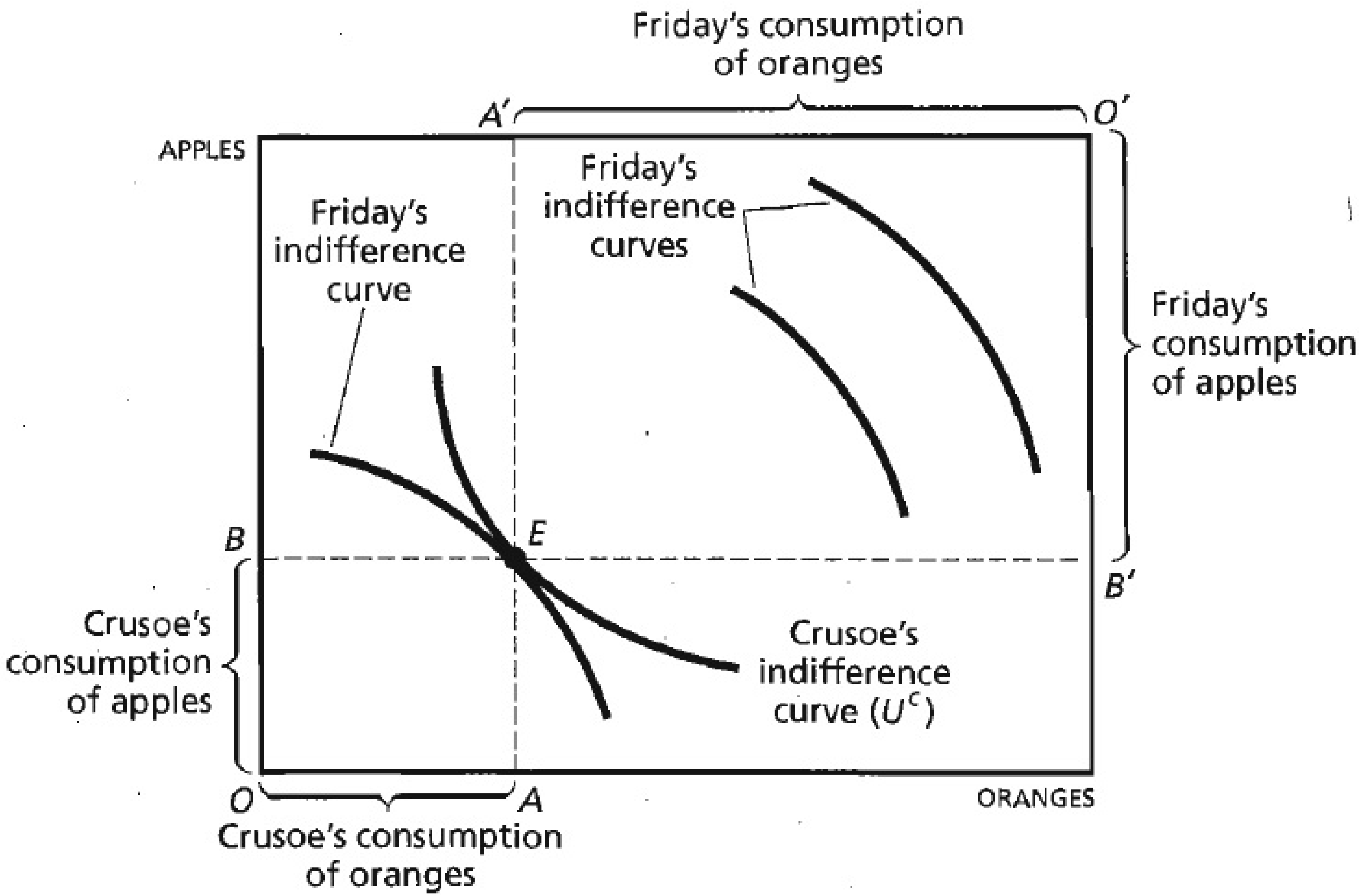
- 1st FWT: competitive economy operates along the UPC

- 2nd FWT: we can attain any point on the UPC using competitive markets with initial redistribution of endowments

# Exchange efficiency

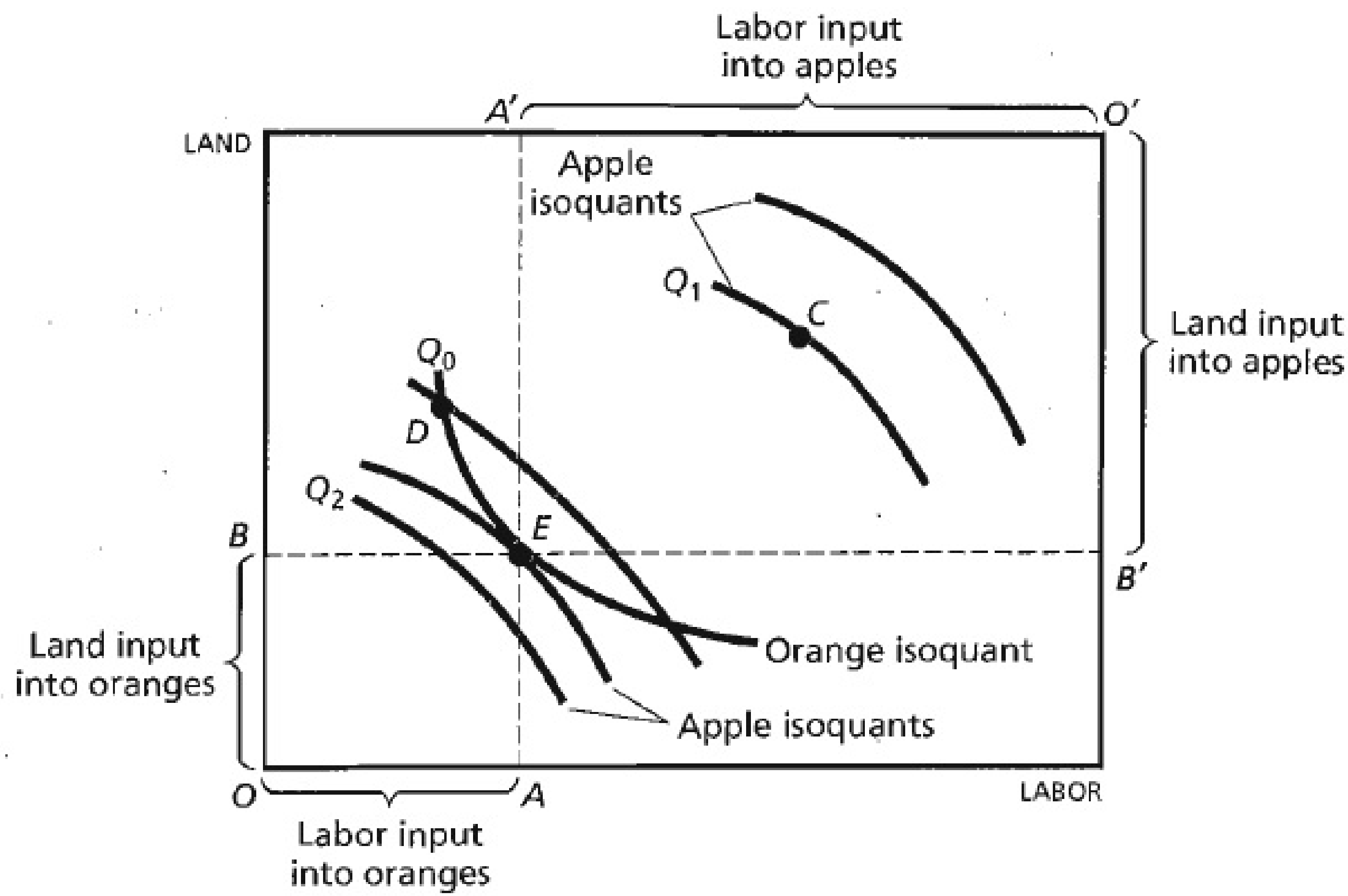
- Exchange efficiency concerns distribution of goods
- Exchange efficiency is achieved when the produced goods can't be exchanged further for Pareto improvement
- That is we equate MRS of both individuals
- Edgeworth box – exchange economy

# Edgeworth Box



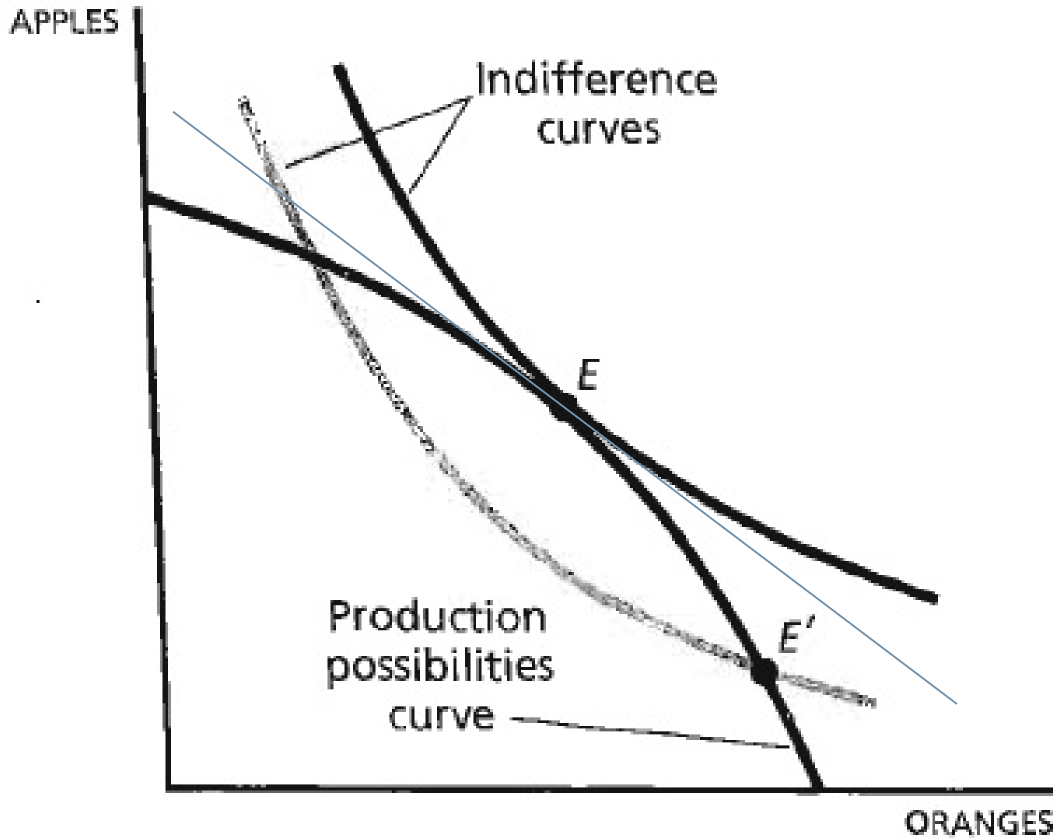
# Production Efficiency

- PPF; Isoquants; Equating MRTS



# Product-mix Efficiency

- MRTS = MRS



# Pareto Efficiency

**BASIC CONDITIONS FOR PARETO EFFICIENCY**

**1** Exchange efficiency: Marginal rate of substitution between any two goods must be the same for all individuals.

**2** Production efficiency: Marginal rate of technical substitution between any two inputs must be the same for all firms.

**3** Product mix efficiency: Marginal rate of transformation must equal marginal rate of substitution.

- **Competitive economy satisfies all the above conditions**

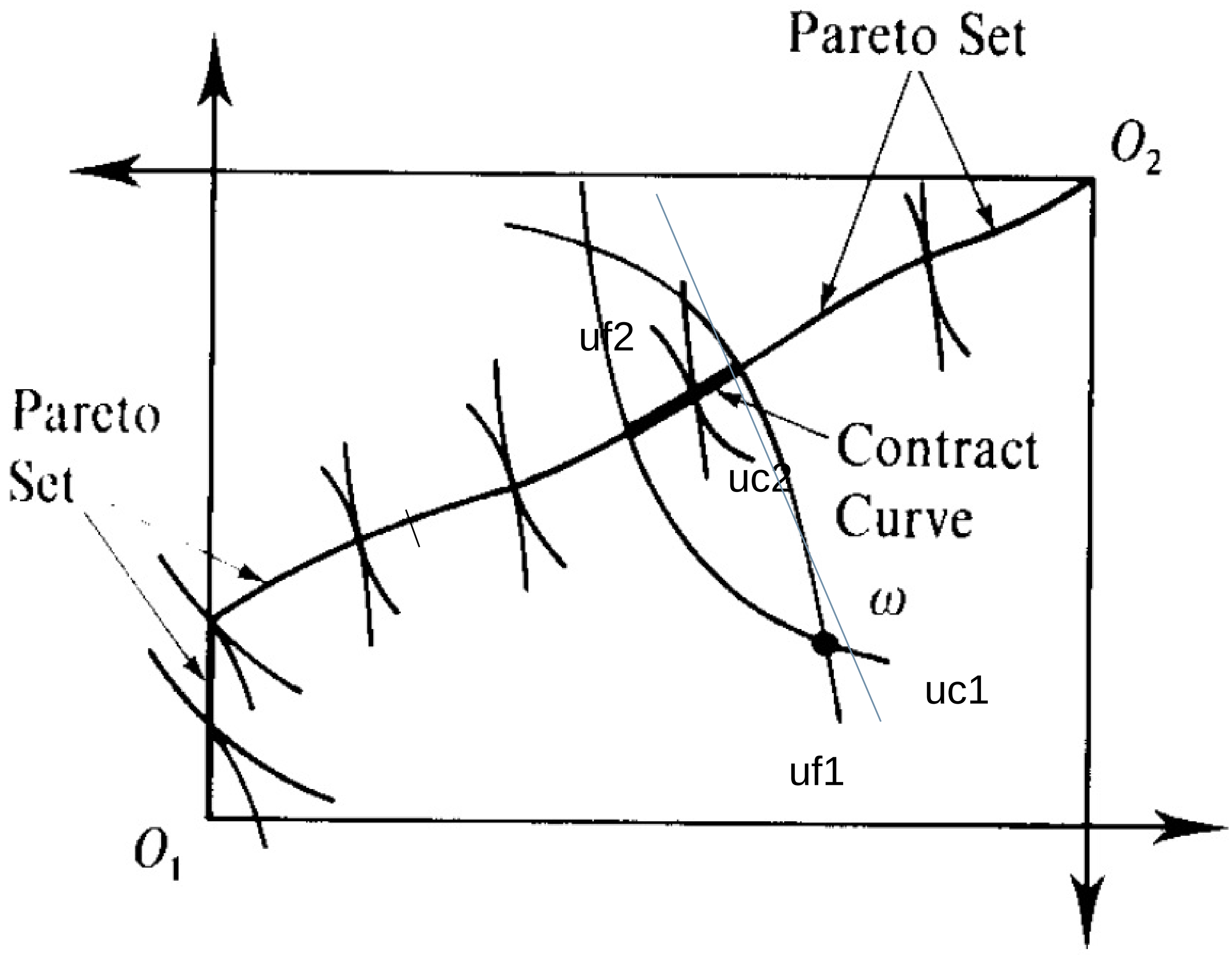
# Endowment, Pareto Set, Contract Curve

- The set of all Pareto optimal allocations is known as the ***Pareto set***.

- ***Contract curve***: the part of the Pareto set where both consumers do at least as well as at their initial endowments.

- This initial endowment will be critical for the 2nd WFT

# Endowment, Pareto Set, Contract Curve



# Reference


1. Stiglitz – Economics of the Public Sector – Chapter 3