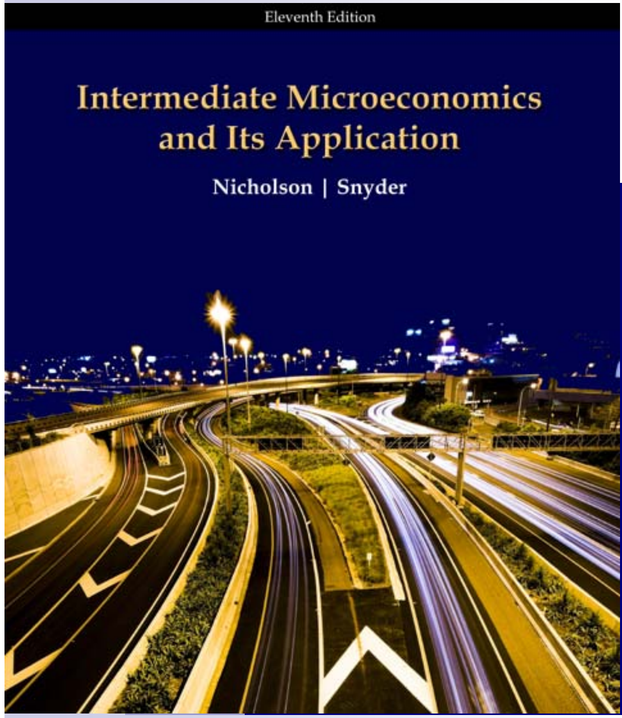

Intermediate Microeconomics and Its Application

11th edition

by

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PowerPoint Slide Presentation

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Chapter 10
General Equilibrium and Welfare

Chapter Preview

- Rather than look at one market in isolation we now want to look at multiple markets: both output and input markets.

- **Partial equilibrium** vs. **general equilibrium** models.

- How would a change in the demand for orange juice effect the price and quantity of orange juice?

- How would that change in the demand for orange juice effect the price and quantity of apple juice? the wages of orange and apple pickers?...

Chapter Preview

- We want to use a general equilibrium model to show how a perfectly competitive price system will lead to an economically efficient allocation of resources: **First Welfare Theorem.**

- We'll also extend out discussion of efficiency and look at reasons why markets may fail to be efficient.

A Perfectly Competitive Price System

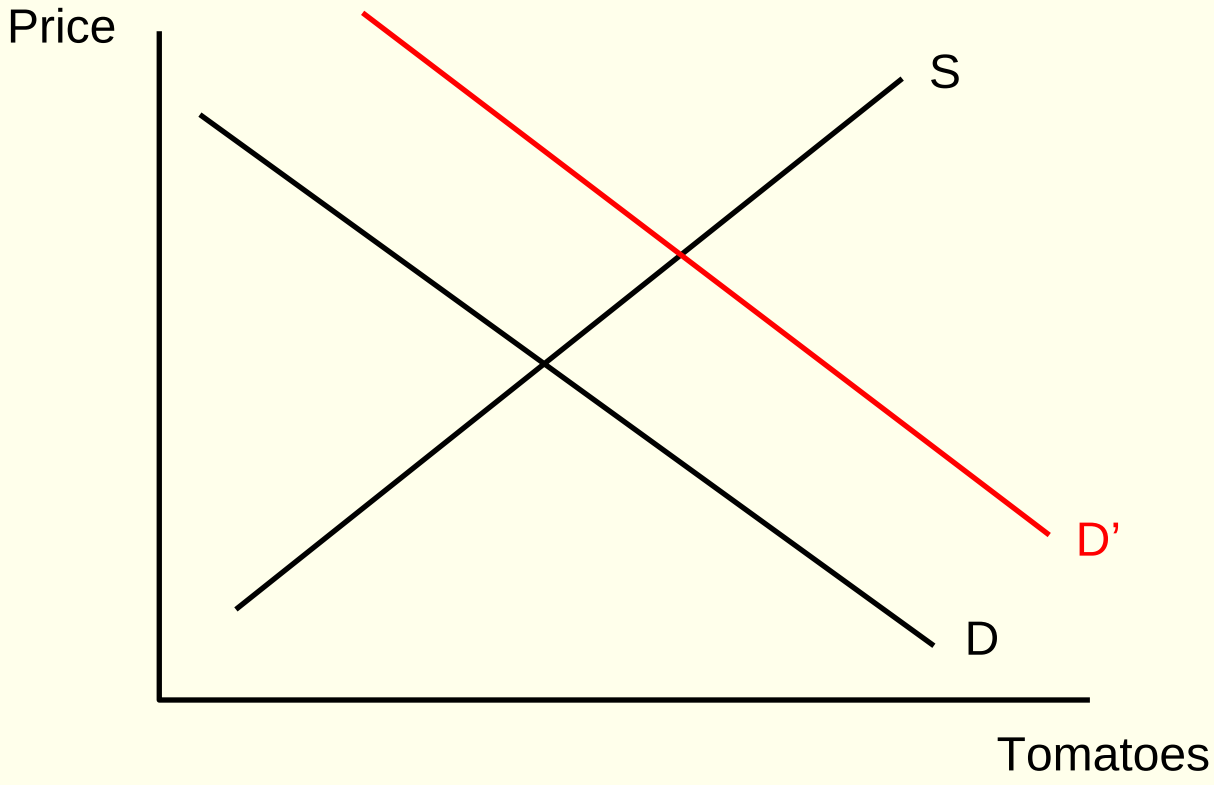
- Assumptions of the model:
  - All individuals and firms take prices as given: **price takers**
  - All individuals maximize their utility
  - All firms maximize profits
  - All individuals and firms are fully informed

General Equilibrium in the Tomato Market

- Suppose that there is new evidence that eating tomatoes is good for your health.
- Use demand/supply analysis to explain what happens to the price and quantity of tomatoes exchanged.
- Then explain how this in turn effects the market for tomato workers, the market for cucumbers and the market for cucumber workers.

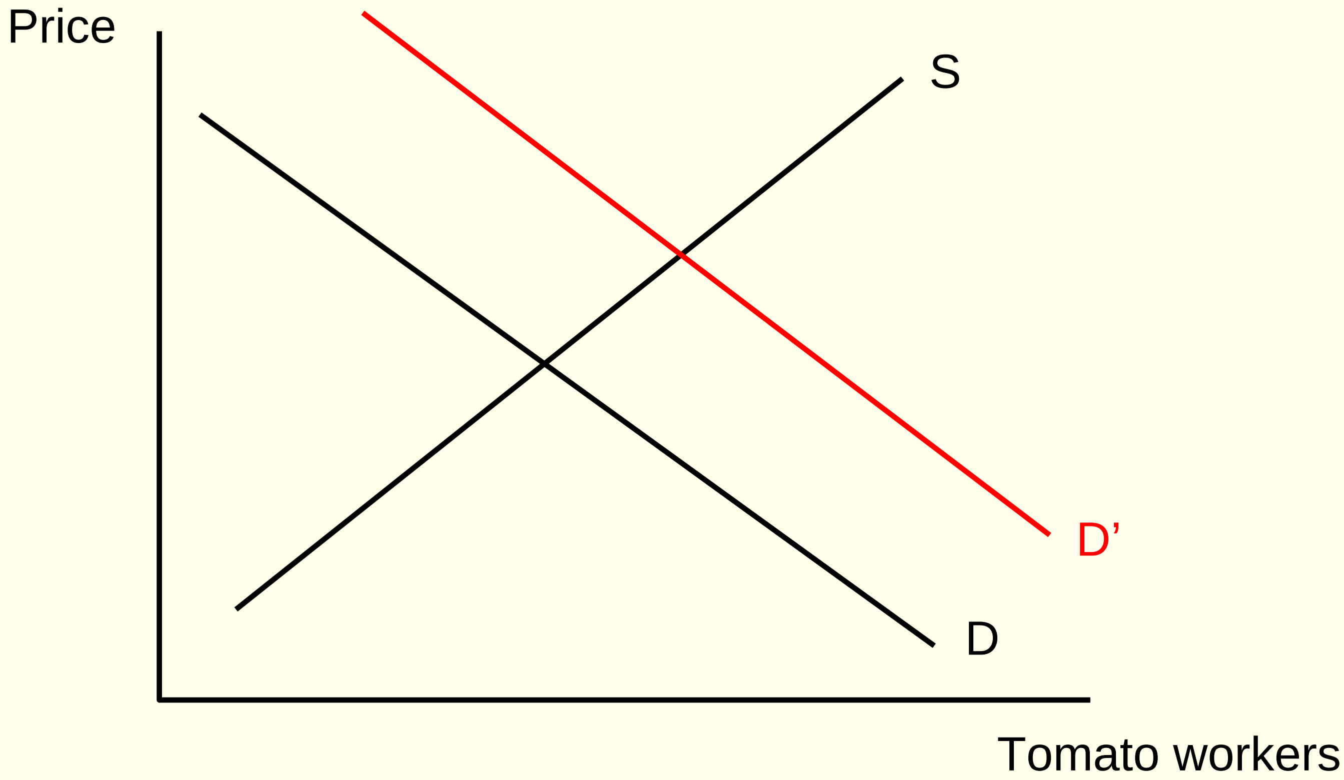
General Equilibrium in the Tomato Market

- Step 1: The demand for tomatoes will increase (health) causing the price and quantity of tomatoes to increase.



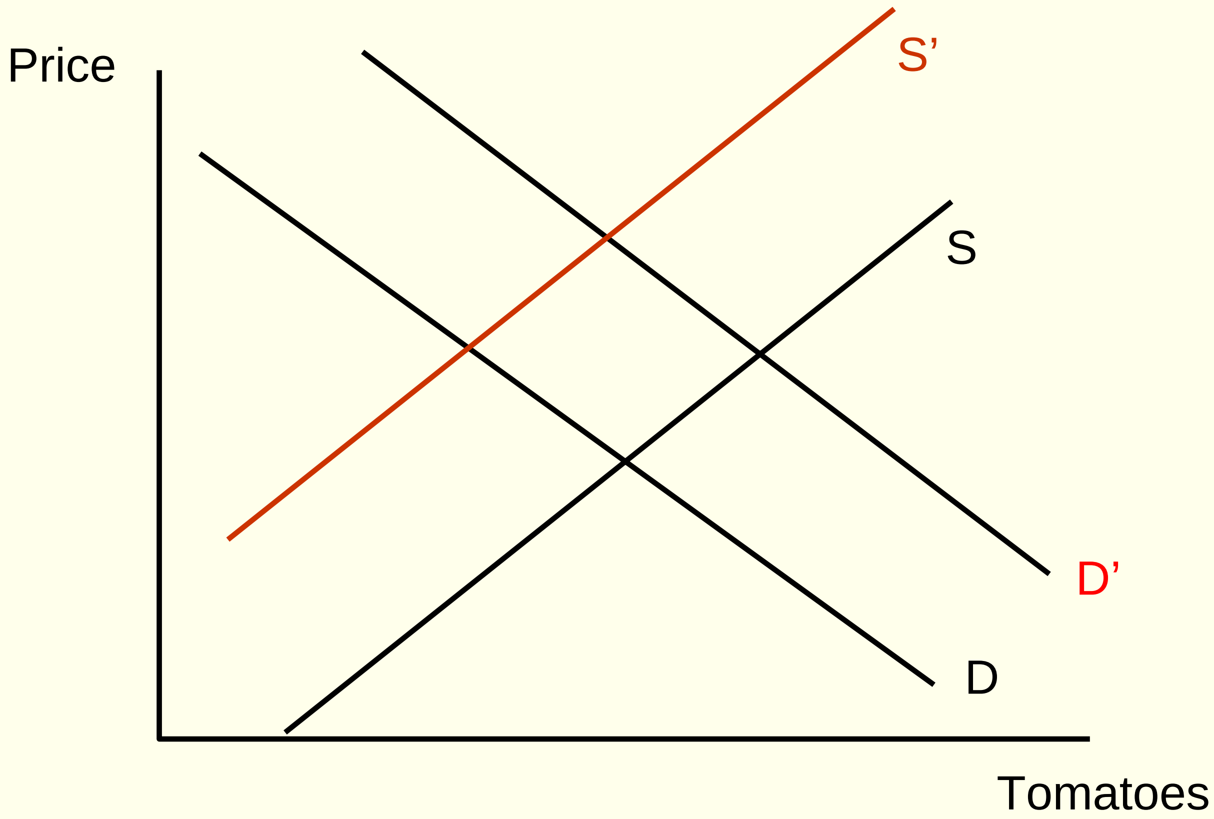
General Equilibrium in the Tomato Market

- Step 2: The demand for tomato workers will increase causing the wage and quantity of tomato workers to rise.



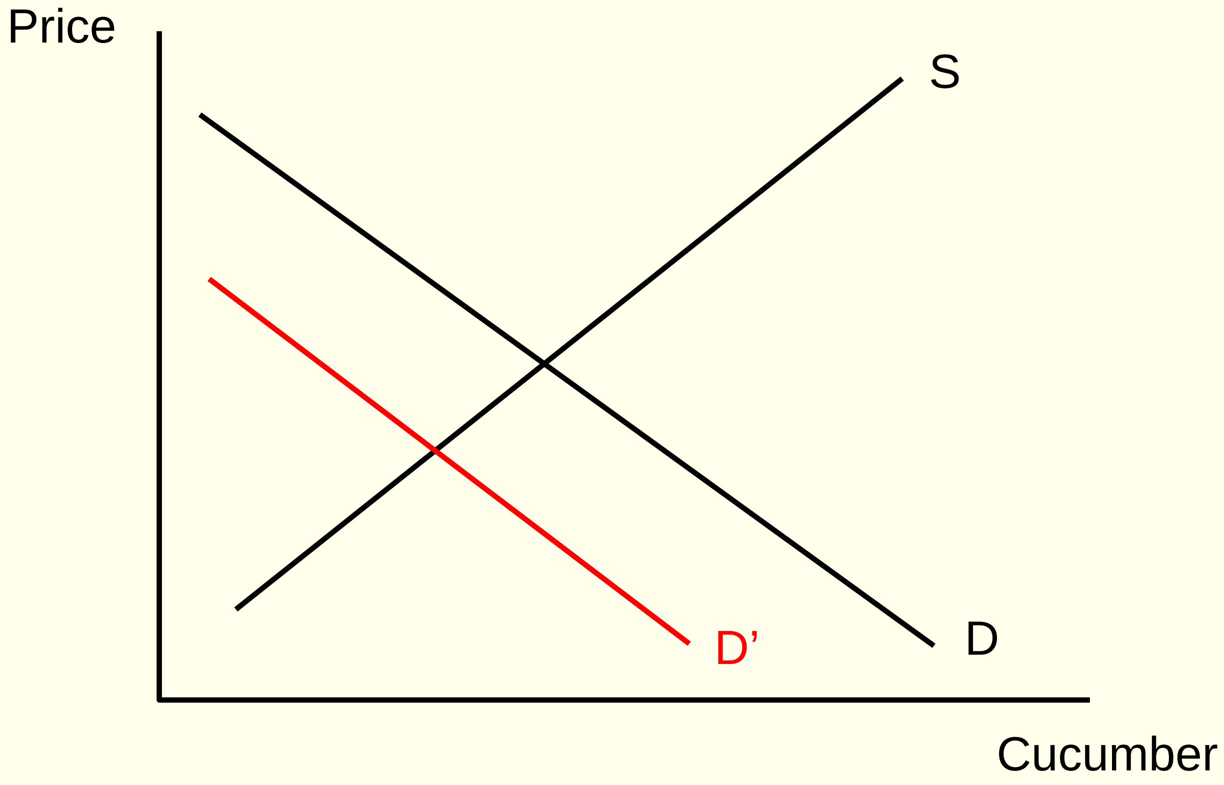
General Equilibrium in the Tomato Market

- Step 2.1: The increase in the wages of tomato workers increases the costs for producers and they decrease their supply.



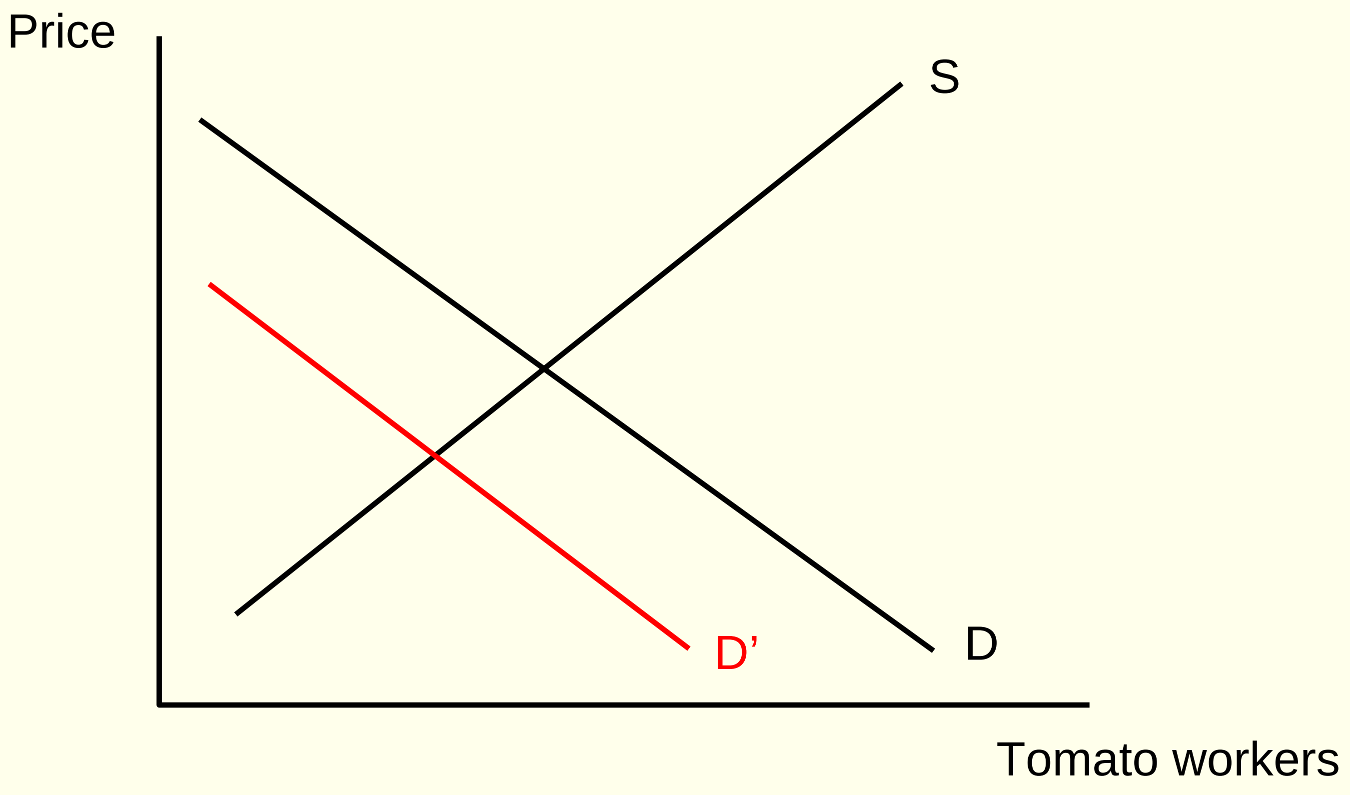
General Equilibrium in the Tomato Market

- Step 3: The demand for cucumbers will fall causing the price and quantity of cucumbers to fall.



General Equilibrium in the Tomato Market

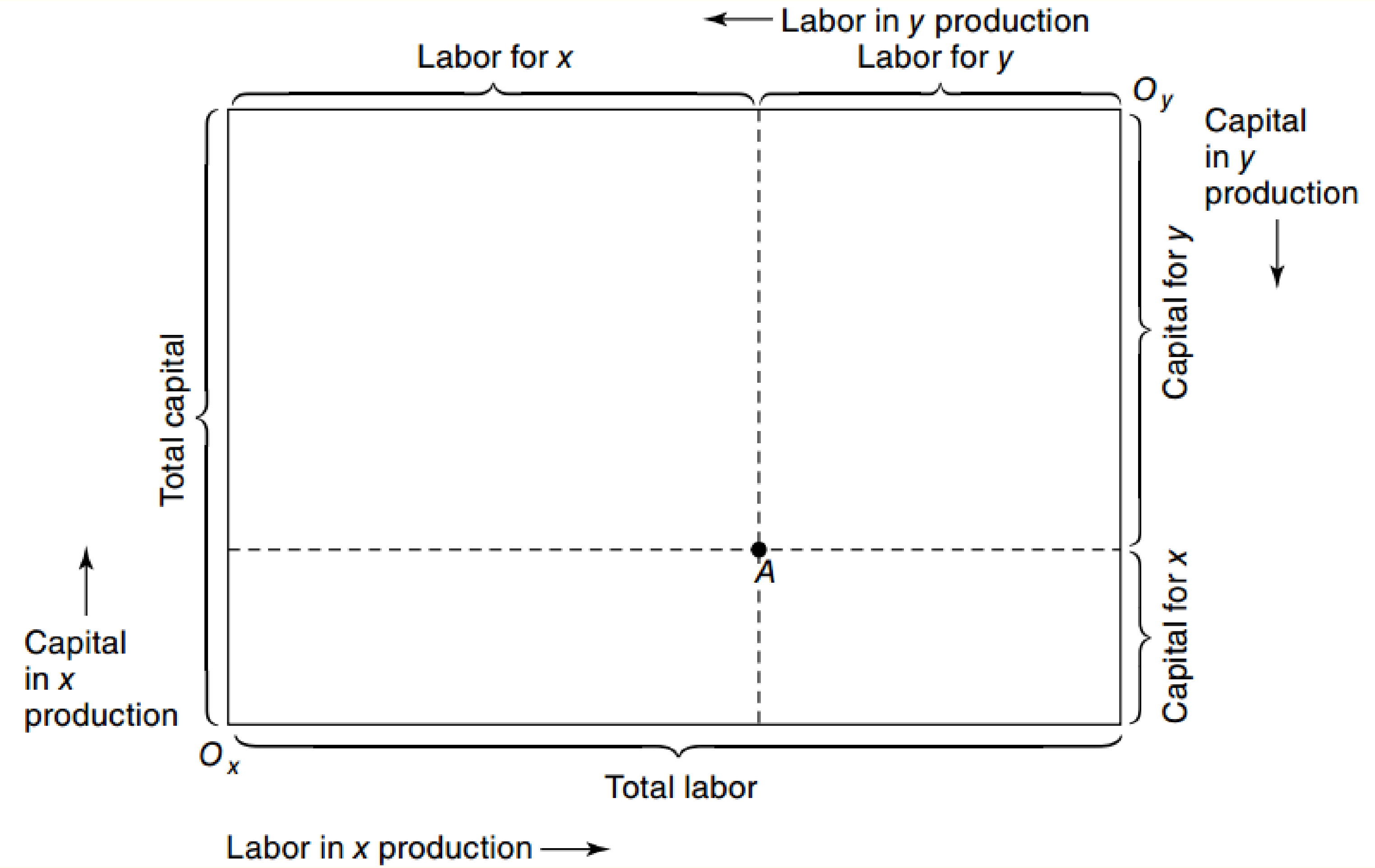
- Step 4: The demand for cucumber workers will fall causing the wage and quantity of cucumber workers to fall.



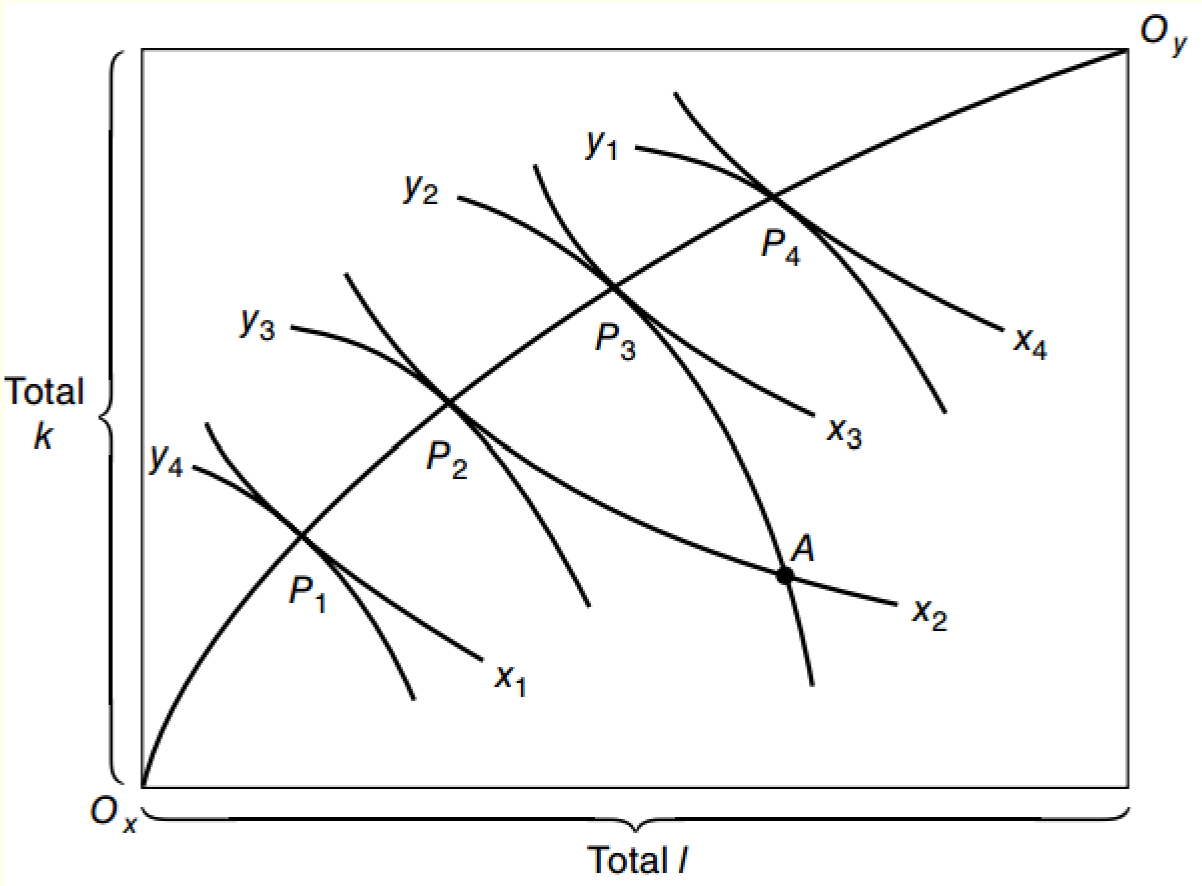
General Equilibrium in the Tomato Market

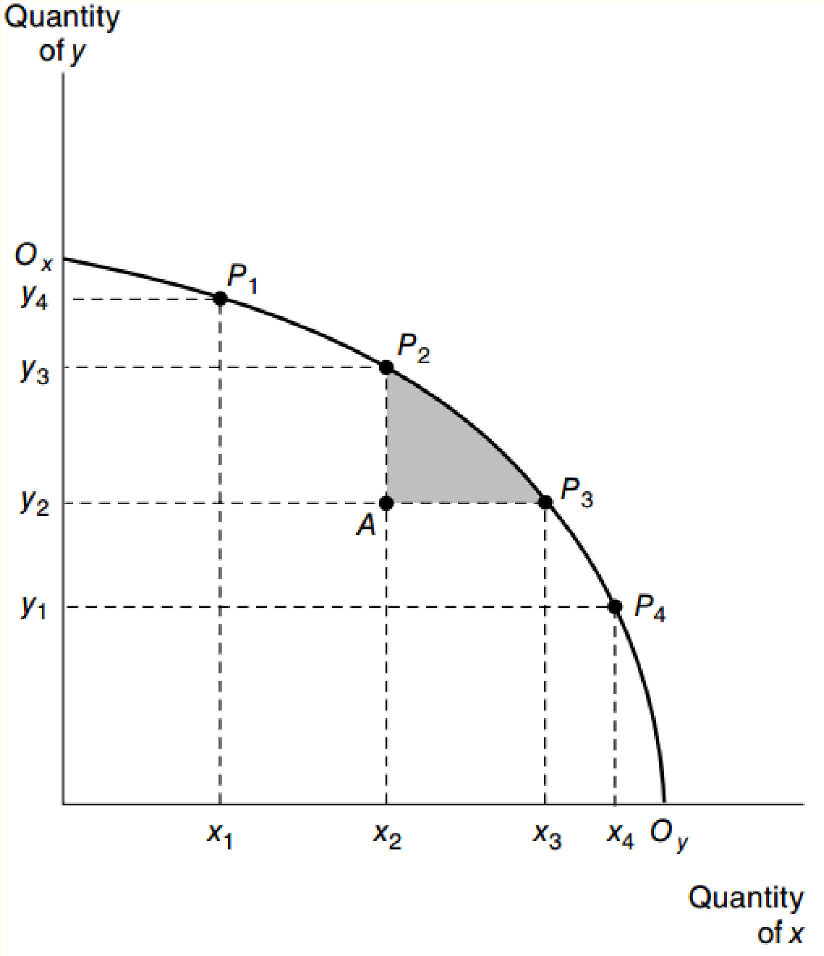
- Could carry this on even further.
- Since cucumber workers now have lower wages they may decide to be tomato workers.
- . . .

Edgeworth Box Diagram for Production



Efficiency in Production



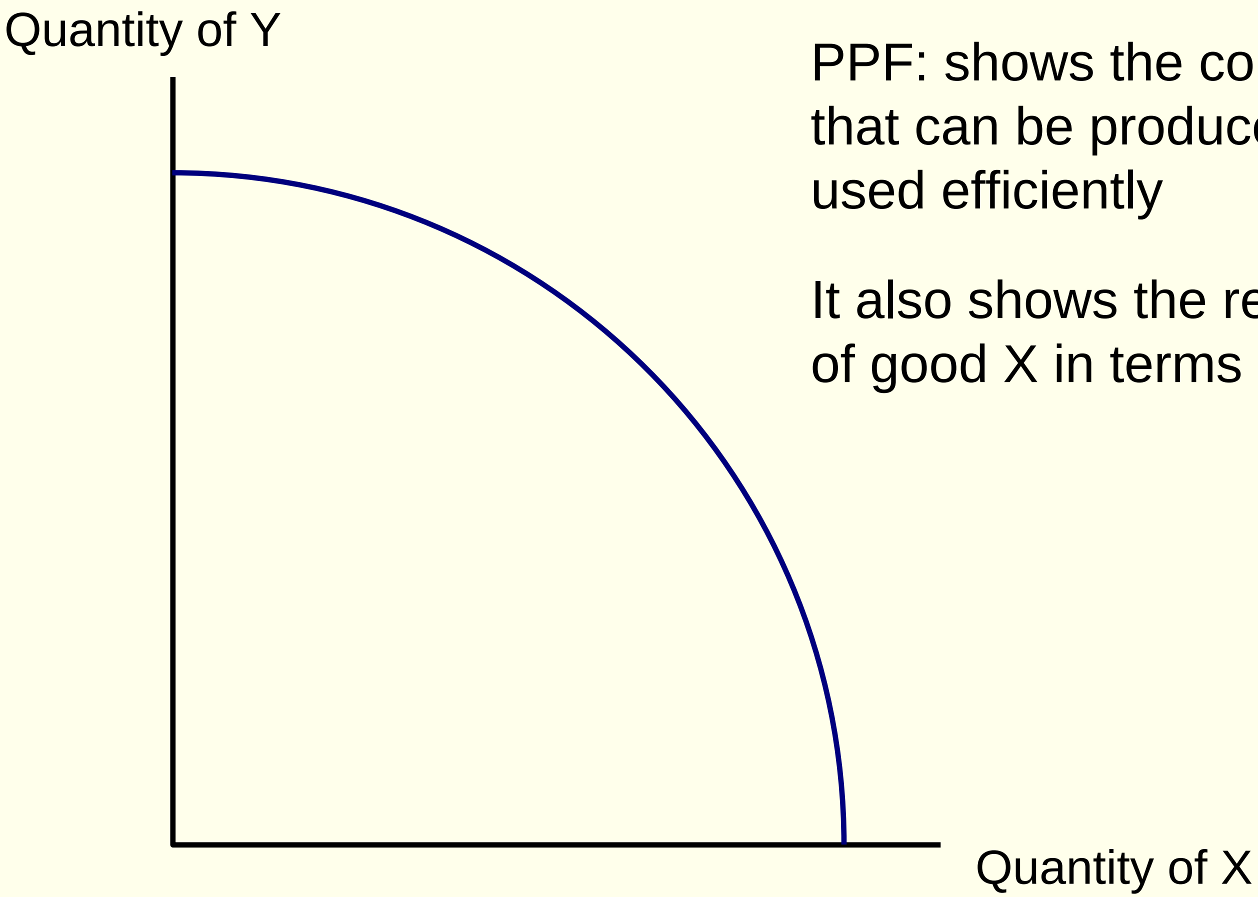


- The *production possibility frontier* (PPF) shows the alternative combinations of two outputs that can be produced with fixed quantities of inputs if those inputs are employed efficiently.

- The *rate of product transformation* (RPT) between two outputs is the negative of the slope of the production possibility frontier for those outputs. Mathematically,

$$
\begin{aligned}
RPT\ (\text{of } x \text{ for } y) \\
&= -[\text{slope of ppf}] \\
&= -\frac{dy}{dx}\,(\text{along } O_x O_y).
\end{aligned}
$$

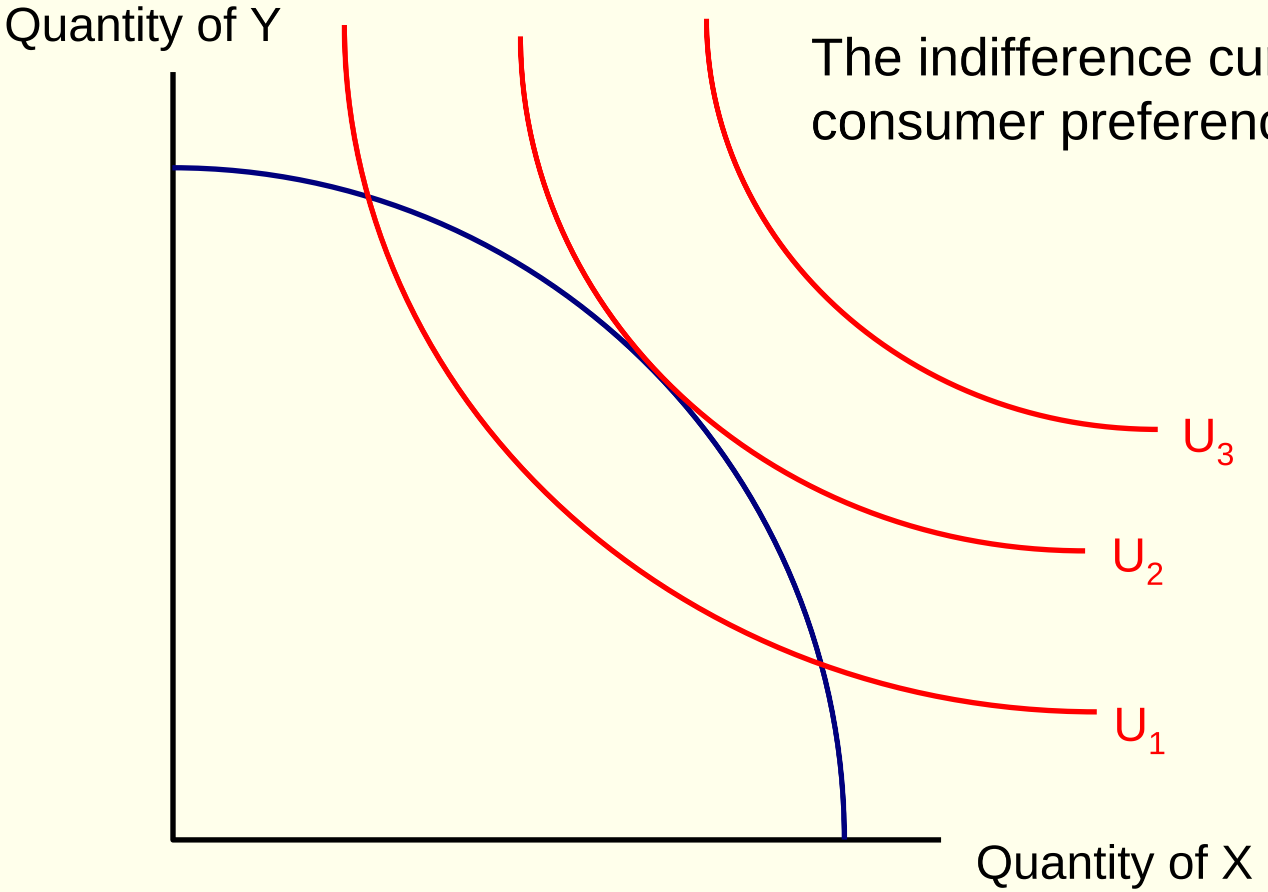
A Simple General Equilibrium Model



PPF: shows the combinations of X and Y that can be produced if resources are used efficiently

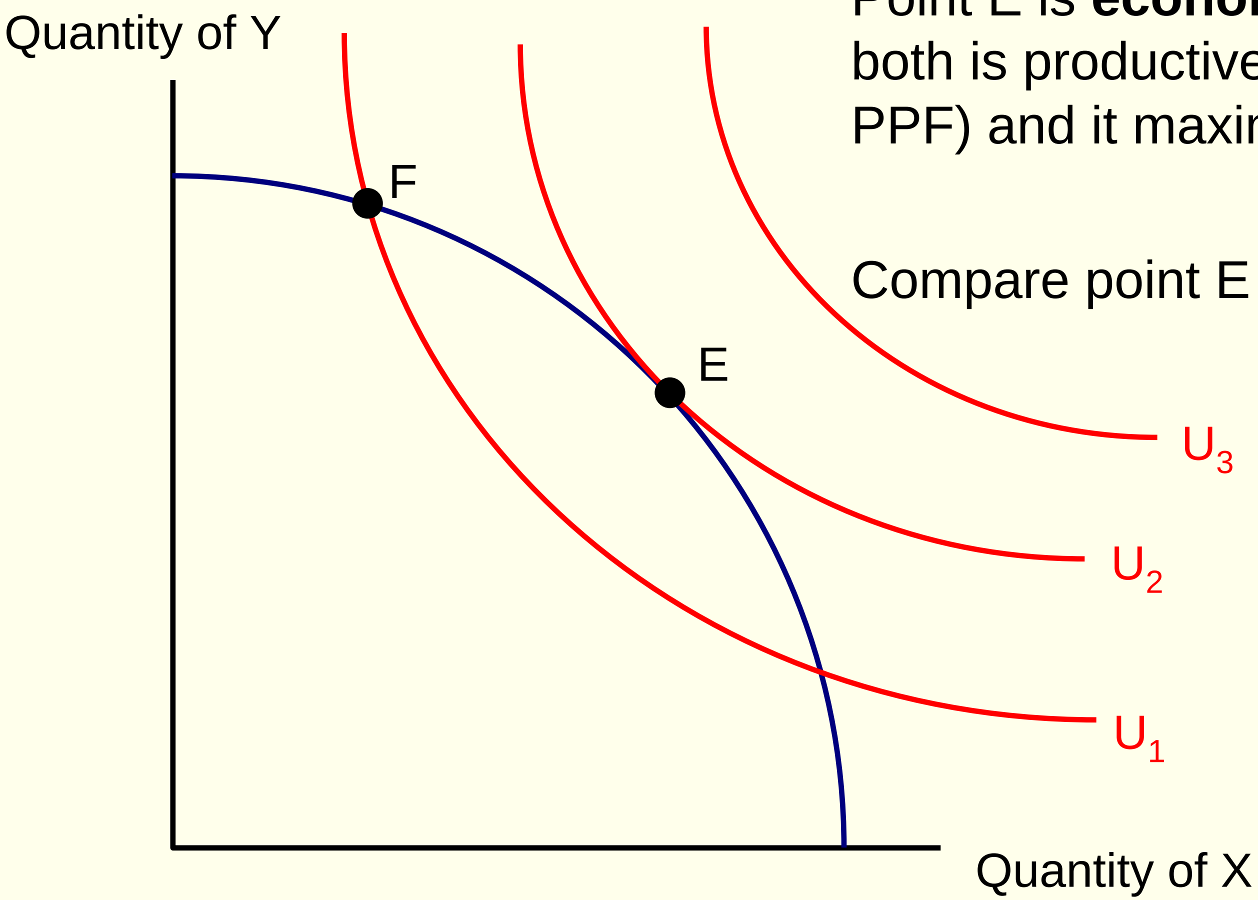
It also shows the relative opportunity cost of good X in terms of Y: “supply curve”

A Simple General Equilibrium Model



The indifference curves represent consumer preferences: “demand curve”

A Simple General Equilibrium Model



Point E is **economically efficient**: it both is productively efficient (on the PPF) and it maximizes utility.

Compare point E to point F

A Simple General Equilibrium Model

- The slope of the PPF shows the opportunity cost of X in terms of Y. As more X is produced, the opportunity cost rises. The slope is the **rate of product transformation**.

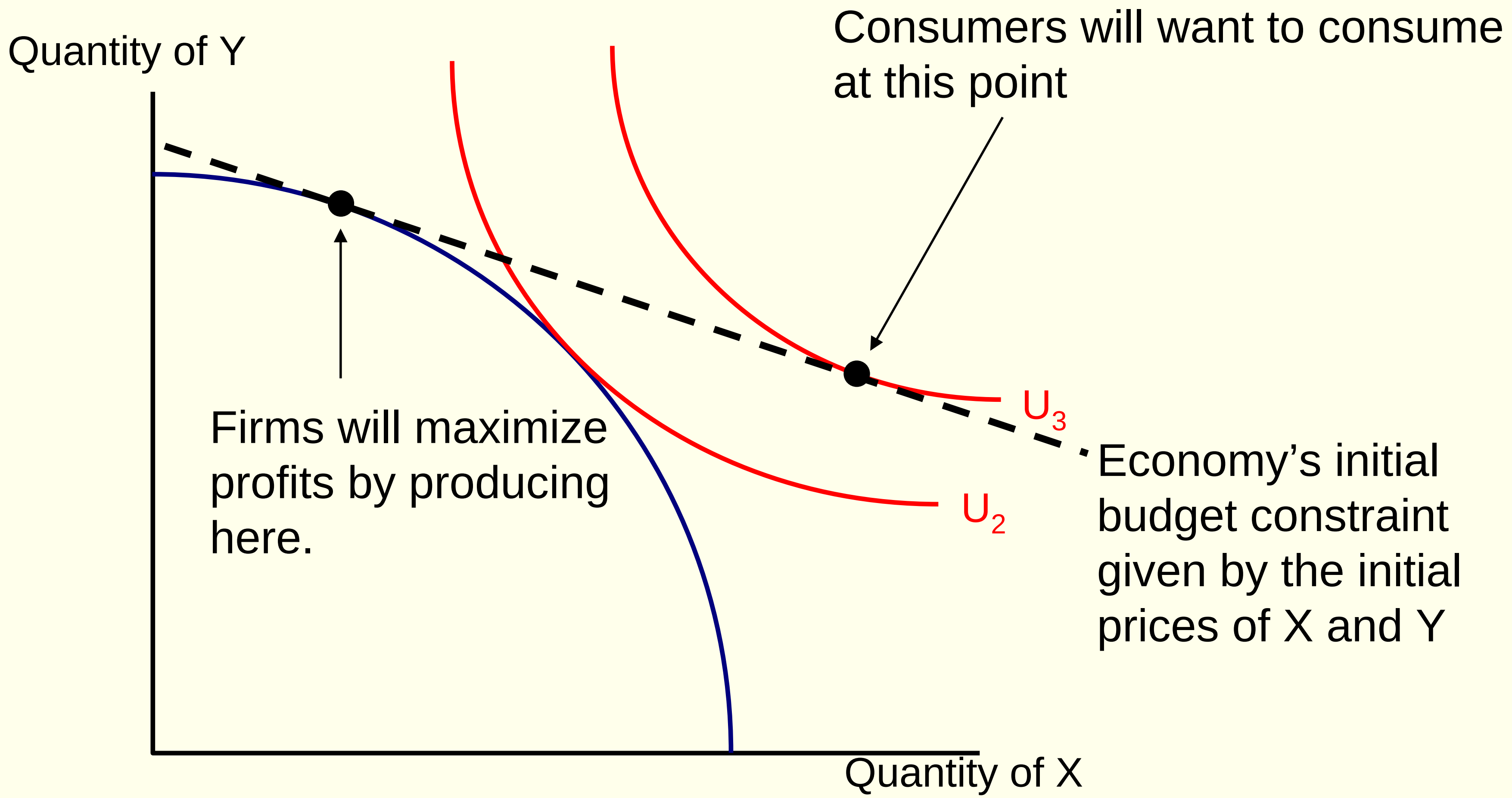
- The slope of the indifference curve shows the rate at which consumers are willing to trade one good for another in consumption. The slope is the **marginal rate of substitution.**

- At the efficient point the RPT = MRS

The Efficiency of Perfect Competition

- We now have an idea of where we want to be: point E.
- How do we get there?
- **First Welfare Theorem** says that a perfectly competitive price system will bring about an economically efficient allocation of resources.

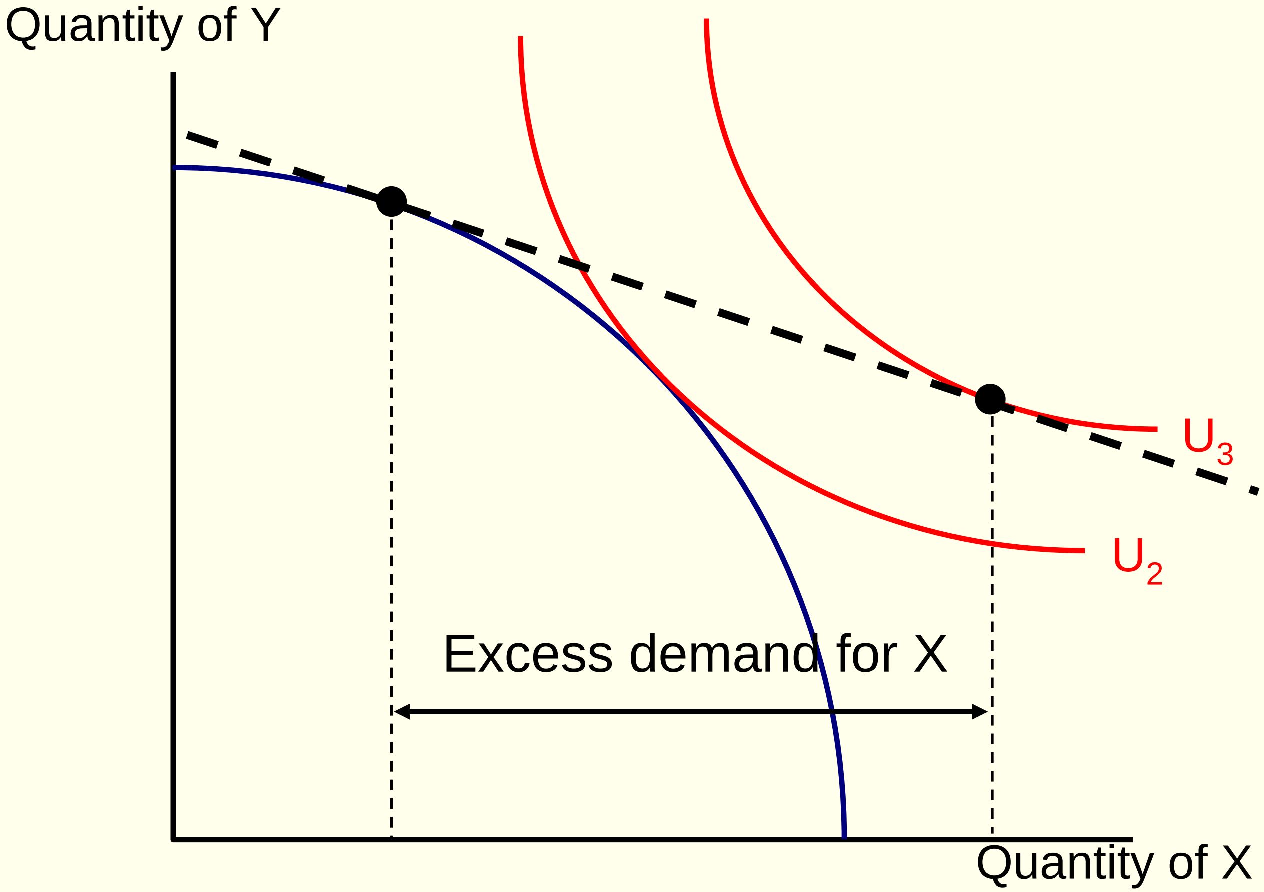
The Efficiency of Perfect Competition



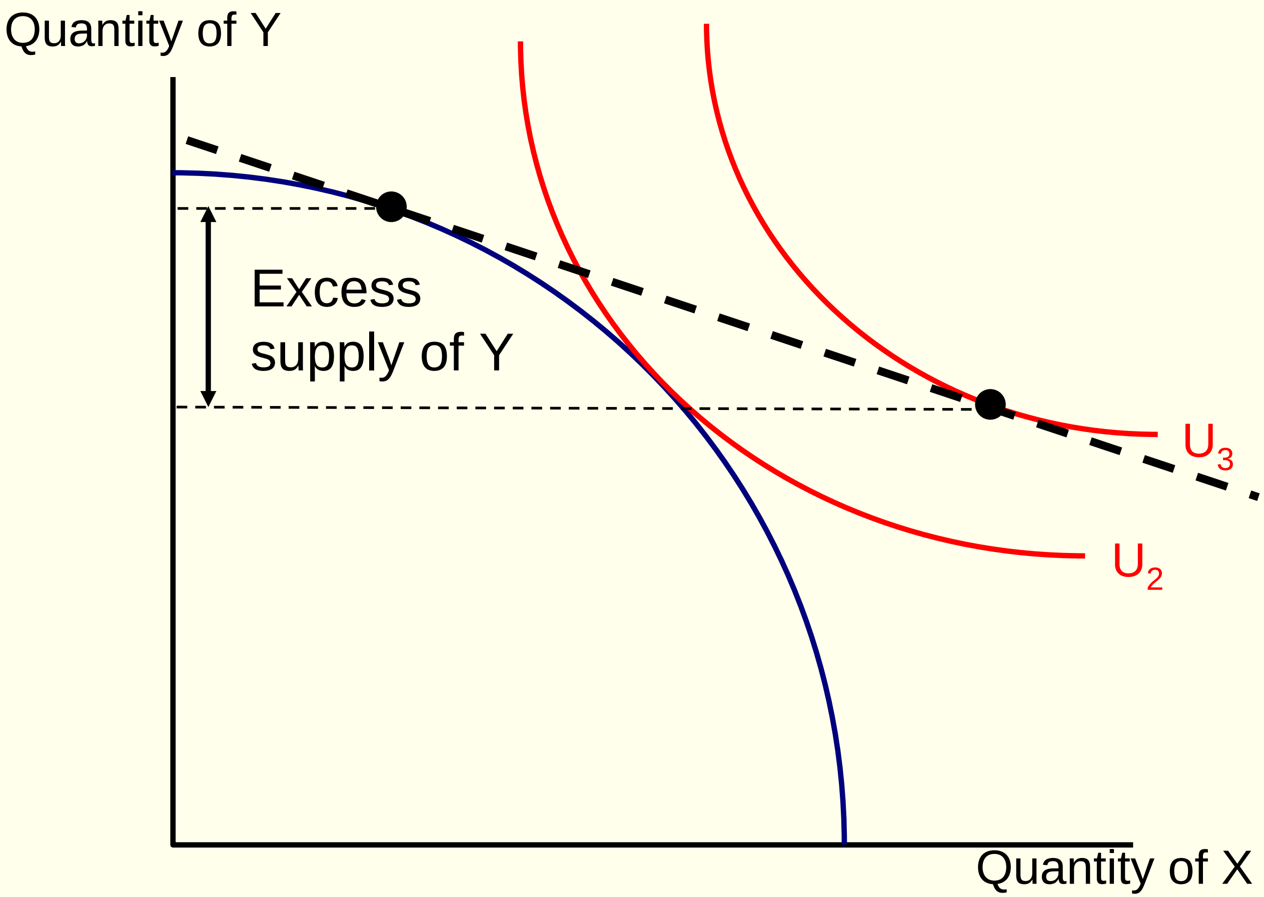
The Efficiency of Perfect Competition

- What's the problem?

The Efficiency of Perfect Competition



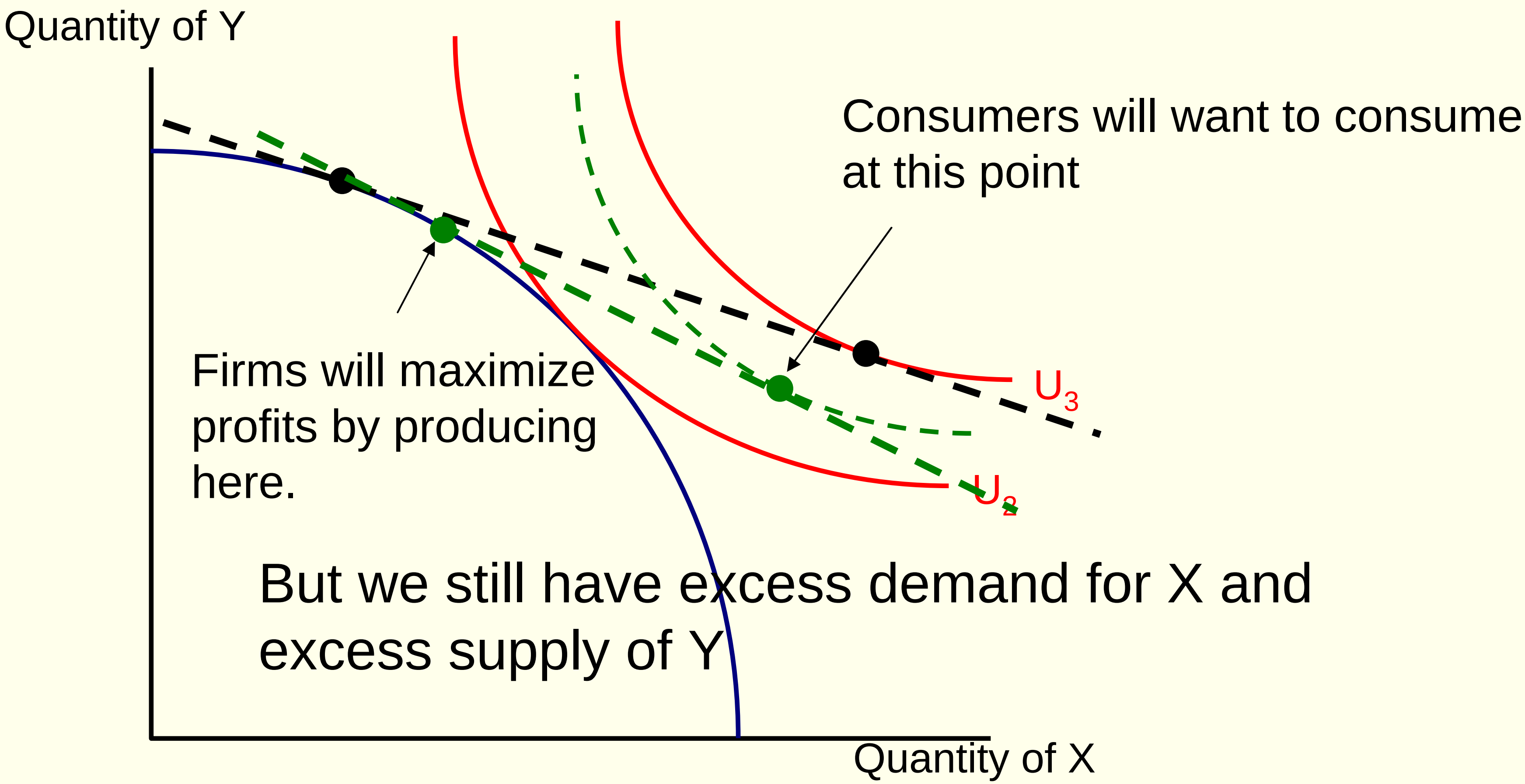
The Efficiency of Perfect Competition



The Efficiency of Perfect Competition

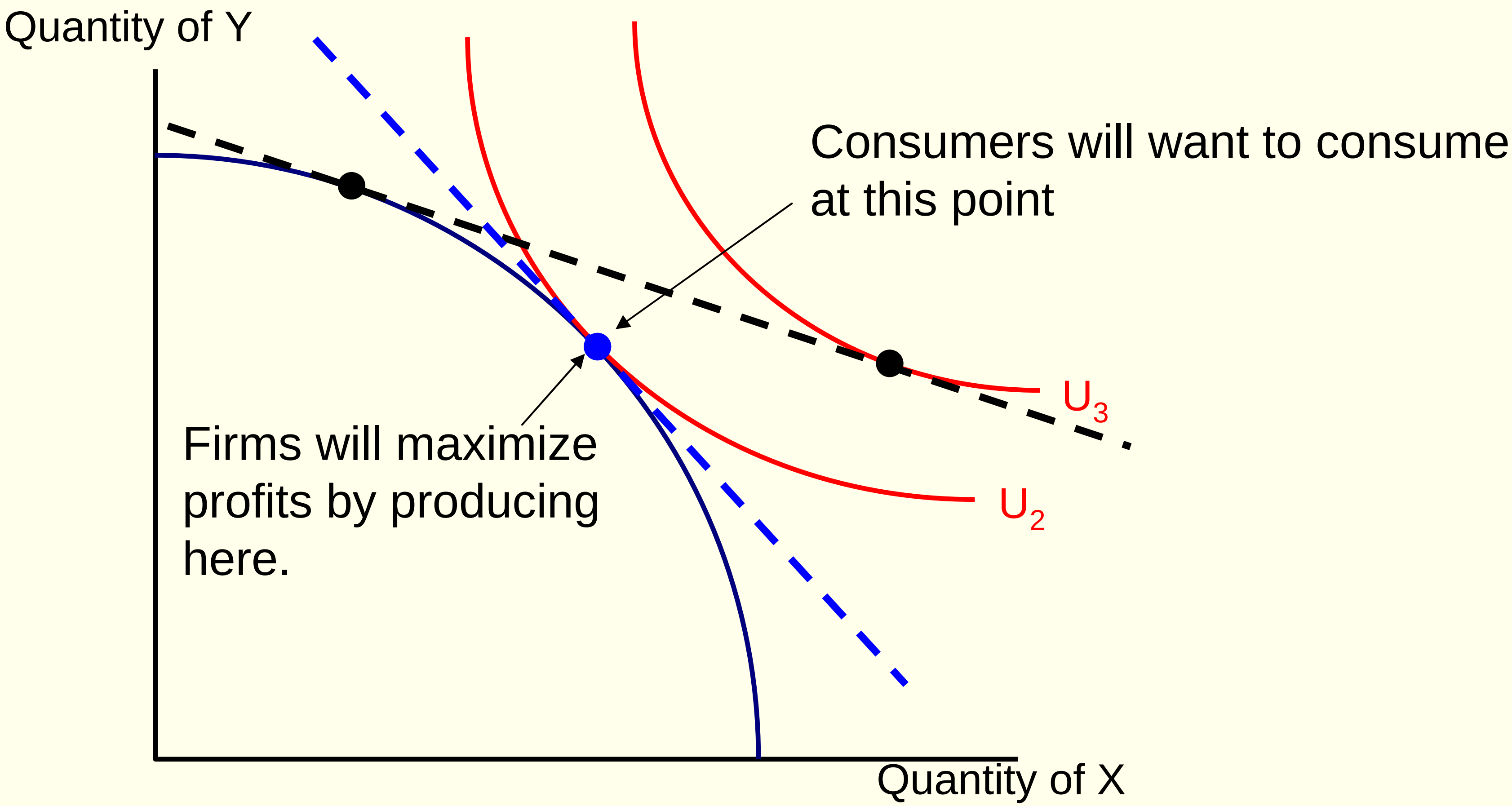
- What's the problem?
  - At the initial set of prices the decisions of firms and consumers don't match up.
  - There is an excess demand for X and an excess supply of Y.
- What will happen to the prices of X an Y.
  - The price of X will increase and the price of Y will decrease.
  - The budget line will <u>pivot</u> and become <u>steeper</u>.

The Efficiency of Perfect Competition



But we still have excess demand for X and excess supply of Y

The Efficiency of Perfect Competition



The Efficiency of Perfect Competition

- At equilibrium:
  - Firms are maximizing profits.
  - Given the income consumers earn from that level of production consumers are maximizing utility.
  - At equilibrium the amount of X and Y producers wish to supply is equal to the amount of X and Y that consumers demand.

Prices, Efficiency and Laissez Faire

- *The natural effort of every individual to better his own condition, when suffered to exert itself with freedom and security, is so powerful a principle that it is alone, and without any assistance, not only capable of carrying on the society to wealth and prosperity, but of surmounting a hundred impertinent obstructions with which the folly of human laws too often encumbers its operations.*

- What was Adam Smith saying?

Why Markets Fail to Achieve Efficiency

- What do we mean by “market failure”?
- **Imperfect Competition**
  - A market in which some buyers and/or sellers have some influence on the prices of goods and services
- **Externalities**
  - The effect of one party’s economic activities on another party that is not taken into account by the price system (pollution)
- **Public Goods**
  - Goods that are both *non-exclusive* and *non-rival*
- **Imperfect Information**

Efficiency and Equity

- Even if an outcome is efficient it may not be equitable: goods and services are not fairly distributed.

- What is a potential problem with this argument?

  - How do you define equity?

  - How can you achieve it?