

# Equilibrium (no production)

Economics II: Microeconomics

VŠE Praha

October 2009

# Equilibrium

Is equilibrium is efficient?

- both consumption and production must be efficient!

Consumption is efficient ONLY if goods cannot be reallocated across people so that at least someone better off and no one is harmed.

# Trading between people

Setup:

2 people have goods, but cannot produce more goods (no production), both parties benefit from mutually agreed trades.

# Trade Equilibrium

## Endowments

### Definition

Endowment is the initial allocation of goods  $(\omega_1, \omega_2)$ .

### Example

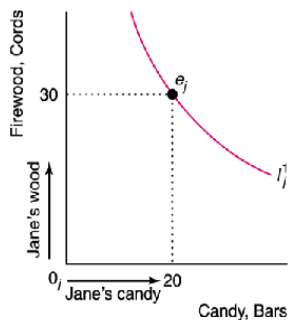
Jane and Denise are only two people, firewood and candy are the only two goods. The initial allocation is:

Endowments			
	Jane	Denise	<i>total</i>
Firewood	30	20	<i>50</i>
Candy	20	60	<i>80</i>

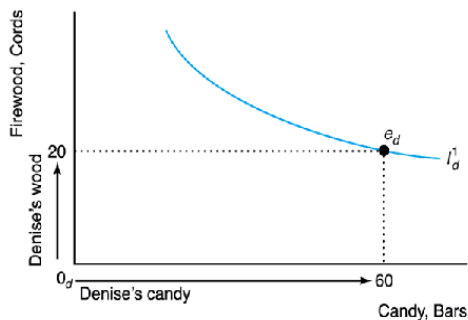
# Trade Equilibrium

## Endowments

(a) Jane's Endowment



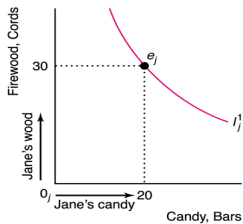
(b) Denise's Endowment



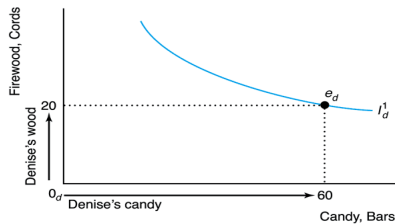
# Trade Equilibrium

## Endowments

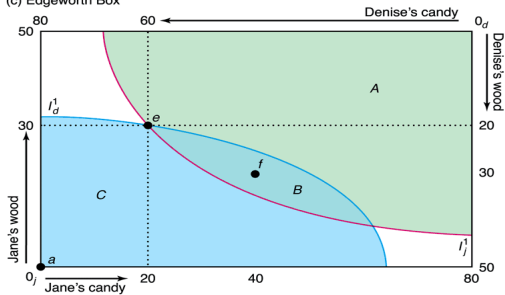
(a) Jane's Endowment



(b) Denise's Endowment

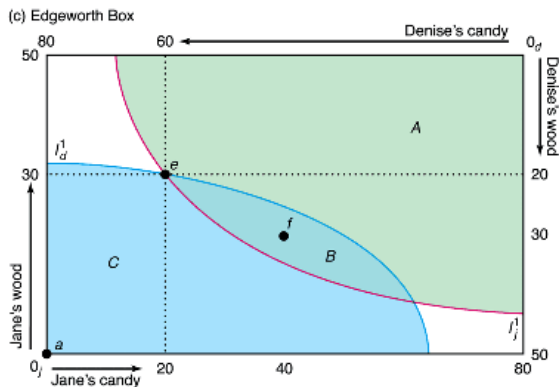


(c) Edgeworth Box



# Trade Equilibrium

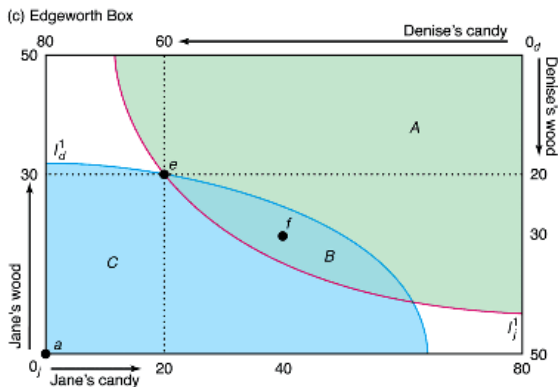
## Edgeworth Box



- $e$  is the endowment for both

# Trade Equilibrium

## Edgeworth Box

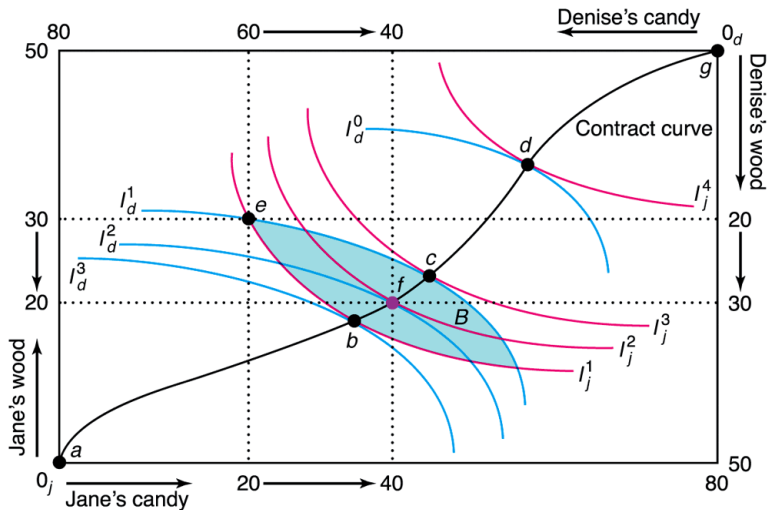


- $e$  is the endowment for both
- $f$  is better for both



# Trade Equilibrium

Edgeworth Box: The Contract Curve



# Trade Equilibrium

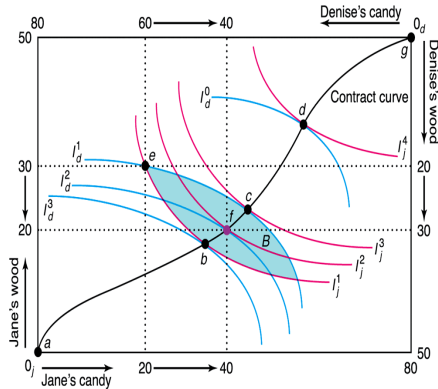
## Edgeworth Box: The Contract Curve

### THE CONTRACT CURVE

- Tangent indifference curves
- Equal MRSs
- No mutually beneficial trade
- Pareto Efficient

#### Definition

The allocation is Pareto efficient if no party can get better off without harming the other(s).



# Trade Equilibrium

## Endowment and Budget constraint

Assume prices  $(p_1, p_2)$

The budget constraint is:

$$p_1x_1 + p_2x_2 \leq p_1\omega_1 + p_2\omega_2$$

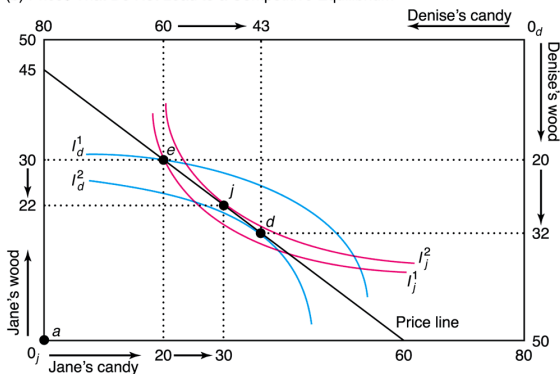
### Fact

*The budget constraint always passes through the initial endowment point  $(\omega_1, \omega_2)$*

# Trade Equilibrium

## Edgeworth Box

(b) Prices That Do Not Lead to a Competitive Equilibrium

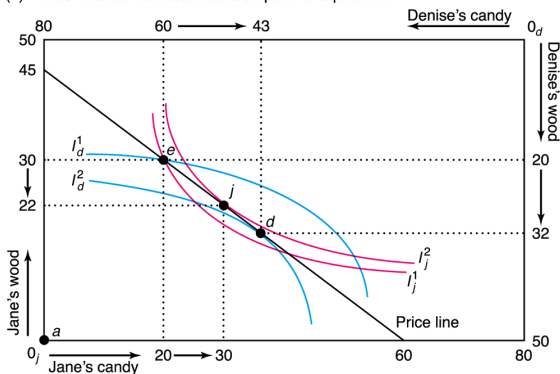


- The relative prices are represented by a straight line and pass through the initial endowment (same as the budget constraint).

# Trade Equilibrium

## Edgeworth Box

(b) Prices That Do Not Lead to a Competitive Equilibrium

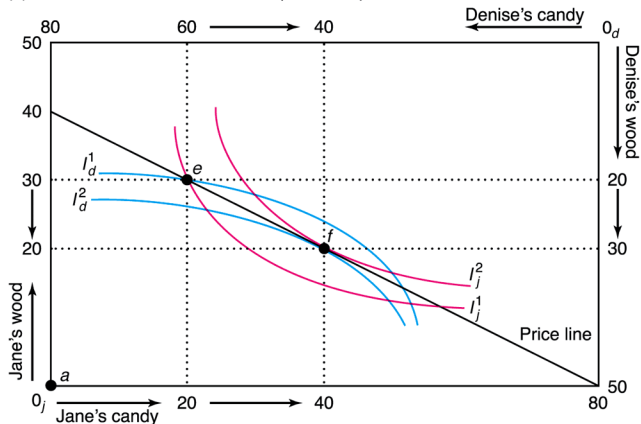


- The relative prices are represented by a straight line and pass through the initial endowment (same as the budget constraint).
- The prices will change so that there is no excess demand or supply (Invisible Hand).

# Trade Equilibrium

## Edgeworth Box

(a) Price Line That Leads to a Competitive Equilibrium



The market will clear with the help of the Invisible Hand.

# Trade Equilibrium

## Competitive Equilibrium

### Fact

*In a competitive market, prices adjust until the quantity supplied equals the quantity demanded (the work of the Invisible Hand).*

### Definition

A **competitive equilibrium** (or market equilibrium, or Walrasian equilibrium) is a set of prices and allocations such that the market clears.

# Trade Equilibrium

## Competitive Equilibrium

### Fact

*In a competitive equilibrium the indifference curves of both types of consumers are tangent at the same bundle on the price line. As a result:*

$$MRS_j = -\frac{p_c}{p_w} = MRS_d$$

### Theorem (First Theorem of Welfare Economics)

*Any competitive equilibrium is Pareto efficient.*



## QUESTIONS AND COMMENTS