Transport Economics

Lecture 1

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Focus of this course:

How to allocate limited resources across people and space?

- Who benefits more? Who is willing and able to pay more?
- Left to themselves, will suppliers provide enough of it? Will they price and allocate efficiently and equitably?
- When do transport markets need external interventions?
- When should transport services be publicly provided?
- How to determine the size of misallocations? How to correct them using regulatory and pricing tools?
- How to evaluate costly policy interventions?

Economics is a bit odd…

- Abstract problems and settings
  - More flexibility in generalizing economic reasoning to different contexts
  - Standardized evaluations, less subjective
  - Focus on understanding behavior (of individuals, groups, societies, …)

- Abstract solutions and goals
  - Less concrete, realistic, practical
  - Abstract from what is right or wrong, good or bad, etc.

Today's agenda

Syllabus & Course logistics

How to allocate a resource?

1. Opportunity costs
   - What are the alternatives? Trade-offs?

2. How to gauge demand?
   - How much is it valued? Information asymmetry?

3. Markets as allocation mechanisms

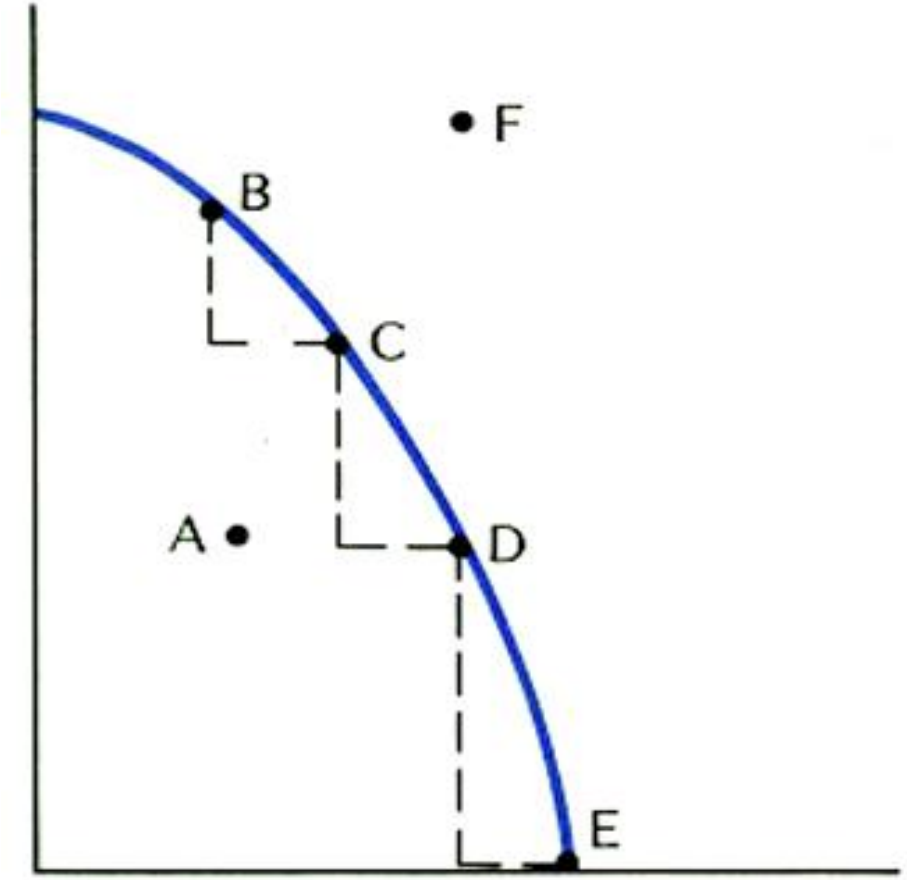
Syllabus

Extra Credits

- 1000 EC = 1 percentage point of final grade
- 100 EC for being the first to find a significant mistake in a problem set solution
- 1000 EC for being the most active contributor to everyone's learning
- In-class activities …

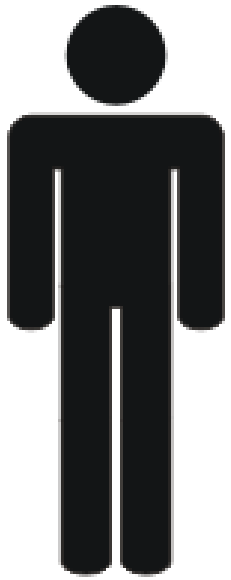
Every choice has an **opportunity cost**:

- The (value of the) best alternative we chose to forego
- In terms of time, money, space, energy, … (i.e., finite resources)



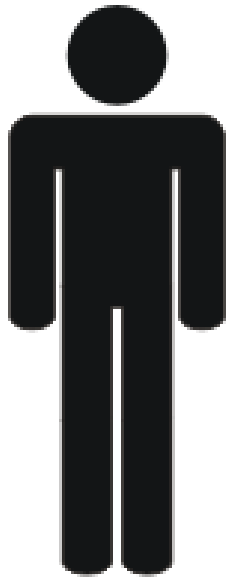
The Production Possibility Frontier

How to allocate transportation resources?



Utility from free bus rides = 3

Utility from free bus rides = 5

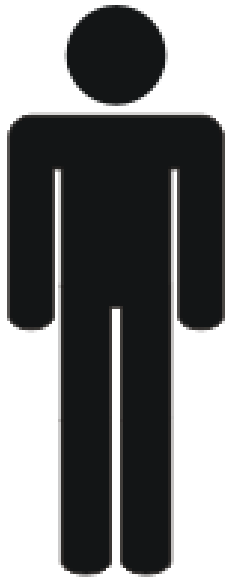


But individual utility is usually not observed!

How to allocate a bus pass?

We might observe other individual information e.g. travel costs …

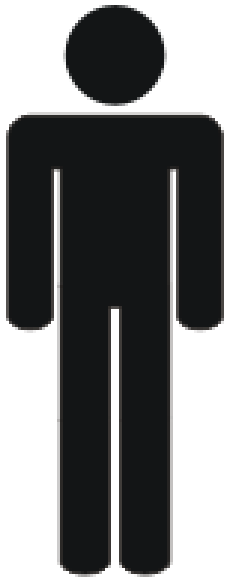
Opp. Cost
= €80



Monthly
spending on
travel = €20

Opp. Cost
= €20

Monthly
spending on
travel = €80



How to allocate a bus pass?

Unobservable to us: how much do they value the bus pass?

Ann

€20/month

€70/month

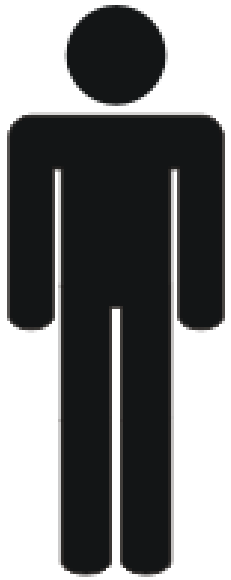
Bob

Pricing as an allocation mechanism

Unobservable to us: how much do they value the bus pass?

Ann

€20/month



At price = €21/month

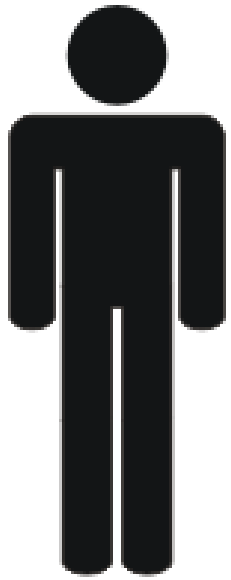
Net gain to Bob:

€70 - €21 = €49

But how to set the right price?

€70/month

Bob



Allocation through markets

1. (Supply side) Sellers want to maximize profits
   - Sell at the highest possible price

2. (Demand side) Buyers want to minimize costs
   - Buy at the lowest possible price

The Apple Market (Experiment)

- Seller Profit = Price – Cost
- Buyer Profit = Value – Price

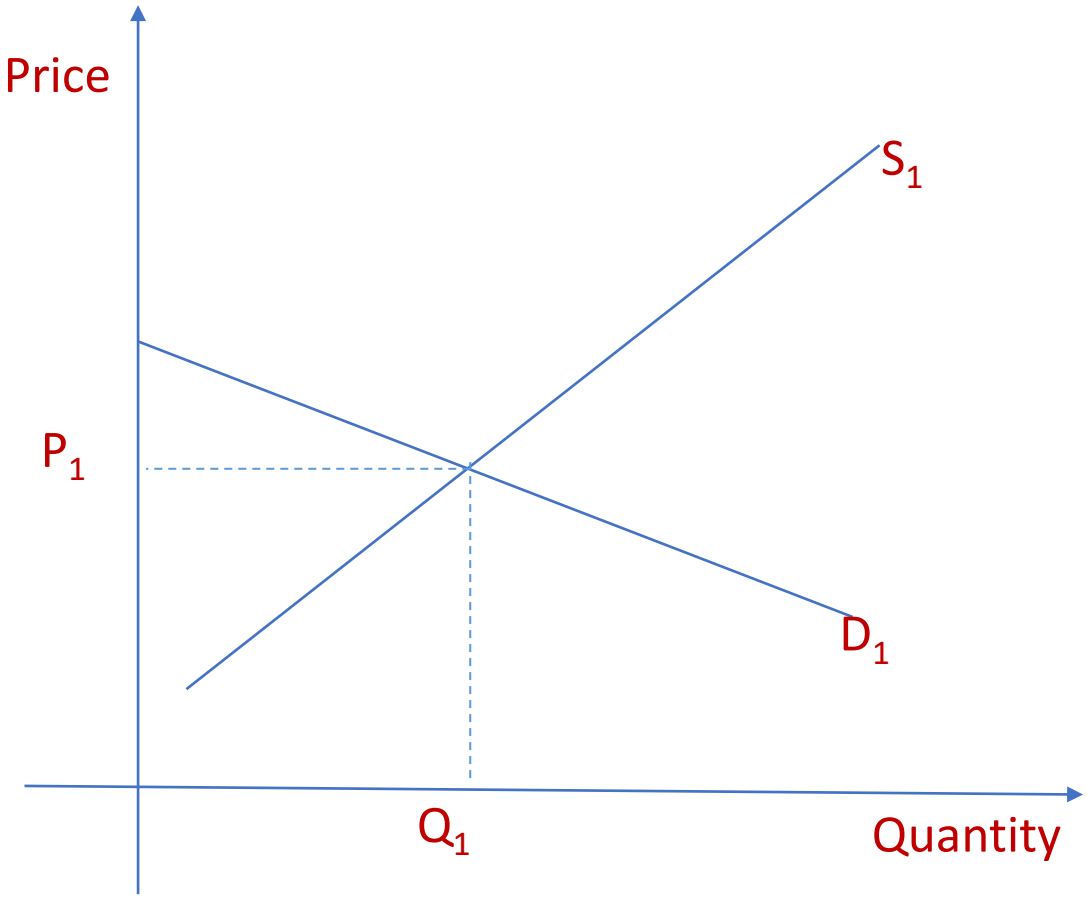
Suppose seller and buyer decide on Price=10

- If seller cost=5, seller profit=??
- If buyer value=20, buyer profit=??

- When demander and supplier agree on a price, fill out a *sales contract*
  - Turn in one sales contract for both traders
- You can only buy/sell one bushel of apple in a round.
- Sit down when you are done trading. No need to trade if you would lose money.
- $1 = 1 EC

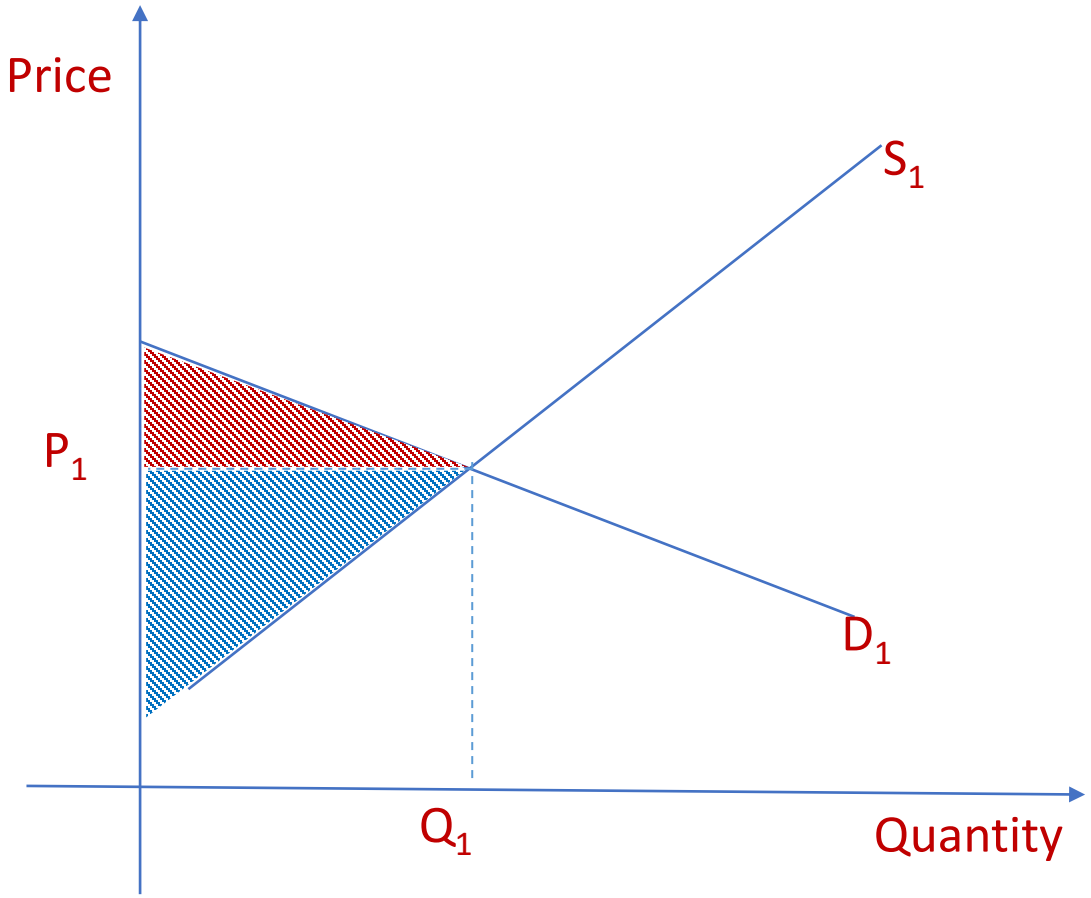
Worksheet 1: **The Apple Market**

Markets in “equilibrium”



- If we know how buyers respond to prices (demand curve) and how sellers respond to prices (supply curve), we can exactly predict equilibrium price and quantity.
- We don’t need to know every buyer value and seller cost – just need to know aggregate distributions.

Markets are “efficient”



Equilibrium allocation maximizes

buyer surplus

(buyer value - price)

+

seller surplus

(price – seller cost)

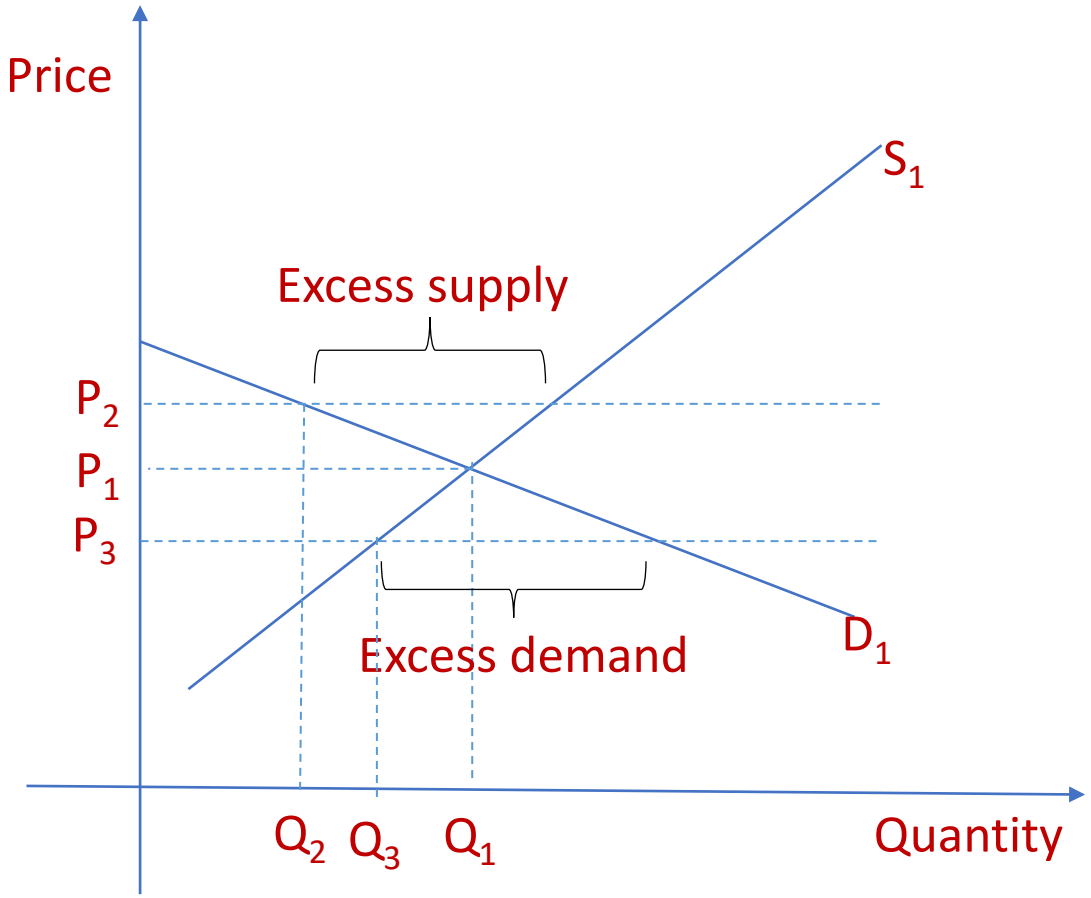
Markets work because of …

1. Conflict: buyers vs sellers
   - Demand vs Supply

2. Competition: from other sellers and buyers
   - If seller offers a price too high, they lose business to competitors
   - If buyer offers a price too low, someone else gets the item

But may also fail and require intervention…

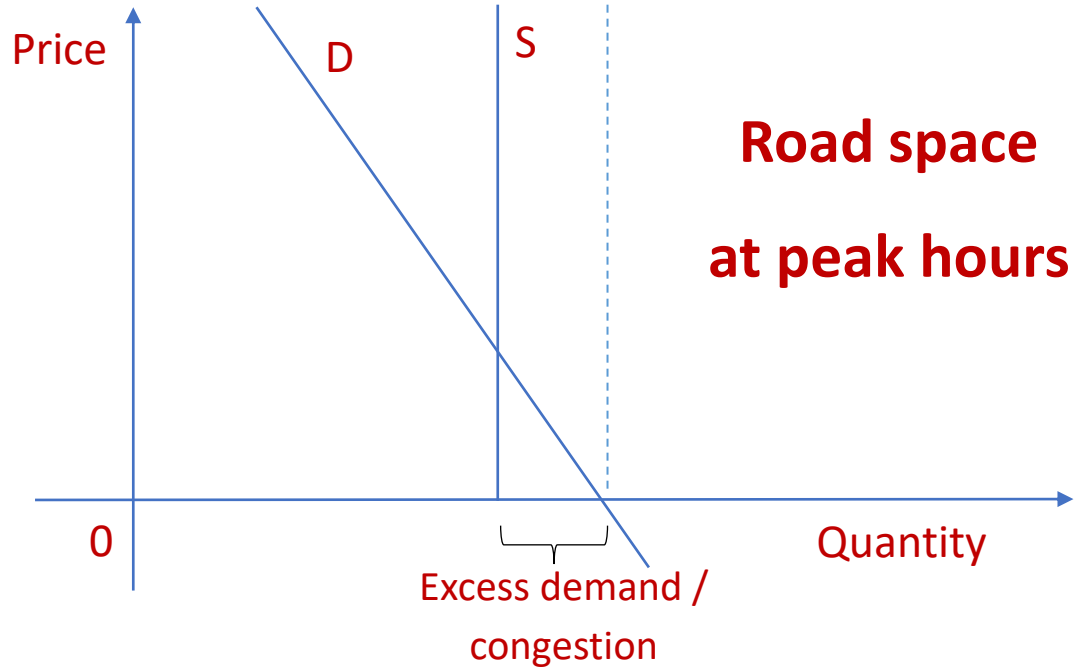
Equilibrium price “clears the market”



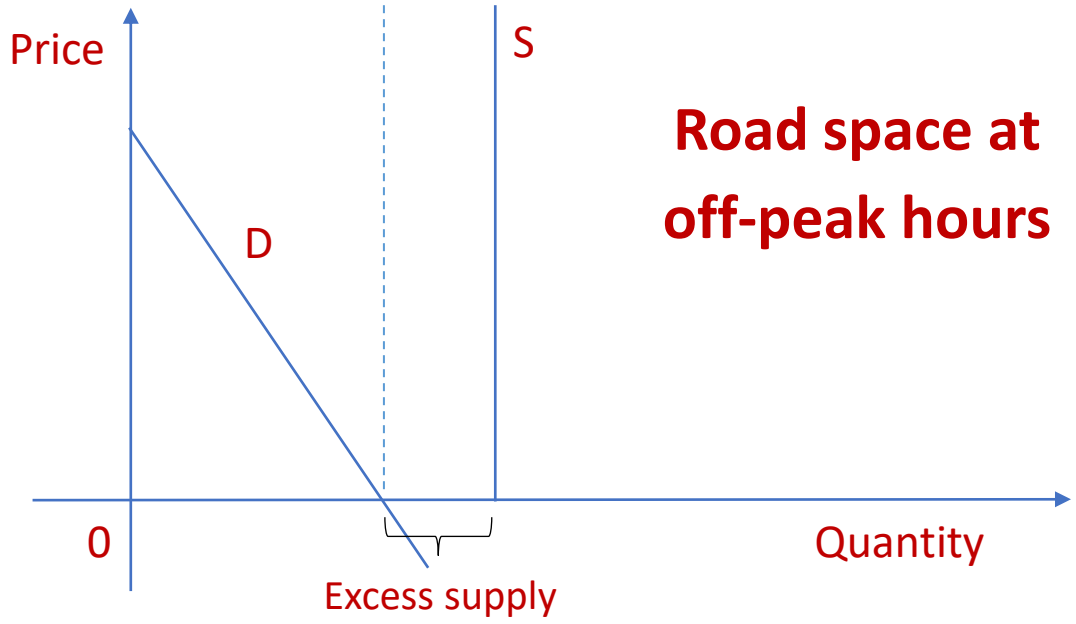
- A higher price P_2 would result in excess supply
  - In reality: excess is thrown away (at price 0) to clear the market.
- A lower price P_3 would result in excess demand
  - In reality: buyers pay additional non-monetary price e.g. waiting in line, etc. to clear the market.

Example: Market for road space

- Demand for road space varies over time and space. Supply is fixed (in the short run).
- User pays fixed price of zero (but implicitly pay additional price through taxes)



- Leads to excess demand during peak hours of travel, excess supply during off-peak hours of travel.
- Can we price roads?



Homework 1

Consider the following government interventions in a hypothetical market for transport services.

In each case, explain with the help of graphs how the intervention will change the equilibrium price and quantity. Show the buyer and seller surpluses in the new equilibrium.

1. The government sets a price floor (minimum legal price) that is above the price that would be set by market competition in the absence of government intervention.

2. The government sets a price ceiling (maximum legal price) that is below the price that would be set by market competition in the absence of government intervention.

Upload your solution to MyCourses before next class.