Course Recap
Today

- Practice with VCG mechanism
- A few final (exam) words
- Course recap
- Some practice exchange problems
Applying the VCG mechanism

To close the budget gap, UCSB proposes to tear down Manzanita Village and sell it to Katy Perry for $10 million. Katy would actually be willing to pay $14 million for the land so she could build her Candyland Mansion. The 500 students living in these dorms would be willing to pay $10000 each to keep their ocean view (everyone else is indifferent). If the administration uses a VCG mechanism to decide, will the plan be approved and who will pay what taxes?

- Katy’s net valuation: $4 million
- Total student valuation: $500(-10000) = -$5 million
- Overall valuation = -$1 million ⇒ reject plan
- Who is pivotal? Not Katy. Students?
- -$1 million net value ⇒ no individual student is responsible for pushing the net value into negative territory.

No one is pivotal, no one pays any taxes!
Now you try it!

Now suppose that Katy’s willingness-to-pay is instead $14,995,000. If the administration uses a VCG mechanism to decide, will the plan be approved and who will pay what taxes?

Clicker vote:

A) Plan is now approved, no taxes
B) Plan rejected, each student pays tax of $5000
C) Plan approved, Katy pays tax of $5000
D) Plan rejected, one student pays tax of $5000
Now you try it!

Now suppose that Katy’s willingness-to-pay is instead $14,995,000. If the administration uses a VCG mechanism to decide, will the plan be approved and who will pay what taxes?

**Clicker vote:**

A) Plan is now approved, no taxes  
B) **Plan rejected, each student pays tax of $5000**  
C) Plan approved, Katy pays tax of $5000  
D) Plan rejected, *one* student pays tax of $5000

All students identical $\Rightarrow$ same tax, must internalize the $5000 externality for each
Final exam details

- Three levels of question difficulty
  - Almost everyone should get
  - Many people will get
  - Only a few people will get

- Format: \(12 - 15\) Mult-choice; 2 free-response

- Extra OH: Kevin (9-11am, Broida 1610) and Rebecca (4-6pm, LSB 1001) will hold OH on Monday (Note: same times, but new locations)

- Review Session: Saturday 3/12 4-6pm, NH 1006
Econ 100a/b: Intermediate Microeconomic Theory

What is this course sequence about?

- 100a: rational choice under scarcity
  - Utility maximization, deriving demand from preferences
  - Profit maximization, deriving supply from costs
  - Applying framework to labor supply, choice over time, uncertainty

- 100b: Markets: behavior and welfare
Regulation: Good or Bad?

- Should government regulate economic activity?
- Politicians love to talk about this:
  - “…I do believe that there is a role for oversight.” – John McCain (same interview)
  - “A lot of the problems that are going on in our country now appear to have been related to lax regulation.” – Texas State Senator Steve Ogden (March 21, 2009)
  - Ogden is a Republican
- This is an economic question
Course Objectives

• Understand basic theoretical framework we use to think about
  • If/how/when markets do & don’t “work”
  • What happens when they don’t & what should we do

• Develop analytic tools you can apply to specific economic questions
  • How does a tax affect behavior and welfare
  • Which goods should the govt. tax to generate revenue
  • What can/should we do to reduce greenhouse gas emissions?
  • What types of goods should the government be in the business of providing?
Structure

- Well functioning (competitive) markets

- Market failure
  - Monopoly (plus oligopoly, game theory)
  - Externalities (e.g. pollution)
  - Public goods
  - Imperfect/Asymmetric Information (covered in Econ 100C; insurance/paying for healthcare)
Well-functioning (Competitive) Markets

- Welfare measurement: Consumer Surplus approximates the consumers’ gains-from-trade
- Use CS to evaluate the welfare impact of a policy
- Market demand: individual demand added horizontally
- Equilibrium in competitive markets: price equalizes $D(p)$ and $S(p)$. 

Well-functioning (Competitive) Markets

- Market efficiency: equilibrium in competitive markets realizes all possible gains-from-trade, maximizes welfare
- Regulation: can lead to excess supply or demand
- Taxes create a wedge between consumer and producer prices
- Interference leads to unrealized gains-from-trade, DWL, inefficiency
Well-functioning (Competitive) Markets
What conditions are required for perfect competition?

- Firms are price takers, free-entry
- **Monopoly**: when there are barriers to entry (cost structure, returns-to-scale, regulatory), sole producer can set price
- Many firms, so that one firm’s behavior has negligible impact on other
- **Oligopoly**: multiple producers, and each takes into account how it’s behavior affects others
- No spillovers—all costs and benefits of market behavior are experienced by market participants
- **Externalities**: producer or consumer behavior affects people other than buyers or sellers, market for cost/benefit is missing
- No incentive to free-ride
- **Public goods**: non-excludable, non-rival \[\implies\] incentive to free-ride
- Perfect information  \textit{See econ 100c}

Without these we have market failure
Monopoly

- Profit-maximizing condition: \( MR = MC \)
- Perfect comp: firm is price-taker \( \implies \) horizontal demand \( \implies \) \( P = MR, \) so \( P = MC \)
- Monopoly: firm is industry \( \implies \) downward-sloping demand \( \implies \) \( P > MR = MC \)
- Monopoly underproduces to keep price high, causes DWL
- Efficiency retained with non-uniform pricing (perfect price discrimination, two-part tariffs), but works by allowing monopolist to extract \textit{all} consumer surplus
Oligopoly

- Quantity vs. price competition
- Simultaneous choice vs. leader/follower
- Cournot, Stackelberg quantity duopoly models
- Collusion can increase profits, but is unstable
- Cartel members have incentive to cheat/free-ride
Exchange

- Ch31 is not about market failure
- It’s about general equilibrium
- Extends behavioral and welfare analysis to multiple markets w/ simultaneously determined outcomes
- Edgeworth box used to graphically illustrate powerful conclusions about welfare
- Competitive equilibrium is Pareto Optimal
- I.e. competitive markets “work”
Externalities

- Missing market for external effect
- No one takes ownership over external costs/benefits so production is not socially optimal
- Can correct externality with Pigouvian tax or by assigning property rights
- Each works by internalizing externality
- Common-pool resources
  - Rival, but not excludable
  - Overused (tragedy of the commons): individuals don’t internalize effect of their use on others
Public Goods

- Efficient provision level: \[ \sum MRS = MC \] (MB is same as MRS when one good is ‘money’)
- Free-riding leads private market to underprovide
- Govt frequently provides
- How to know when providing is socially worthwhile?
  - Use a revelation mechanism, e.g. Groves-Clarke tax to elicit individuals’ true valuation
  - Makes people pay the cost they impose on others
Suppose that $A$ has an initial endowment of $\omega^A = (0, 3)$ and $B$ is endowed with $\omega^B = (3, 0)$. Find the competitive equilibrium prices and allocations if:

- $U^A = x_1^2 x_2$ and $U^B = x_1^2 x_2$
  \[ \Rightarrow \text{C.C. is diagonal} \]

- $U^A = x_1^2 x_2$ and $U^B = x_1 x_2^2$
  \[ \Rightarrow p_1 = p_2 (= 1) \]

- $U^A = x_1 x_2$ and $U^B = x_1 + 2x_2$
  \[ \Rightarrow p_1 = MRS^B = \frac{1}{2} \]

- $U^A = x_1 x_2$ and $U^B = \min\{x_1, 2x_2\}$
  \[ \Rightarrow \text{contract curve is traced by corners, } p_1 \text{ defined by } MRS^A \text{ at contract curve} \]