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 - $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!
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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
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**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’m always for less regulation.” –John McCain (WSJ, March 3, 2008)
  • “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)
Regulation: Good or Bad?

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- 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
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  • If/how/when markets do & don’t “work”
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• 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

- Many firms, so that one firm’s behavior has negligible impact on other

- No spillovers— all costs and benefits of market behavior are experienced by market participants

- No incentive to free-ride

- Perfect information

Without these we have market failure
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- *Monopoly*: when there are barriers to entry (*cost structure, returns-to-scale, regulatory*), sole producer can set price
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- **Public goods:** non-excludable, non-rival $\implies$ incentive to free-ride
- Perfect information See econ 100c

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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 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
Practice Exchange Questions

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 $U^B = x_1^2 x_2$

- $U^A = x_1^2 x_2$ and $U^B = x_1 x_2^2$

- $U^A = x_1 x_2$ and $U^B = x_1 + 2x_2$

- $U^A = x_1 x_2$ and $U^B = \min\{x_1, 2x_2\}$
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  \[ \Rightarrow \text{C.C. is diagonal} \]
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  $\Rightarrow p_1 = p_2(= 1)$

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- $U^A = x_1x_2$ and $U^B = x_1 + 2x_2$
  \[ \Rightarrow p_1 = MRS^B = \frac{1}{2} \]

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

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