

Midterm Review

I. Intro to Public Economics & Micro Review

A. When should the government intervene?

- Lesson of basic micro: the private market equilibrium is optimal for a market that meets the criteria of perfect competition.
- Need to ask: where is the market failure that causes a deviation from perfect competition?
- Even if there is a market failure, we only want the government to intervene if the government can make things better. Some types of intervention may be worse than the market outcome.

B. How should the government intervene?

- Often multiple options; to choose, need answer to know effects of policies.

C. What is the effect of government intervention on economic outcomes?

- Sometimes, one policy is more efficient. Example: externality with heterogeneous firms.
- Important to think about direct and indirect effects of a policy. Individuals and firms change their behavior in response to the policy. Example: free care for people without insurance.

D. Why do governments do what they do?

- This is political economy, the study of how governments behave.

II. Externalities

A. Definition

- Good with no externality: private market sets $PMC=PMB$; at equilibrium, $SMC=SMB$.
- Definition of externality: actions of one individual affect another individual in a way that is outside of the market mechanism. Now at private equilibrium, $SMC \neq SMB$.
- There is overproduction or underproduction of the good because people don't take into account the additional benefit or cost the production or consumption of the good imposes on society. There is a dead-weight loss (DWL).

B. Private Sector Solutions: Coase Theorem

- Theorem: Given property rights and costless bargaining, externalities can be internalized and efficiency ensured. The solution is independent of who is assigned the property rights.
- Problems: 1) assignment; 2) public goods aspect; 3) transactions costs.
- Conclusion: Coase is best for localized externalities affecting a small number of people.

C. Public Sector Solutions

- Pigouvian taxation: impose a tax in the amount of the marginal damage to society. Now $PMC = SMC$, so private equilibrium is socially optimal (no DWL). It is a linear tax levied on each unit of output in an amount equal to the marginal damage it inflicts at the socially optimal level of output.
- Pigouvian subsidy: also fixes externality. Problems: 1) have to raise the money; 2) gives people incentives to enter the market to get subsidy.
- Quantity regulation: tell firms how much to produce. Equivalent to Pigouvian tax in perfect world. Problems: 1) heterogeneous firms; 2) uncertainty (Weitzman point).
- Tradeable permits: quantity regulation, but allow firms to trade. Advantage: same pollution reduction at lower cost. Problems: 1) need enough buyers and sellers of permits; 2) property rights must be guaranteed; 3) “pollution absolutism”; 4) need regional/global problem.

D. Applications

- Global warming: tradeable permits vs. quantity regulation.
- Smoking: what is and isn't an externality?
- Smoking/drinking/drugs: is a rational model plausible for young people?
- Transportation externalities: indirect effect of policies.

III. Public Goods

A. Definition

- Public goods are non-rival (my consuming it does not prevent you from consuming it) and non-excludable (I can't stop you from consuming it). Examples: national defense, lighthouse.
- Optimal level of provision of private goods: each person sets $MRS = \text{ratio of prices}$. Firms set $MRT = \text{ratio of prices}$. So $MRS_a = MRS_b = MRT$ (a and b are two individuals). Market demand curve is horizontal sum of individual demand curves.
- Optimal level of provision of public goods: since both people are able to consume the good, its value is $MRS_a + MRS_b$. Set sum of $MRS = MRT$. Market demand curve is vertical sum of individual demand curves.

B. Private provision of public goods

- Public goods problem: can be described as a free-rider problem (you prefer to let others pay since you still enjoy the benefits) or a positive externality (your provision benefits others, but this isn't in your utility function). The result is underprovision by the private market.
- To find level of private provision, use Nash bargaining (what do I want to do, holding your actions constant). This gets us reaction curves (downward sloping).

C. Public Provision

- If there is some private provision, what happens if government taxes you to provide some of the good? Crowdout: you reduce private provision to offset increase in public provision.
- Basic principle: if you start from an individual optimum and the environment changes, if you are able to undo this change to get back to the optimum, you will.
- Is there always 100% crowdout? Not if: 1) you get utility from your contributions as well as from the total (warm glow model); or 2) the government taxes some people more than they were contributing.

- How much of the good to produce? Can ask people what their MRS is, then charge them that amount: Lindahl equilibrium. Problems: 1) truthful preference revelation (free rider problem); 2) people may not know their valuation; 3) too costly to determine everyone's preferences.

IV. Political Economy

A. Median voter theorem

- Could require that people have single-peaked preferences. Problem: not reasonable when have private substitutes.
- If preferences are single-peaked, majority voting yields consistent outcomes. Specifically, the median voter's preferences determine the outcome.
- But this does not guarantee we get the efficient outcome because the median voter's preferences do not reflect the intensity of other voters' preferences. To get efficiency, need to have median equal the mean.

B. Representative Democracy

- Politicians act to maximize votes. Politicians represent the preferences of the median voter.
- But intensity of preferences matters too: 1) people who care more vote more; 2) lobbying; 3) campaign contributions.
- Lobbying can be inefficient (the bigger the group who feel the same way, the more people free ride off each other and don't participate; small groups have disproportionate power).

C. Cost-Benefit Analysis

- Idea: examine MRS and MRT from public project to decide whether to do it.
- Key concepts: discounting, setting up a PV calculation (do if $PV > 0$), choosing discount rate, valuing costs and benefits (market price; shadow price; revealed preference – compensating differentials/hedonics; contingent valuation), distributional concerns, uncertainty.

V. Fiscal Federalism

A. Tiebout

- Mobility results in market-like solution to public goods problem. People "vote with their feet," self-select into towns with identical people who want the same amount of public goods and pay for this with taxes. This results in competition among towns and efficient provision.
- Assumptions: 1) perfect mobility/no transactions costs; 2) enough communities; 3) perfect information; 4) no spillovers; 5) no scale economies.
- Evidence Tiebout works (more homogeneity in suburbs than rural areas, capitalization, decentralized states provide more public goods).
- Shouldn't redistribute from rich to poor at the local level, because mobility undoes redistribution.
- Amount of spillovers determines how local a public good should be i.e. defense should be provided by federal gov't because of the large externalities.

B. Inter-governmental grants

- Types of grants: conditional (matching, closed-end match, non-matching) and unconditional/block grant. Effect of grants on community's BC and public goods spending (full grant may not be spent on public good).
- Flypaper effect: \$1 to median voter should have same effect as \$1 to local government.

VI. Application: Education

A. Rationale for government intervention

- Positive externalities (informed voter, less crime).
- Parents make decisions for kids, parents may make bad decisions, kids can't borrow money.
- Credit constraints: can't use education as collateral for a loan!

B. How should government be involved?

- Free public education. Problem: crowdout (Peltzman point). Total amount of education may increase, decrease, or stay the same, depending on where you are along BC.
- Vouchers. Increases education spending for everyone (if normal good). Advantages: 1) avoids Peltzman; 2) competition among schools makes them more efficient.
- Problems with vouchers:
 - 1) Stratification has a few issues: a) kids left behind are worse off, b) we may prefer schools to be "melting pots," c) maybe we *like* stratification due to complementarities d) Friedman says that schools are already stratified—choice might lead to less stratification.
 - 2) Natural monopoly issues.
 - 3) inefficient use of resources (marginal vs. inframarginal)—don't want to just transfer money to rich kids who already attend private schools.
 - 4) Schools tailor themselves to individual tastes (i.e. frisbee school).
 - 5) information failures.
- Evidence from school choice: 1) most people choose school near them; 2) places with more competition among schools have lower costs and better performance.
- Potential solutions to the problems with vouchers: target vouchers by income level or limit vouchers to public schools.

C. How much should the government be involved?

- Returns to education. Quantity: wages increase 7% per year of education. Quality: returns to education are 5% higher ($7\% \times 1.05$) if lower class size from 30 to 25 students.
- Interpretations: human capital theory, screening/signalling model.
- How do we know which model is right? Ideally, want to look at wages as a function of education (human capital theory) and ability (screening model), but it's hard to measure ability. People have tried: a) controlling for ability measures, b) looking at twins, c) instrumental variables (compare people who have different levels of education for reasons that are independent of their ability).

D. What is appropriate government role in higher education?

- Market failure in higher education: capital markets (can't borrow without collateral). Good argument for loans.

- Four areas of government involvement: a) grants, b) loans (direct and guaranteed), c) state public education, d) tax credits.
- Are direct government loans or guaranteed private loans better? Not clear: Government doesn't need to earn a profit on loans, but there's no market to set the prices. Private banks need to make a profit, but markets set the rates.