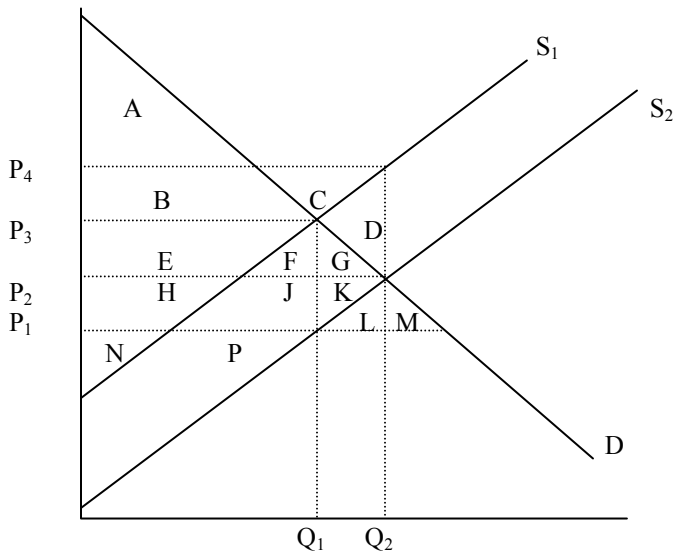


Taxes / Subsidies



In this question I have been intentionally vague about the supply curves, so I can kill two birds with one stone. There's an extra price in each situation that may distract you a bit.

Part I – suppose **S₂ is the original supply curve**, and thus the initial equilibrium is P₂ and Q₂. Now, suppose a per-unit **tax** is placed on suppliers (S₁ is S_T). (I apologize, for some of these answers will be ludicrously large strings of letters that seem like half the alphabet.)

1. After the tax is imposed,
 - a. What is the new price consumers pay?
 - b. What is the new price suppliers receive?
 - c. What area describes CS?
 - d. What area describes PS?
 - e. What area describes tax revenue?
 - f. What area describes the DWL?
 - g. Are consumers better or worse off? (What's the consumers' burden?)
 - h. Are producers better or worse off? (What's the producers' burden?)
 - i. Is society as a whole better or worse off?
 - j. Do both consumers and producers share the burden of the tax?

Part II – suppose **S₁ is the original supply curve** now, and thus the initial equilibrium is P₃ and Q₁. Now, suppose a per-unit **subsidy** is given to suppliers (S₂ is S_{SUB}).

2. After the subsidy is imposed,
 - a. What is the new price consumers pay?
 - b. What is the new price suppliers receive?
 - c. What area describes CS?
 - d. What area describes PS?
 - e. What area describes subsidy payments?
 - f. What area describes the DWL?
 - g. Are consumers better or worse off?
 - h. Are producers better or worse off?
 - i. Is society as a whole better or worse off?
 - j. Do both consumers and producers share the benefit of the subsidy?

Suppose a per-unit tax is placed on suppliers in each of the two cases below. Also, assume that the demand curves are identical in each case, and that the initial equilibrium price and quantity is also identical. That is, the only difference is the elasticities of supply.

Case #1
Relatively elastic supply

Case #2
Relatively inelastic supply

3. In which case
- is the DWL the largest?
 - is the most tax revenue collected?
 - do consumers pay the largest fraction of the burden?
 - do producers pay the largest fraction of the burden?

Same setup as before, only this time we'll keep supply (and initial equilibrium the same) and vary the elasticity of demand.

Case #1
Relatively elastic demand

Case #2
Relatively inelastic demand

4. In which case
- is the DWL the largest?
 - is the most tax revenue collected?
 - do consumers pay the largest fraction of the burden?
 - do producers pay the largest fraction of the burden?

Voting / Logrolling

Suppose that Anna, Bob, and Clara would vote on complete versus partial national health insurance (NHI) as in the table.

	1 st Choice	2 nd Choice	Last Choice
Anna	Complete	Partial	None
Bob	Partial	None	Complete
Clara	None	Complete	Partial

- Suppose that people must first vote on the type of insurance to consider (Partial vs. Complete). People then vote on whether or not to adopt at all (Winner vs. None). Which policy wins?
- Suppose that people must first vote for or against partial coverage (Partial vs. None). If partial NHI passes, they then vote on whether or not to expand coverage to full coverage (Winner vs. Complete). Which policy wins?
- Aaron wants to raise taxes by \$100, Butch wants to raise taxes by \$60, Cory wants to raise taxes by \$20, Danny wants to cut taxes by \$40, and Emma wants to cut taxes by \$60. There are only two candidates, this is the only issue, and candidates care only about winning the election. Use the median voter theorem to explain what positions the candidates will support.
- Suppose that candidates for public office care about supporting the policies that seem best to them (instead of just caring about winning the election). Does this change the median voter story? (Does this have something to do with Pat and Ralph, and Al and GW?)

Suppose we are considering some projects. If the projects were adopted, each citizen would pay 1/3 of the cost of the projects via increased taxes. Suppose the net (after-tax) benefits of various projects are shown below.

	Project #1 Legalization of Cocaine	Project #2 Alcohol Treatment Center
Darryl Strawberry	+\$7,000,000	-\$10
Drug Buster Robert Stutman	- \$12	-\$4
AJ McLean	- \$4	\$5,500,000

5. If the projects are voted on individually, do the projects pass?
6. Can both projects get passed via logrolling? Who trades votes – on what issues?
7. Is logrolling socially efficient in this situation?

Suppose everything in same, but this time Darryl's value of project #1 falls to \$7.

8. Can both projects get passed via logrolling?

Coase Theorem / External Costs

Questions 1-4 refer to the following information. The year is 1978, and you live in Kingston, Jamaica. Your next-door neighbor Bob is a musician, but every time he produces an album, a cloud of smoke wafts over your house, thus incurring a cost on you (not a benefit), perhaps because it makes you have the munchies. The table below shows you Bob's *marginal private cost* of producing albums, and well as the *marginal damages (marginal external costs)* inflicted on you. Bob can sell as many albums he wants at \$12 on the Tuff Gong label, which reflects the both the *private and social benefits* of albums.

Albums / year	Marginal Private Costs	Marginal Damages
1	\$2	\$1
2	\$4	\$2
3	\$6	\$3
4	\$8	\$4
5	\$10	\$5
6	\$12	\$6
7	\$14	\$7
8	\$16	\$8

1. The economically efficient rate of album production is
 - a. 2
 - b. 3
 - c. 4
 - d. 6
 - e. 8

2. Assume that Bob has the right to produce as many albums as he wants without having to compensate his neighbors. Also, assume Bob is prohibited from making or receiving any side payments. How many albums will Bob produce? (Hint: is this the private solution?)
 - a. 2
 - b. 3
 - c. 4
 - d. 6
 - e. 8

3. Now, assume all the conditions of the Coase Theorem are met, and the law is such that Bob is allowed to produce as much “smoke” as he wants. If so, the number of albums produced will be
- the same as your answer to question # 1, and Bob will receive side payments
 - the same as your answer to question # 1, and Bob will pay side payments
 - the same as your answer to question # 2, and Bob will receive side payments
 - the same as your answer to question # 2, and Bob will pay side payments
 - I listened to lots of Bob and Doors albums last night and forgot to study
4. When an outcome is efficient, we mean that
- marginal private costs equal marginal private benefits, and total social benefits are greater than or equal to total private costs
 - marginal private benefits equal total social benefits, and marginal social costs equal total social costs
 - marginal social costs are equal to marginal social benefits, and total social benefits are greater than or equal to total social costs
 - marginal social costs are equal to marginal social benefits, and total social costs are greater than total social benefits
 - both (a) and (d)

External Benefits

Can you draw the general picture?

Public Goods

Define a public good.

Why is it difficult to get private (non-governmental) provision of public goods?

What are free riders?

What does non-rival mean? (give an example)

What does non-excludable mean? (give an example)

How do we solve the free-rider problem and get our public goods?

When I was in Sunday school (snicker), my church gave each of the youths an “offertory envelope” with a little number printed on the corner that corresponded to each youth. There was an envelope for each Sunday, each with my number on it. Of course, the alternative was to throw some cash into the plate, not using the envelope. Do you think this is at all related to any of the issues above?

Cartels

Why are cartels inherently unstable? Be specific as possible. Including references to prices and marginal costs is a plus.

Taxes / Subsidies (This got a tad messier than I expected).

- 1A. P_3
1B. P_1
1C. $A + B$
1D. $N + P$
1E. $E + F + H + J$
1F. $G + K$
1G. Worse off. CS originally was $A+B+E+F+G$, now only $A+B$, they've lost $E+F+G$.
1H. Worse off. PS originally was $H+J+K+N+P$, now only $N+P$, they've lost $H+J+K$.
1I. Worse off. There is a DWL. We have generated $E+F+H+J$ tax revenue, but had to reduce CS and PS by $E+F+G+H+J+K$ to get it. The DWL is $G+K$.
1J. Yes. Both are worse off, neither group gets stuck with it all (unless we have perfectly elastic or inelastic S and D curves).
- 2A. P_2
2B. P_4
2C. $A+B+E+F+G$
2D. $B+C+E+H+N$
2E. $B+C+D+E+F+G$
2F. **D** (Be careful here on the test). $G+K$ is very appealing, but not right. See below.
2G. Better off. CS originally was $A+B$, now $A+B+E+F+G$, they've gained $E+F+G$.
2H. Better off. PS originally was $E+H+N$, now $B+C+E+H+N$, they've gained $B + C$.
2I. Worse off. There is a DWL. We have gained CS and PS of $B+C+E+F+G$, but have to pay out $B+C+D+E+F+G$ in subsidy payments. **The DWL is D.**
2J. Yes. Both are better off, neither group gets it all (unless the 1st Law of Demand and Supply do not hold, i.e. $E_S = 0$ or ∞ , or $E_D = 0$ or ∞)
- 3A. Case 1 3B. Case 2 3C. Case 1 3D. Case 2
4A. Case 1 4B. Case 2 4C. Case 2 4D. Case 1

Voting / Logrolling

1. Complete beats Partial 2-1. In Complete vs. None election, None wins 2-1.
2. Partial beats None 2-1. In Partial vs. Complete, Complete wins 2-1.

So here the order (agenda) matters, in a tad more realistic setting than in the lec notes example.
3. The median voter theory suggests that the candidates will choose the policy that the median voter prefers. Thus, we'd expect both candidates to be advocating raising taxes by \$20 (or something relatively close to this position).
4. The median voter theory wouldn't explain anything. This question is here to make explicit the assumption that we were making (that politicians only give a hoot about getting elected).
5. Neither passes on their own. Both lose 2-1.
6. Yes. Darryl really wants coke to be legalized, while AJ wants the rehab center. Darryl agrees to vote for the rehab center in exchange for AJ's vote on the coke legalization. Both are better off. Darryl (\$7,000,000 - \$10). AJ (\$5,000,000 - \$4).
7. Yes. Both projects are individually efficient. Project #1 has GFT of $\$7,000,000 + -\$12 + -\$4$. Project #2 has GFT of $-\$10 + -\$4 + \$5,500,000$.

8. No. You'd be tempted to come up with the same arrangement above, but Darryl won't trade any more. If none of the proposals pass, he gets \$0 GFT. If he trades and both pass, he'd have +\$7 from the Coke proposal, but -\$10 from the rehab proposal. Thus, if both pass, his GFT is -\$3. He's better off not trading.

Coase Theorem / External Costs 1. C 2. D 3. A 4. C

The Rest

Consult your lecture notes.