

MICROECONOMICS AND POLICY ANALYSIS - U8213

Professor Rajeev H. Dehejia

Class Notes - Spring 2001

Cost Benefit Analysis

Wednesday, Feb 21st, Monday, Feb 26th and Wednesday, Feb 28th

Reading: Weimer and Vining ch.12, Schelling, Hubin.

Are there positive or negative benefits from undergoing a project or policy? Do the benefits exceed the costs? (Keep in mind that even if the costs exceed the benefits a project may be worthwhile and the project may not be worthwhile even if benefits exceed costs.)

Policy Analysis:

What is a Price?

- The essence of a price is the **information** contained in it.
- A price provides information - the value of that good at the margin to society which is also the marginal cost of producing that good.
- The market aggregate information. In a well functioning market you can price to determine the net costs and benefits of a project.

Cost Benefit Analysis (CBA) attempts to determine how prices are affected by a policy and how these price changes lead to changes in consumer and producer surplus.

Identify the stream of direct and indirect consequences of a policy intervention and evaluate them.

Issues in Cost Benefit Analysis:

- Finding the appropriate discount rate
The discount rate reflects the importance placed on the importance of acting now or later. If you discount greatly, in essence, you place little weight on what happens to future generations. If you don't discount at all, or very little, then you find that no actions are worth undertaking now.
Cake Eating Problem – If you consider an action over an infinite time horizon, then there is a paradox. If you don't discount then you never eat the cake. You put so much weight on the future that you don't care what happens now.
- Importance of price
In Cost Benefit Analysis, inputs and outputs are valued with specific prices. Some are easy to price, some are more difficult. For instance, an output may be lives saved. How do you put a price on a life? Or an output may be cleaner air.

How do we add up costs and benefits?

Kaldor Hicks Criteria (based on concepts of EV and CV):

- Only if those who would gain can fully compensate the losers and be better off should the policy be adopted (CV)
- Only if it would not be in the self-interest of those who lose to bribe those who gain not to adopt the policy should the policy be adopted (EV)

Potential
Pareto
Improvement

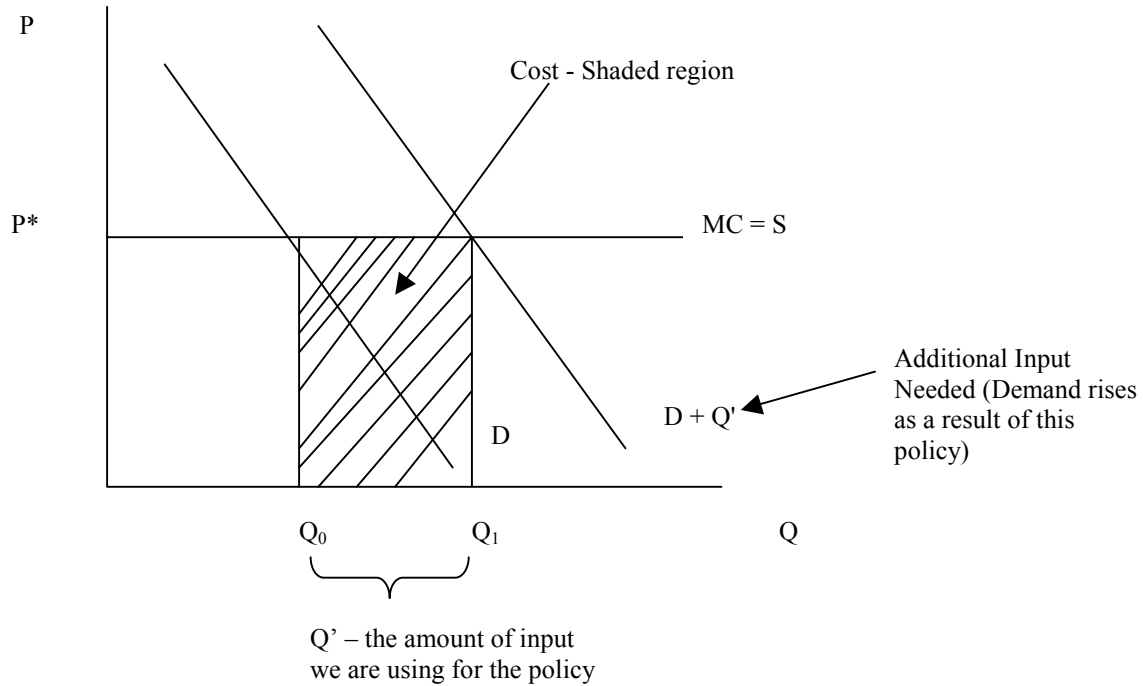
Three Steps in CBA:

- 1) Valuing Inputs
 - 2) Valuing Outputs
 - 3) Valuing Compliments or Substitutes
- } Direct Effects
- Indirect Effects

1) Valuing Inputs

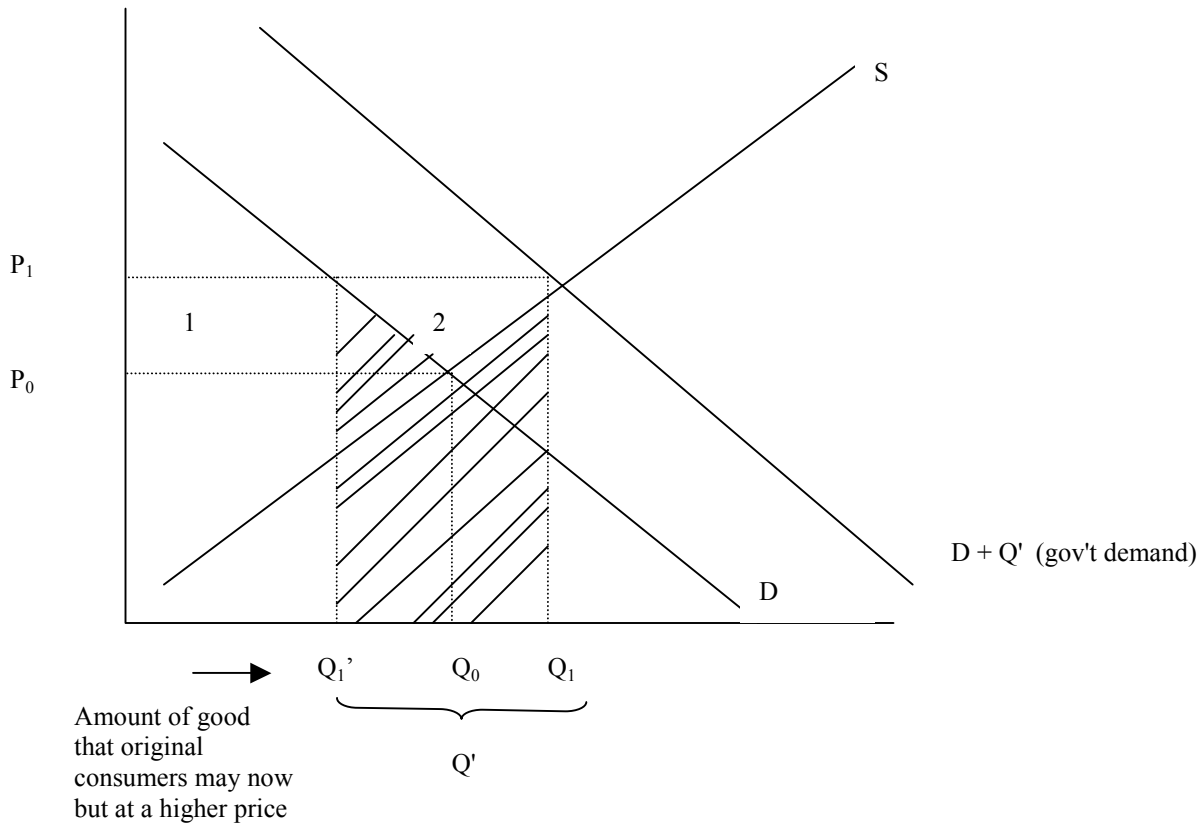
Three Cases:

A) Efficient market with a negligible price effect



When there is no price effect the cost of the input is exactly equal to its price and there is no change in consumer or producer surplus. Existing consumers are not affected.

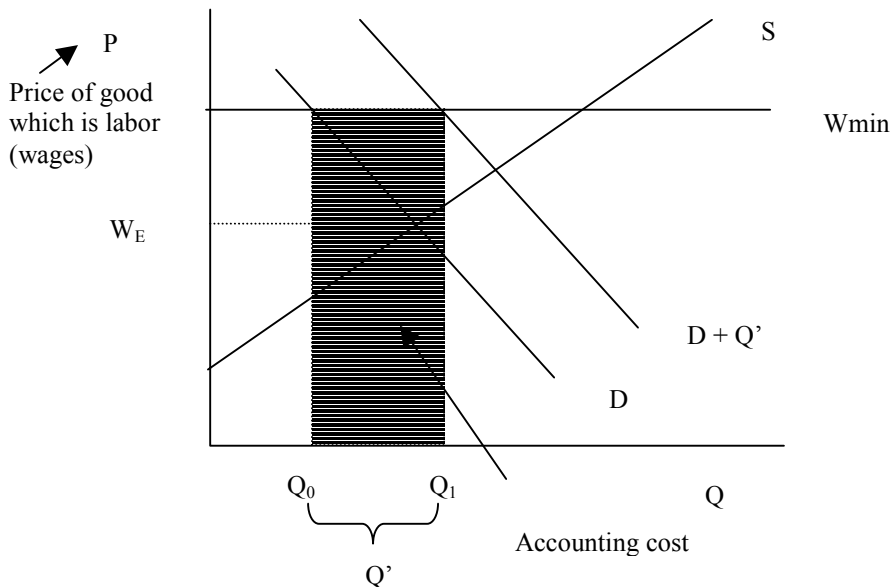
B) Efficient market with positive price effects



Change in Consumer Surplus = -1
Change in Producer Surplus = 1+2
 Net Change in Surplus = +2

Net Cost of the gov't purchasing the input = $Q' * P_1$ - Region2 (Shaded Region)

C) Minimum wage

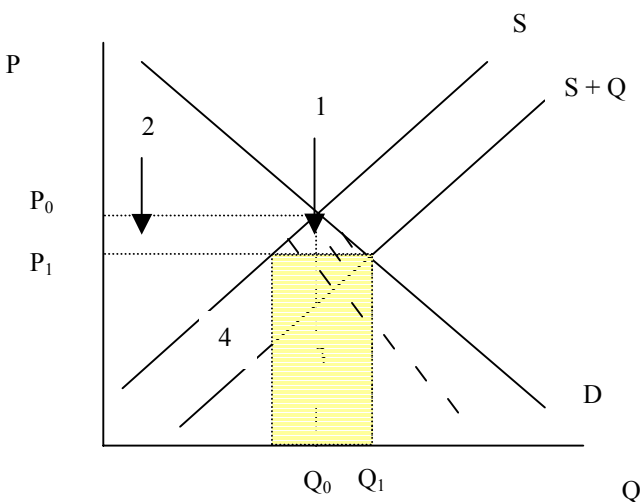


Workers are better off
 Consumers are the same (no change in the minimum wage)

Use the original demand to evaluate CS.
 Use the original supply to evaluate PS.

2) Valuing Outputs

A) Output Markets (change in supply)



Increase in Consumer Surplus = 1+2

Decrease in Producer Surplus = -2

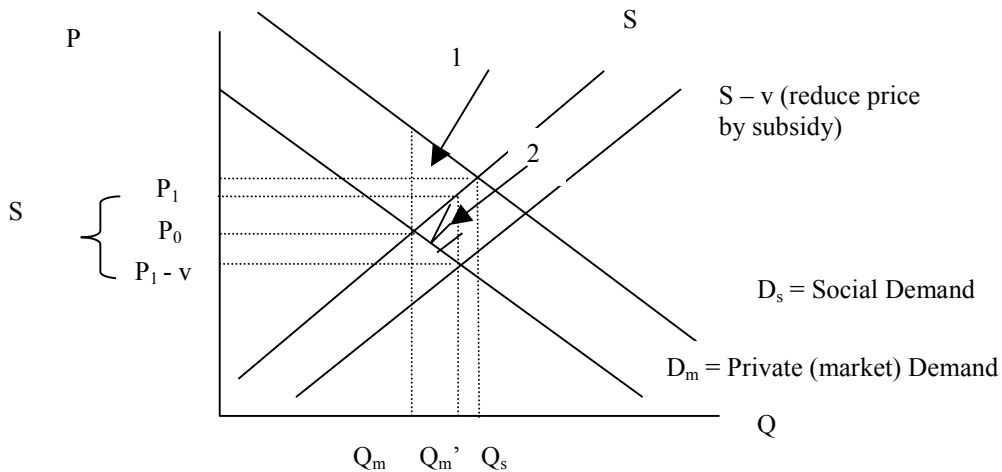
Net Increase = +1

Revenue received by the government = 3

- 1) If region 3 is give away to consumers it will increase consumer surplus by 3.
- 2) The supply curve may shift outward so producer surplus would increase by 4.

B) Distortion

Positive Externality – Underprovision of Q



Shaded Triangle = Social Loss = 2 (deadweight loss)

1+2 = External benefit of producing extra units of output. Net Benefit = 1 from an increase in Q.

3) Valuing Indirect Effects

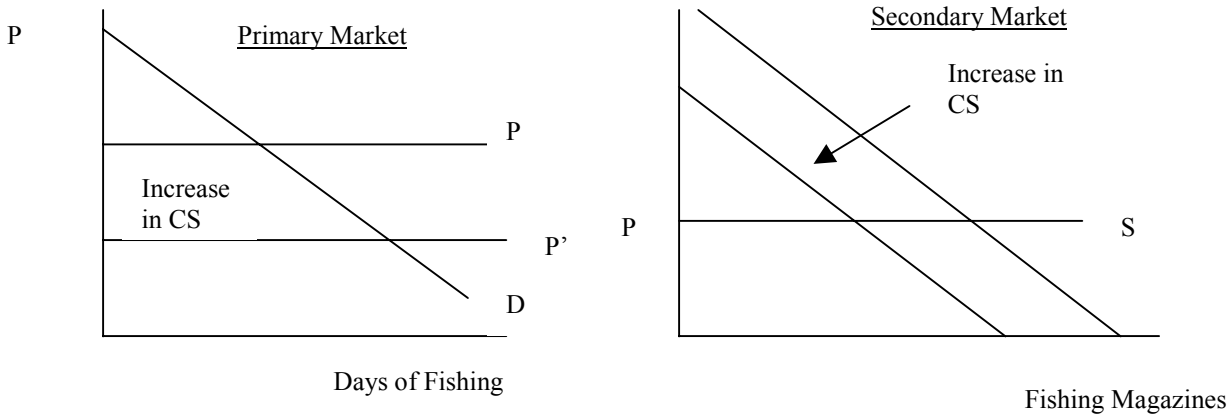
Effects on Secondary Markets - Any other market not directly influenced by the policy change.

Spillover Effects – tend to be double counted

When should a change in secondary markets be counted in a cost-benefit analysis?

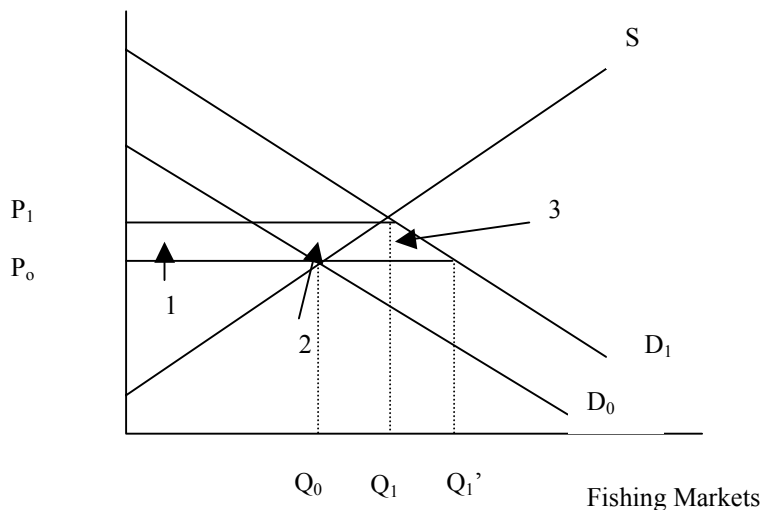
Do not count it.....

- a) When price does not change in secondary market (no price effects)
- b) When the secondary market is not distorted



In the secondary market there are no price effects or distortions. The increase in consumer surplus was taken into account with the changes in the primary market.

Secondary Market with Price Effects



Increase in Producer Surplus = 1+2
Decrease in Consumer Surplus = -1-2-3
Net Effect = -3

In this case there are price changes in the secondary market as a result of the policy. The price of the complementary good will go up. These changes must be accounted for in the analysis.

What does Cost Benefit Analysis have to say about statements about the effects of policies?
For instance, building a stadium will increase jobs.

1. When these statements are made you want to consider the effect on the direct markets (inputs, outputs) and then on the secondary, or indirect markets.

2. Indirect effects

Some claim that the stadium will have an effect on the complementary activity of having dinner in town before the game. This may be true if one considers the price effects in the secondary markets. However, these effects may have been accounted for in the primary market. If there are distortions in the market, then the story is more complicated. But at least in our example above, even with distortions, the secondary effect leads to a loss, so we must subtract from the direct effect if we take secondary effects into account. In general, there is a lot of double counting that takes place when valuing these kinds of projects, because people forget that a lot of the secondary benefits are already captured in CS/PS computations in the direct market

In terms of CBA, one also needs to remember the idea of opportunity cost. After we compute the net benefit of a stadium, then what are the alternative uses of those resources? If the objective of the project is to reduce unemployment (which may not be desirable or feasible – see the lecture on unemployment), are there better ways to achieve the same? In general, the most efficient way to improve the social welfare is to directly target the goal rather than rely on secondary effects.