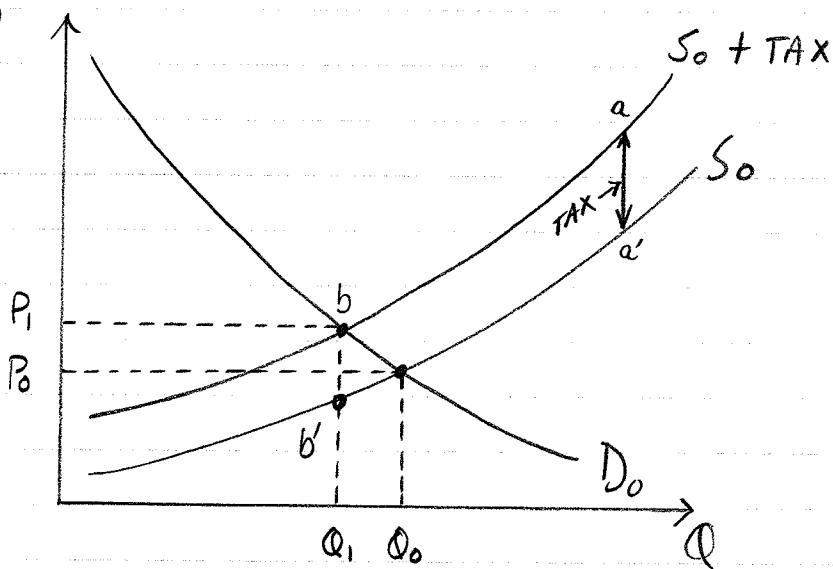


Handout & Worksheet
Impact of a Tax or Subsidy



"The legal incidence of a tax is irrelevant to the economic incidence of a tax."

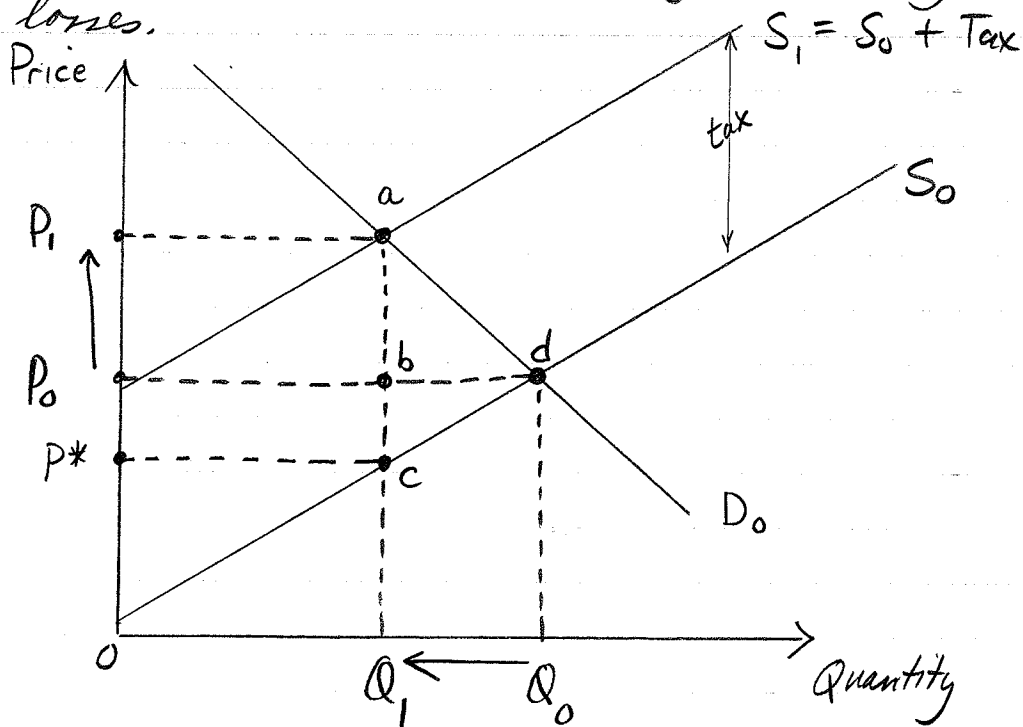
To make the analysis easier, for now let's assume that the tax is collected by the supplier. If this is the case then the supplier treats the tax as a cost of production. Remember that the supply curve is a cost of production (specifically, it is the MC curve) measure, hence the S(MC) curve shifts up by the amount of the tax. This is shown in the diagram above as the shift from a to a' . The tax we have used here is a fixed tax per unit. (for instance, \$1, for every unit sold.)

There are a couple of things to notice.

- (1) Quantities in the market fall from Q_0 to Q_1
- (2) The price rises from P_0 to P_1
- (3) P_0 to P_1 is less than the full amount of the tax. The full tax shift is bb' which is clearly larger than the P_0P_1 shift.

Now let's look more closely - what are the

welfare effects (i.e., what shifts in consumer and/or producer surplus take place) and are there any deadweight losses.



This tax shifts the supply curve upward by the amount of the tax (distance $a-c$).

The tax has a number of effects:

(1) Govt Revenue - tax revenues accrue to the govt. How much tax revenue? The amount of the tax times the quantity sold post-tax. In other words, block P^*caP_1 .

(2) These tax revenues (P^*caP_1) come from two distinct sources.

(A) Consumers give up some of their old consumer surplus. Their old CS was the area from P_0d up to the demand curve. Now, the tax man gets P_0baP_1 .

(B) Producers give up some of their old producer surplus. Their old PS was

the area $P_0 d$ and down to the $S(MC)$ curve. Their new PS is $P^* c$ down to the $S(MC)$ curve. Area $P^* c b P_0$ is turned over to the taxing authorities. Thus, the entire block of tax revenue is split between consumers and producers.

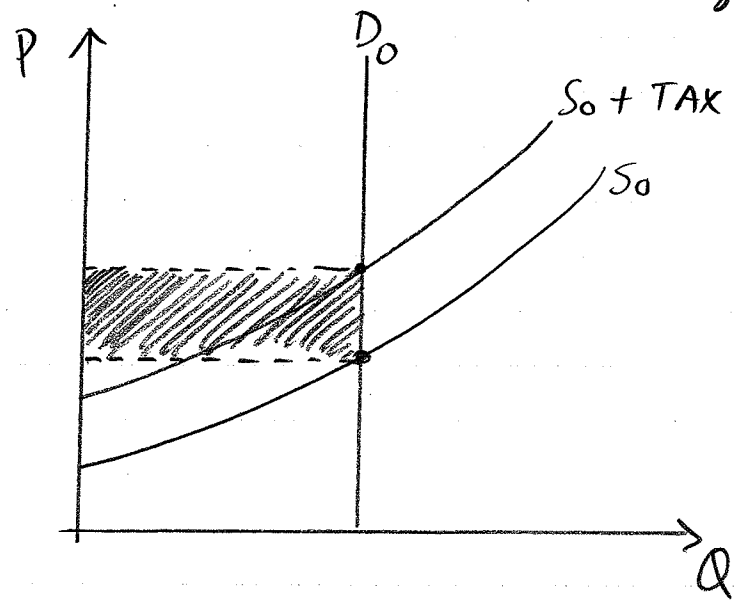
Tax Revenue = $P^* c a P_1$

Consumer pay: $P_0 b a P_1$

Producers pay: $P^* c b P_0$

(3) What about areas abd , which prior to the tax was CS; and, area bdc which prior to the tax was PS? Both of these areas become dead weight losses. The tax chokes off trades that would occur under a free market. How many trades? The quantity of trades between $Q_1 + Q_0$.

Again note that the economic burden of the tax is split except under an extreme condition if the D curve is perfectly inelastic the consumer will pay all of the tax

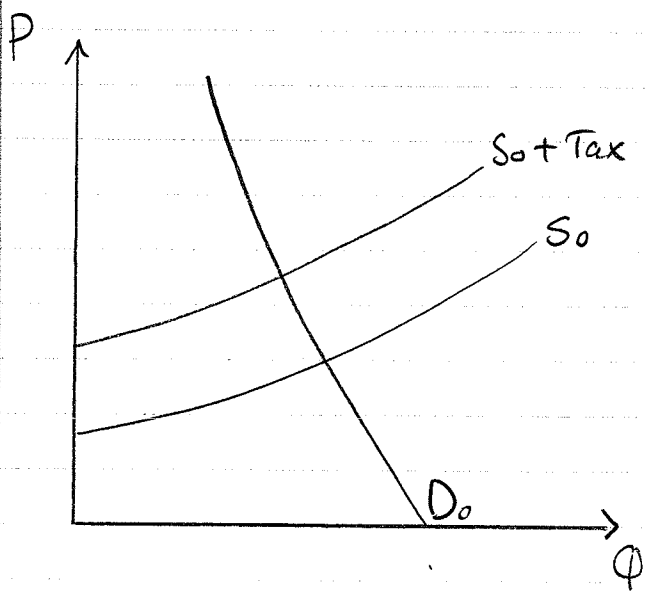


Here the consumer pays the entire tax. Note that there are no dead weight losses just a pure transfer from consumers to the taxing authority.

Lets use this information to look at "sin taxes"
These are taxes on tobacco and alcohol.

First, note that these taxes are often politically popular. No politician, after all, wants to be viewed as supportive of such vices in the public eye. But lets look at some economic reasons for the general support of "sin taxes".

(1) What is the E_D for cigarettes likely to be? Relatively elastic or relatively inelastic? I have drawn a relatively inelastic demand curve below.

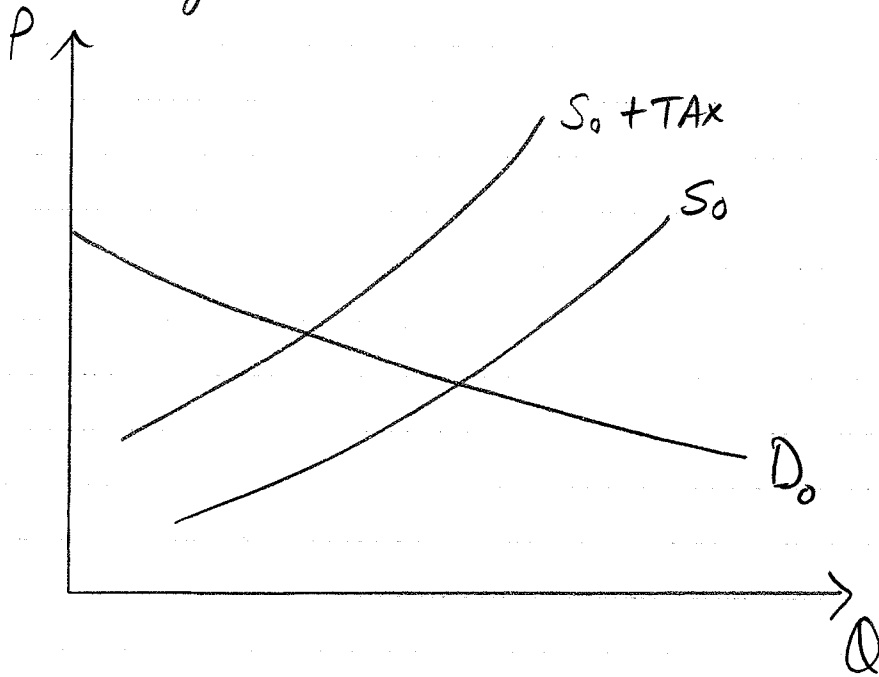


Now - analyze the govt revenue, the increase in price, the decrease in quantities, the sources of the govt revenue, and the DWL.

Answer these questions.

- ① Who gets the revenues?
- ② To whom does the economic incidence of the tax fall?
- ③ Is this politically astute? Why?
- ④ What happens to price?
- ⑤ What happens to quantity?
- ⑥ Why do you think that "sin taxes" are very widespread (beyond the fact that these are sinful activities?)

Let's use this information to look at the tax on hotel rooms in Florida. Below, I have drawn the market. Analyze it just as you did for sin taxes.



Now answer the same set of questions. For question #6, insert "hotel + motel taxes" where "sin taxes" is.