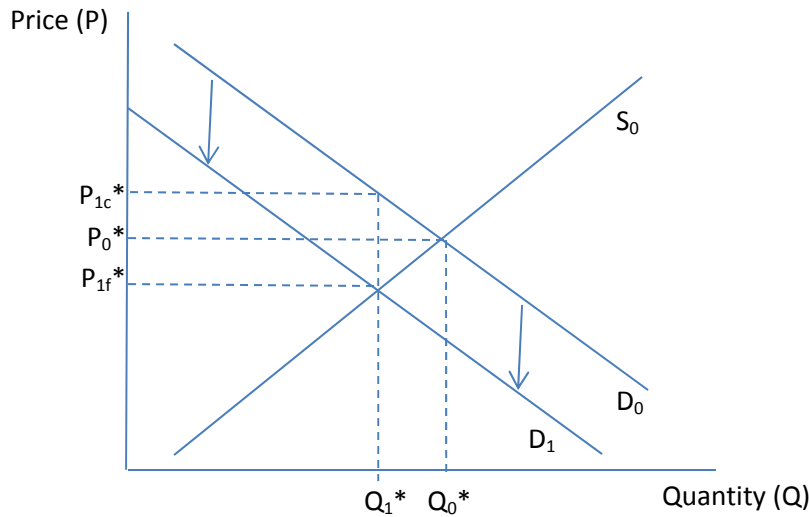


ECNS 204 – Microeconomics  
Eric J. Belasco  
Homework 2  
**Due Thursday, January 31**

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1. How would each of the following circumstances impact the price and quantity of beef sold? **(+1 point each)**
  - a. The price of chicken falls  
  
**Beef Demand shifts back -> lower price and quantity**
  - b. The price of grazing land falls  
  
**Beef Supply shifts out -> lower price and higher quantity**
  - c. There is a report that beef consumption increases longevity  
  
**Beef Demand shifts out -> higher price and quantity**
  - d. Average incomes rise  
  
**Assuming beef is a normal good, beef Demand shifts out -> higher price and quantity**
  - e. The price of leather, which is produced from hides of beef cattle after they are slaughtered, rises  
  
**Supply curve shifts out as firms increase production to increased total profits from beef and hide production. Price decreases and quantity increases**
  - f. A mandatory animal identification system is implemented and costs producers an extra \$3.00 per animal to implement  
  
**Supply curve shifts back, price increases and quantity decreases**
  - g. Increased beef imports from South America flood the market  
  
**Supply curve shifts out -> price decreases and quantity increases**
  - h. Mad cow disease is found in an American beef cow in Washington  
  
**Beef Demand shifts back -> lower price and quantity**  
**And/Or**  
**Beef Supply shifts back (animals are taken out of production) -> higher price and lower quantity**
2. Currently, 21 states have a tax specifically focused on soda in an effort to reduce obesity and other adverse health outcomes (for more information, see [Block and Willett, 2012](#)). Assume a 6.0% sales tax is levied on the price of all soda.

- a. What is the implied impact on the equilibrium quantity and price for soda? (+2 points)



**The equilibrium price ( $P_{1f}$ ) for suppliers fall while the price to consumers ( $P_{1c}$ ) increase, while quantity falls.**

- b. How might the equilibrium price and quantity change for soda substitutes such as juices and sugar-flavored water? (+2 points)

**As the effective price for consumers increase, substitutes such as juices and sugar-flavored water experience an increase to demand.**

- c. A recent study indicated that the demand for low-calorie soda is more elastic than regular soda.  
i. Explain what this means. (+1 point)

**A more elastic demand means that when prices increase, there are likely to be relatively large decreases to quantity demanded.**

- ii. How might the response be different for low-calorie soda consumption versus regular soda consumption when considering this sales tax. (+1 points)

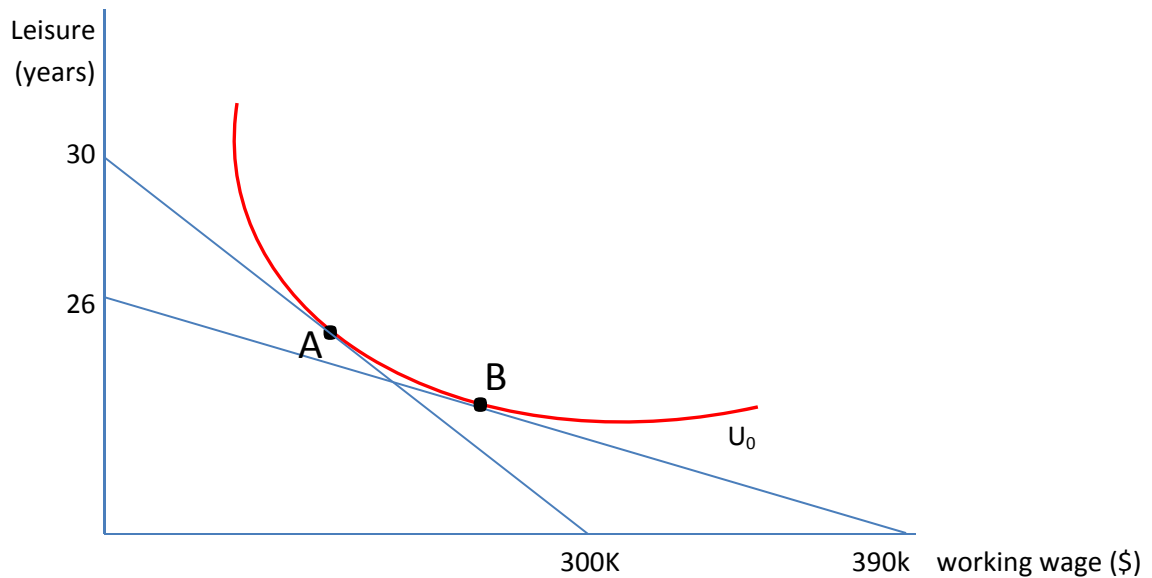
**low-calorie consumers are more sensitive to the sales tax and will be quicker to move to close substitutes while regular soda drinkers have a more inelastic demand and will be slower to reduce consumption.**

- d. Is this soda tax likely to have a positive impact on lowering obesity rates in the areas it is implemented? Explain why or why not. (+1 points)

**The impact is likely to be ambiguous. We expect a reduction in soda consumption but this reduction will be larger for low-calorie consumers and not regular soda drinkers who consumer more calories and sugar. Additionally, substitutes for sugary drinks such as juices may experience higher levels of consumption.**

3. Suppose you have 30 years of life which can be allocated between leisure and working at a wage of \$10,000 per year.

a. Draw your budget constraint between “leisure” and “lifetime income” **(+2 points)**



b. Suppose now that you are given the option to attend college, in which case you will have only 26 years available for leisure and working, but your wage will be \$15,000 per year. Suppose that you are indifferent between attending college and not attending college. Illustrate this situation with budget lines and indifference curves. **(+2 points)**

**See above. The key insight here is that you are indifferent between going to college and not going to college. Because of this, we know that the same indifference curve is tangent to both budget constraints.**

c. *True or False:* If you attend college, you will definitely spend more time working than if you do not attend college. Justify your answer. **(+1 point)**

**True. As seen above, when one goes to college, their utility maximizing bundle moves from point A (with no college) to point B (with college). More time is spent working given that leisure time is reduced when college is attended.**

4. Your monthly income is \$48, which you spend on beer and 'other goods.' A six-pack of beer costs \$4 and you buy 5 six-packs per month. One day the beer salesman offers you a deal: "If you pay \$10 per month to be in the beer club, you'll be allowed to buy six-packs of beer for \$2." Should you join the club? Justify your answer with indifference curves. (+5 points)

The budget constraint changes from (48, 12) to (38, 19). The utility maximizing bundle with the first budget constraint is (28, 5). The second budget constraint goes through the same point, but has a steeper shape. The individual can then attain a higher level of utility ( $U_1 > U_0$ ) by moving from point A to point B. Given a higher level of utility, the club should be joined in an effort to maximize utility.

