

Problem Set #4
Principles of Microeconomics
Professor Hungerman

1. Suppose that the South Bend government begins to tax beer at \$1 a can to raise money for a new highway. Would you guess that demand for alcoholic drinks is elastic or inelastic? Now suppose that at the same time this happened, prices for tickets to Notre Dame football games tripled. Consumers view football tickets and beer as compliments. Graph how both the tax increase and the football ticket hike will affect the market for beer.

2. Suppose that the New York City government decided to lower the tax on cigarette packs from \$1.50 to just \$0.50. Explain how this will affect consumer surplus, producer surplus, the equilibrium quantity of cigarettes sold in the market, and dead weight loss.

3. A good thing about the EITC program is that it can benefit low-income workers by raising the wages they receive. However, a potential concern with the EITC is that it creates dead weight loss because it leads to excessively high levels of employment. (The EITC also requires that the government raise revenue through taxation, but let us put aside problems created by any taxes used to fund the EITC.) Can you draw a picture of a labor market where (a) the entire benefit of the EITC goes to workers (and not to the firms that hire the workers) and (b) the EITC does not create any dead weight loss through changes in employment? Think about what Jesse Rothstein learned when studying the EITC. Does your picture seem realistic, in light of Rothstein's research?

4. In the above question, it states that a potential problem with the EITC is that it "creates dead weight loss because it leads to excessively high levels of employment." How could high levels of employment possibly be bad? Draw a picture of a labor market where the EITC creates dead weight loss through excessive employment (this should be easy). Explain why there is "too much" employment in the picture.

5. Suppose you are consuming cans of red bull energy drink. Suppose we can represent your utility from consuming red bull using a *utility function*

$$u(c) = \sqrt{c}$$

This equation says that your utility from drinking red-bull, u , equals the square root of the number of cans of red bull that you drink. Make a table where the first column is cans of red bull consumed (from 1 to 6). Then write down utility at each level of consumption and (using a calculator) calculate the marginal utility gained from each additional can consumed. Is the law of diminishing marginal utility violated?

6. Suppose that you learned that the demand for milk was inelastic. Does this suggest anything about the marginal utility for milk?

7. Suppose I tell you that someone's marginal utility is falling. Based on that fact alone, what does this tell you about total utility? What if I tell you that marginal utility is positive and falling?