

Problem Set 3

1. Suppose the government announced that in 5 years marginal tax rates for everyone would go up.

A. How would this change the tax prices people expected to face in 5 years?

The tax-price of giving is $1 - t$, where t is the marginal tax rate. Tax prices will fall as tax rates go up.

B. If giving in 5 years and giving now are substitutes, what would happen to giving now?

People will give less now and substitute towards giving more in the future.

C. What would happen to giving now if they are compliments?

People would give more now and give more then.

2. Suppose that the demand for charitable giving can be expressed as follows:

$$g = m - m(1-t),$$

where g is giving, m is after-tax income, and $t > 0$ is the marginal tax rate.

A. Is giving a normal good?

Yes it is. As income rises giving rises, so long as t is nonnegative.

B. What is the tax-price of giving? Does charitable giving obey the law of demand?

The tax price of giving is $1 - t$. As price increases, all else equal, the quantity of charitable giving falls. So this obeys the law of demand.

C. Suppose after-tax income is \$5,000 and the tax rate is 20% (so t is 0.2). How much will this person give to charity?

They will give \$1,000.

D. Using the values given in part C for m and t , figure out this individuals' tax-price elasticity of demand.

*The elasticity formula is $\frac{dg}{d(1-t)} \frac{(1-t)}{g} = -m * \frac{(1-t)}{m - m(1-t)} = -4$.*

E. Again, consider the values given in part C. Suppose the government wanted to lower this person's taxes by \$500. Thus, after the government lowers tax

payments after-tax income will be \$5,500. The government can lower taxes by \$500 two ways: send the person a refund check for \$500, or by lowering t . If the government decided to lower t so that taxes fell by \$500, what would the new t be? How would giving differ depending on whether the government sent a check or lowered t ?

*First, let's figure out the person's pretax income. If their tax rate is 0.2 and their after tax income is \$5,000, then $0.8x = \$5000$, where x is pre-tax income. So x is \$6250 and taxes are \$1250. For taxes to be \$500 less, we need $t * \$6250 = \750 , or $t = 0.12$.*

*Second, if the government sent a check but didn't change t , it is straightforward to show that giving will now be \$1,100. If the government lowers t , however, g will fall to $\$5500 - 0.88 * \$5500 = \$660$. So how the government cuts taxes can make a difference!*