

ECO 401  
Fall 2004  
Problem Set #1

Due: Friday, September 10

1. Given the following information:

<u>Price of X</u>	<u>Quantity of X</u>	<u>Income</u>	<u>Price of Y</u>
\$10	5	\$20,000	\$10
\$10	7	\$30,000	\$10
\$10	7	\$20,000	\$8
\$8	7	\$20,000	\$10

Compute the (arc) own-price elasticity of demand, the income elasticity of demand, and the cross-price elasticity of demand between goods X and Y.

2. Wholesale electric power is bought and sold in an open and unregulated market. Some producers of electric power use natural gas generating units, others use coal-fired generating units. For a variety of reasons natural gas prices have reached historic levels, rising above \$10 per mcf. Using supply and demand analysis, show the effect of higher natural gas prices on the market for coal.
3. Suppose that you conduct a survey of Kentucky teenagers and find that 30% of 15-19 year olds smoke. There are 290,000 people who are 15-19 years old in the state. The state legislature is considering a tax that would result in an increase in the price of a pack of cigarettes from \$2 to \$3.
- The legislature wants you to estimate how many fewer kids will smoke if they pass the tax. From reviewing economic research on smoking you find that own-price elasticity of demand for cigarettes among teenagers is 0.6.
  - Suppose that the cigarette tax proposal fails at the state level, but is taken up by Lexington's city council. They propose enacting a local tax that would raise the price of a pack of cigarettes within the borders of Fayette County from \$2 to \$3. Would you use the same approach that you took in part (a) if city council asked you to estimate the reduction in smoking among teenagers in Fayette County as a result of a local tax?
4. Concerned about cuts in federal welfare programs, the state legislature decides to study the problem of hunger in Kentucky. Two proposals are considered. The first is to place a price ceiling on bread at \$.75 per loaf. The second is to place a price ceiling on hamburger at \$2.00 per pound. Currently bread sells for \$1.00 per loaf and hamburger sells for \$1.50 per pound. If both proposals are enacted, what do you predict will happen to the prices of bread and hamburger? Illustrate with demand and supply diagrams.
5. Illustrate the effect on the demand curve for Corn Flakes from each of the following events:
- a fall in the price of Wheaties
  - a change in consumers' preferences away from hot cereals
  - a rise in the price of Corn Flakes
  - an increase in the price of corn