

**University of Notre Dame**  
**Department of Finance**  
**Economics of the Firm**  
**Fall 2011**

**Quiz #1 Solutions:**

- 1) Suppose that you decide to quit your \$120,000 Wall Street job to open up an Italian restaurant. You cash in your 401K for the \$240,000 (let's assume that you were earning an average of 5% per year on your 401K) down payment on the restaurant and open for business. Below are some numbers for an average month:

Sales: \$50,000  
Food Cost: \$15,000  
Labor Costs (Wait Staff and Chef): \$12,000  
Rent & Utilities: \$10,000

What is your opportunity cost in this restaurant? Are you making economic profit? Explain.

We have enough information above to calculate your accounting profits:

$$\$50,000 - 15,000 - 12,000 - 10,000 = \$13,000$$

However, to get at profits we need to calculate your opportunity cost of the restaurant. First, you have to pay yourself. The 120,000 per year you were earning would be a reasonable estimate for your time - \$10,000 per month. Also, you are losing the 5% interest on the \$240,000 down payment annually - \$1,000 per month.

Therefore, your opportunity cost would be \$37,000 of accounting costs plus \$11,000 of implicit costs for a total of \$48,000. This leaves you with \$2,000 left over. Is this economic profit? If your restaurant is as safe as your wall street job/401k then yes. If the restaurant is riskier (which it surely is), then maybe not!

2) Explain how each of the following events would affect the demand, supply, price and sales in the market for coffee.

a) A severe recession causes disposable income to fall.

*Demand for coffee falls, supply is unchanged, price falls, and sales fall*

b) Coffee growers begin hiring non-union labor at lower wages.

*Supply increases, demand is unaffected, price falls, and sales increase.*

c) The price of tea rises.

*Demand increases, supply is unchanged, price increases, sales increase.*

d) Sugar prices go up (assuming not everybody drinks their coffee black)

*Demand for coffee falls, supply is unchanged, price falls, and sales fall*

3) Suppose that you have the following cost information for producing macadamia nuts. you have fixed costs equal to \$50:

Pounds of Nuts	Total Variable Costs	Fixed Cost	Total Costs	Marginal Costs	Producer Surplus
1	\$2	50	52	2	24
2	\$6	50	56	4	22
3	\$13	50	63	7	19
4	\$23	50	73	10	16
5	\$37	50	87	14	12
6	\$56	50	106	19	7
<b>7</b>	<b>\$80</b>	<b>50</b>	<b>130</b>	<b>24</b>	<b>2</b>
8	\$109	50	159	29	--
9	\$145	50	195	36	--
10	\$187	50	237	42	--

a) Complete the above chart

b) Suppose that the market price of macadamia nuts was \$26 per pound. If you were maximizing profits, how many pounds would you sell? Explain.

You want to sell as long as the price (which equals marginal revenue) is as least as big as marginal cost

c) Calculate your producer surplus. Calculate your profit.

Producer Surplus = 102

Profit = 102 – 50 = 52