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## **Homework #2 (due by 9:00pm on Friday, February 2)**

*Please submit your answers to this homework through the Assignment link at Blackboard. **No credit will be given for answers submitted in class or emailed to the professor, regardless of the excuse.** This includes unique excuses like my dog ate my homework or aliens showed up in my dorm and accidentally deleted my homework, as well as more traditional excuses like “I lost my Internet”. Please note that all submissions are final, again – regardless of the excuse (which includes “I accidentally hit the submit button”). When you go to Blackboard, you should see that you can save your answers, or “Save and Submit”. Use the Save and Submit button to submit your answers. If you are unfamiliar with Blackboard, then it would be a good idea to visit the class page at Blackboard and check out the homework assignments as they are posted.*

Please note that when Blackboard grades homework answers, more specifically when Blackboard grades answers to any fill-in-the-blank questions – your answer must match exactly with the answer that Blackboard is looking for. Below, you'll find some instructions on how to properly format these answers. Reading this section is strongly recommended.

### **Questions 1 and 4-6**

Note that on Question #1 and Questions #4-5, you'll be referred to a file with data reported in different tables which you will use to answer those questions. As noted within each of those questions, these files are posted in the **Homework #2 material** folder in "Course Documents" at Blackboard.

In Questions #6a and b, you're asked to calculate a value for real income within a specific region of the country. Your answer in both parts should be expressed in terms of dollars and rounded to the nearest whole dollar. E.g., twenty dollars and 30 cents would be written as \$20, rather than \$20.30, 20.30 or 20.

If you have any questions on how to express an answer, then be sure to ask before you submit the homework for grading.

## Homework #2 Questions

1. We'll be using data from the Energy Information Administration website on the monthly price and quantity of regular gasoline within the U.S. Assume that the prices and quantities you observe in the tables below represent the equilibrium price ( $P^*$ ) and equilibrium quantity ( $Q^*$ ) in this market. We'll also assume that the demand and supply curves in this market have their "typical slope" (i.e. that the demand curve in this market has a negative slope, and the supply curve a positive slope).

Two tables with data are provided below. You can use the links provided below, or go to the Homework #2 material folder in Course Documents at Blackboard and access both tables there.

As you look at each pair of month/year, consider how the price changes between those two months, and then how the quantity changes. These changes suggest that a specific shift must have occurred. I.e., if the price and quantity both increase between a pair of months, then this suggests a specific shift in the demand curve and/or supply curve (as we discussed in class).

### **Price: U.S. Regular Gasoline Retail Prices (dollars per gallon)**

- [https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=EMM\\_EP\\_MR\\_PTE\\_NUS\\_DPG&f=M](https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=EMM_EP_MR_PTE_NUS_DPG&f=M)

### **Quantity: U.S. Regular Gasoline Retail Sales (1000s of gallons per day)**

- <https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=A123600001&f=M>

Based on the data in the Price and Quantity tables for each pair of months listed below, identify the change in  $P^*$  and  $Q^*$  that has occurred. Answer the question by identifying the shift or shifts that best explain what would cause the change in  $P^*$  and  $Q^*$  you identified in each part. E.g., if you discover that both  $P^*$  and  $Q^*$  increase between May 2017 and June 2017, and you think this is best explained by a decrease in supply, then your answer for *part a* would be "D".

### Change in $P^*$ and $Q^*$ :

- May 2017 to June 2017
- June 2017 to July 2017
- July 2017 to Aug 2017
- Aug 2017 to Sept 2017
- Sept 2017 to Oct 2017

### Shift in curve(s):

- Increase in demand
- Decrease in demand
- Increase in supply
- Decrease in supply
- Increase in demand and increase in supply
- Decrease in demand and decrease in supply
- Increase in demand and decrease in supply
- Decrease in demand and increase in supply

2. Assume that Louisville (e.g. Jefferson County) has a market for retail gasoline and that similar, but alternative retail gas markets also exist in southern Indiana, and in counties adjacent to Louisville, like Oldham County and Bullitt County.

Let's analyze the **retail gasoline market in Louisville** (i.e. we will be trying to predict how the Louisville market is affected by various events). Below, you must determine how each of the five different events affect this market in terms of causing a shift or shifts in the demand and supply for retail gasoline in Louisville. Match each event below with the appropriate shift(s). E.g., if you believe that improved technology with gas pumps from "part a" causes a decrease in the supply within the Louisville retail gasoline market, then your answer would be "D".

**Events:**

- a. Improved technology with gas pumps which dispense gasoline to consumers
- b. Changes in state law which increase the number of drivers in cities like Louisville
- c. Changes in state law which bans consumers from pumping their own gas, a ban that leads to gas stations hiring additional employees to pump gas for consumers (similar to existing laws in states like Oregon and New Jersey)
- d. Increase in consumer income
- e. Increase in gas prices within (only) counties adjacent to Louisville, like Oldham and Bullitt Counties.

**Effect: Shift in Curve(s) within the Louisville gasoline market**

- A. Increase (shift right) in Demand for Louisville gasoline
- B. Decrease (shift left) in Demand for Louisville gasoline
- C. Increase (shift right) in Supply of Louisville gasoline
- D. Decrease (shift left) in Supply of Louisville gasoline
- E. Increase (shift right) in Demand for Louisville gas and Increase (shift right) in Supply of Louisville gas
- F. Decrease (shift left) in Demand for Louisville gas and Decrease (shift left) in Supply of Louisville gas
- G. Increase (shift right) in Demand for Louisville gas and Decrease (shift left) in Supply of Louisville gas
- H. Decrease (shift left) in Demand for Louisville gas and Increase (shift right) in Supply of Louisville gas

3. Continue analyzing the market from question #2, the Louisville retail gasoline market, and predict how various events will most likely affect the current equilibrium price and quantity of retail gasoline within Louisville. E.g., if you believe that the expectation of higher gas prices next week leads to a decrease in the current equilibrium price and quantity of retail gasoline within the Louisville market, then your answer would be “B”.

**Events:**

- a. Consumers expect an increase in gasoline prices next week (e.g. due to Derby Week)
- b. Significant decrease in the cost of crude oil
- c. Increases in the productivity of Louisville gas stations
- d. Local government regulations lead to the exit of gas stations from the Louisville market
- e. Significant decreases in the cost of alternative rideshare services like Uber and Lyft.

**Effect:  $\Delta P^*$  and  $\Delta Q^*$  in the Louisville gas market**

- A. Increase in equilibrium price and increase in equilibrium quantity
- B. Decrease in equilibrium price and decrease in equilibrium quantity
- C. Increase in equilibrium price and decrease in equilibrium quantity
- D. Decrease in equilibrium price and increase in equilibrium quantity

4. To answer this question, you must access the *cpi.pdf* file created by the Bureau of Labor Statistics (BLS). This file is located in the Homework #2 material folder in Course Documents at Blackboard. When you access the file, find “**Table 1. Consumer Price Index for All Urban Consumers: U.S. city average, by expenditure category, December 2017**” on page 10. This table reports CPI data for December 2017 across many different expenditure categories.

In the first column of Table 1, you’ll see an entry that says “Expenditure Category” and then “All Items”. If you consider the row for All Items and move through the columns on the right you’ll see the (unadjusted index) CPI for All Items in December, 2017.

The value of that December 2017 CPI is \_\_\_\_\_

***note: express the CPI value exactly as it’s stated in the table (do not round it).***

5. Locate the Bureau of Labor Statistics (BLS) file *cpi.pdf* within the Homework #2 material folder under Course Documents at Blackboard (same file that you used to answer Question #4). Find “**Table 1. Consumer Price Index for All Urban Consumers: U.S. city average, by expenditure category, December 2017**” on page 10 of that file.

Using **Table 1** in this Report, you will note that the second column gives you the “Relative Importance, November 2017” (e.g. the value for item #1, Food, is 13.600). These values are the “weights” for each expenditure category in the CPI (as discussed in class). Use this column to rank the following nine expenditure categories below in terms of their importance as an expenditure category within the CPI. The top ranked category (largest weight) should be ranked “1”, second largest ranked “2”, and so forth – all the way to the seventh largest (i.e. smallest) category being ranked as “7”.

Note that there is no partial credit on this question, your answer must be completely correct or it will be considered incorrect.

- \_\_\_\_\_ *Food at home*
- \_\_\_\_\_ *Food away from home*
- \_\_\_\_\_ *Energy commodities*
- \_\_\_\_\_ *Energy services*
- \_\_\_\_\_ *Apparel*
- \_\_\_\_\_ *New Vehicles*
- \_\_\_\_\_ *Shelter*
- \_\_\_\_\_ *Medical care services*
- \_\_\_\_\_ *Transportation services*

6. On the CPI table below (next page), you’re provided with the December 2017 CPI for the 4 different regions of the U.S. and for several major U.S. city areas. Use the CPI data on regions in this table to answer questions 6a and 6b.

- a. A typical resident within the Midwest US region who earns a nominal income of \$11,000 during this period would have a real income of \_\_\_\_\_

**Note:** express your answer in terms of dollars, not dollars and cents, and round to the nearest whole dollar if necessary.

- b. A typical resident within the Northeast US region who earns a nominal income of \$11,000 during this period would have a real income of: \_\_\_\_\_

**Note:** express your answer in terms of dollars, not dollars and cents, and round to the nearest whole dollar if necessary.

**Consumer Price Index for All Urban Consumers (CPI-U): All Items, selected regions and cities, December 2017 (1982-84=100)**

<b>Regions</b>	<b>CPI-U</b>
West	257.347
Midwest	230.548
Northeast	260.791
South	238.512
<b>Major Cities</b>	<b>CPI-U</b>
New York-Northern NJ	269.564
Atlanta, GA	234.107
San Francisco, CA	277.414
Chicago-Gary-Kenosha, IL	234.293
Cincinnati-Hamilton, OH-KY-IN	230.427*
Los Angeles, CA	259.220
Houston-Galveston-Brazoria, TX	221.568
Seattle, WA	265.850

\* *second half 2017*

7. Use the table above to answer question 7.

Assume that you have an individual with \$5,000 in nominal income during December 2017.

Based upon the December 2017 CPI (All Items) reported in the table for these selected major city areas, in which major city area would the real income of this individual be highest?

- a) New York-Northern NJ
- b) Atlanta, GA
- c) San Francisco, CA
- d) Chicago-Gary-Kenosha, IL
- e) Cincinnati-Hamilton, OH-KY-IN
- f) Los Angeles, CA
- g) Houston-Galveston-Brazoria, TX
- h) Seattle, WA

8. The chart below provides you with information about Presidential salaries in specific years and the CPI for each of those years. Use this information to answer the question on the next page that refers to the table.

<b>US Presidents and their (nominal) salaries</b>			
<b>Year</b>	<b>President</b>	<b>Nominal Salary</b>	<b>CPI (2010=100)</b>
1789	Washington	\$25,000	7.8
1873	Grant	\$50,000	5.5
1909	Taft	\$75,000	4.1
1949	Truman	\$100,000	10.9
1969	Nixon	\$200,000	16.8
2001	Bush	\$400,000	81.0
2011	Obama	\$400,000	100.0
2017	Trump	\$400,000	112.4

Based on the table from the previous page, which President had the greatest real salary?  
(note: real salary is the same as real income)

- a. George Washington
- b. Ulysses Grant
- c. Howard Taft
- d. Harry Truman
- e. Richard Nixon
- f. George W. Bush
- g. Barack Obama
- h. Donald Trump