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Economics 202
Spring 2022

Homework #2 (due by 9:00pm on Thursday, February 3)

*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 4, 5, and 7

Note that on Question #4-5, you'll answer these questions using a file for the CPI. When you record your answers to each question, be sure to record your answer such that it looks exactly the same as what was provided in the tables. E.g., if you are looking up a value and asked to record that value as part of your answer, and the value in the table is 232.100, then record your answer as 232.100, rather than as 232.1 or 232.10.

In Question #7, you’re asked to calculate a value for real income within a specific region of the country. Your answer 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 retail price and quantity sold of regular gasoline within the U.S.. That data is provided in the file "US regular retail gasoline prices and retail sales" within the Homework #2 material folder that's posted in Course Documents at Blackboard.

Assume that the demand and supply curves associated with 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). Assume also that the prices and quantities you observe in the tables represent the equilibrium price (P^*) and equilibrium quantity (Q^*) in this market.

In each problem below, you're provided with a pair of months. Your first task is to determine how the price and quantity changed between these two months. Under the assumption that the price is an equilibrium price and the quantity is an equilibrium quantity, you have information that tells you how the equilibrium changed between the two months. Given the changes that must have occurred, you must infer which shift(s) took place to give us that change in equilibrium.

Match the pair of dates (and implied change in P^* and Q^*) on the left to the appropriate shift(s) on the right. Note that the shift(s) must always explain the result you found (i.e. it can't be correct under certain circumstances, it must always be correct in a market where the curves have their regular slopes – as assumed above).

E.g., between Jan 2021 and Feb 2021, there was an increase in both the price and quantity sold of regular gasoline within the US. That means P^* has increased and Q^* has increased. If you believe that this change is best explained by an increase in both demand and supply, then your answer would be "E".

Change in P^* and Q^* :

- a. Mar 2020 to Apr 2020
- b. June 2020 to July 2020
- c. July 2020 to Aug 2020
- d. Aug 2020 to Sept 2020
- e. Feb 2021 to Mar 2021

Shift in curve(s):

- A. Increase in demand
- B. Decrease in demand
- C. Increase in supply
- D. Decrease in supply
- E. Increase in demand and increase in supply
- F. Decrease in demand and decrease in supply
- G. Increase in demand and decrease in supply
- H. Decrease in demand and increase in supply

2. Assume that Louisville (e.g. Jefferson County) has a market for cell phones. Cell phones are sold outside of Louisville as well, and so there are other markets for cell phones in southern Indiana, and in counties adjacent to Louisville, like Oldham County and Bullitt County.

Let's analyze the **cell phone market in Louisville** (i.e. we will be trying to predict how this 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 cell phones in Louisville. Match each event below with the appropriate shift(s). E.g., if you believe that the first event causes a decrease in the Supply within the Louisville cell phone market, then your answer would be "D".

Events:

- a. Increase in taxes on the suppliers of cell phones within the Southern Indiana market
- b. Changes in state law which make it easier for new companies to begin selling cell phones, which leads to the entry of new companies into this market
- c. Decreases in the productivity associated with selling cell phones within Louisville
- d. Fair wage legislation passes through the Kentucky legislature, which raises the wage of retail employees working at cell phone companies
- e. Pending Federal legislation leads consumers to believe that the future price of cell phones will decrease significantly in 6 months

Effect: Shift in Curve(s) within the Louisville cell phone market

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

3. Consider 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 first event will ultimately lead to an increase in the current equilibrium price and quantity of retail gasoline within the current Louisville gasoline market, then your answer would be “A”.

Events:

- a. Improved technology allows gasoline stations to automate and remain open for 24 hours.
- b. Changes in refining raise the cost of wholesale gasoline sold to retail gas stations in Louisville
- c. New Federal laws aimed at improving air quality require all gasoline stations to purchase new equipment that replaces certain parts on their gasoline pumps
- d. Covid-related lockdowns require non-essential businesses in Louisville to close, which decreases the mobility of most Louisville citizens, but also lowers their income
- e. Kentucky lowers the minimum driving age from 16 years to 14 years

Effect: ΔP^* and ΔQ^* 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. This file shows different values for the Consumer Price Index for All Urban Consumers (CPI-U) by expenditure category.

In the first column of this table, you’ll see the heading “Expenditure Category” at the top of the column. In column 2, you’ll see the heading “Relative Importance, Oct-2021”, followed by a column for “unadjusted indexes” for Nov 2021.

Using the column under the heading “unadjusted indexes” for Nov 2021, answer the following question. Note that you are simply reporting the number you find in the table, and **you’re not calculating anything**.

The value of the Nov 2021 CPI for “All items” is _____

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

5. Use the *cpi.pdf* file from question 4 above to answer the question below. This file is located in the Homework #2 material folder in Course Documents at Blackboard. Note that the second column of the CPI table is the “Relative Importance, Oct-2021” for each expenditure category. These values are the CPI weights we discussed in class. Report the relative importance of each expenditure category below. Please record the value exactly as given in the table (e.g. if Household Energy was a category below, record the value for Household Energy, 225.221). *Note, there is no partial credit on this question, your overall answer must be completely correct.*

Expenditure category	Relative Importance/Weight (Oct 2021)
Services	
Durables	
Nondurables	
Food and beverages	
Fuels and utilities	
Housing	
Education & Communication	
Recreation	
Medical Care	
Transportation	
Apparel	
Personal Care	

6. To answer this question, you must access the *cpi.pdf* file used to answer questions 4-5 above. This file is located in the Homework #2 material folder in Course Documents at Blackboard.

Based on the CPI table (*cpi.pdf*), select every true statement below.

Note, multiple answers are possible and since there is no partial credit on this question, your overall answer must be completely correct.

- a. relative to the base year, the average price of Services has more than tripled
- b. relative to the base year, the average price of Nondurables has remained much more constant than the average price of Durable goods
- c. relative to the base year, the inflation rate of Housing is 286.308%
- d. relative to the base year, the average price of Transportation has decreased
- e. relative to the base year, the average price of Household Energy has more than doubled

The table below is used to answer question 7.

**Consumer Price Index for All Urban Consumers (CPI-U):
All Items, selected regions, Nov 2021 (1982-84=100)**

Regions	CPI-U
West	294.986
Midwest	258.911
Northeast	289.835
South	268.360

7. On the CPI table above, you're provided with the Nov 2021 CPI for four different regions of the U.S. (CPI-U). Use the CPI data from these regions in this table to answer the question below.

If a typical resident within the Midwest US region earns a nominal income of \$10,000 during this period, then that individual 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.**

Question #8 – next page

The table below is used to answer question 8.

**Consumer Price Index for All Urban Consumers (CPI-U):
All Items, selected cities, Nov 2021 (1982-84=100)**

Major Cities	CPI-U
Boston-Cambridge-Newton, Ma.-N.H.	299.723
Atlanta-Sandy Springs-Roswell, GA	268.362*
San Francisco-Oakland-Hayward, CA	313.265*
Chicago-Naperville-Elgin, IL-IN-WI	259.254
St. Louis, MO-IL	251.624*
Los Angeles-Long Beach-Anaheim, CA	296.790
Houston-The Woodlands-Sugar Land, TX	243.813*
Seattle-Tacoma-Bellevue WA	303.099*
Minneapolis-St.Paul-Bloomington, MN-WI	272.859

* October 2021

8. On the CPI table above, you're provided with the Nov 2021 CPI for a group of major U.S. city areas (CPI-U). Although this question will ask about Nov 2021, you will note that some values in the table were taken from Oct 2021. Assume that the values from Oct 2021 are actually from Nov 2021.

If you are an individual with \$10,000 in nominal income during Nov 2021, then based upon the table above, in which major city area would you have the least amount of purchasing power?

- a) Boston-Cambridge-Newton, Ma.-N.H.
- b) Atlanta-Sandy Springs-Roswell, GA
- c) San Francisco-Oakland-Hayward, CA
- d) Chicago-Naperville-Elgin, IL-IN-WI
- e) St. Louis, MO-IL
- f) Los Angeles-Long Beach-Anaheim, CA
- g) Houston-The Woodlands-Sugar Land, TX
- h) Seattle-Tacoma-Bellevue WA
- i) Minneapolis-St.Paul-Bloomington, MN-WI

Question #9 – next page

9. The table below provides you with information about Presidential (nominal) salaries in specific years and the CPI for each of those years. We use salary here instead of income, largely because of how Presidents are paid. I.e., the President receives a salary, but also has an expense account. Expense accounts are similar to income, which leads us to ask - should we consider the President's expense account as income? Rather than wrestle with that question, we'll use the term salary here, but you can interpret salary in this example as the income we discuss in class.

Use the information in the table to answer the question below.

US Presidents and their (nominal) salaries			
Year	President	Nominal Salary	CPI
1789	Washington	\$25,000	8.8
1835	Jackson	\$25,000	8.6
1864	Lincoln	\$25,000	15.7
1875	Grant	\$50,000	11.0
1905	T. Roosevelt	\$50,000	8.8
1910	Taft	\$75,000	9.5
1935	F.D. Roosevelt	\$75,000	13.7
1950	Truman	\$100,000	24.1
1960	Kennedy	\$100,000	29.6
1980	Carter	\$200,000	82.4
1988	Reagan	\$200,000	118.3
2020	Trump	\$400,000	258.8

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

- a. Washington
- b. Jackson
- c. Lincoln
- d. Grant
- e. T. Roosevelt
- f. Taft
- g. F.D. Roosevelt
- h. Truman
- i. Kennedy
- j. Carter
- k. Reagan
- l. Trump