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Department of Economics
Honors Economics 202
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Homework #2 (due by 9:00pm on Wednesday, February 1)

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 accidently 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 and 7

Note that on Question #4, you'll answer the question using a file for the CPI. When you record your answer to this 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 Questions #7a, 7b, 7c and 7d, you're asked to calculate a value for real income within a specific region of the country. Your answer can be expressed in terms of dollars and rounded to the nearest whole dollar, or dollars and cents – rounded to the nearest whole cent (with or without the comma). E.g., if you calculate an answer like $8,333.231, then you can write that answer as any of the following: $8,333, $8,333.23, $8333, or $8333.23, rather than $8,333.3 or $8333.231.

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. Assume that Louisville (e.g. Jefferson County) has a market for rental cars (e.g. Budget Car Rental, Avis, etc). Car rental firms in southern Indiana, Oldham County and Bullitt County are separate markets. Note that this market is not the same market as the ride-sharing market (e.g. Uber, Lyft, etc).

In this question, you'll analyze the **car rental 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 different events below will affect this market in terms of causing a shift or shifts in the demand and supply for car rentals in Louisville. Match each event below with the appropriate shift(s). E.g., if you believe that the first event causes a decrease in Demand within the Louisville car rental market, then your answer would be "B".

Events:

a. Increase in taxes on the suppliers of car rentals within the Louisville market

b. Price competition within airline fares significantly lowers the price of flying

c. The economy slides into recession and lower incomes for most households in Louisville

d. Federal government legislation leads to some car rental firms leaving the Louisville market

e. Automation (technological change) occurs within the car rental market

f. Car rental employees in Louisville receive an increase in their wage

Effect: Shift in Curve(s) within the Louisville car rental market

A. Increase (shift right) in Demand for Louisville car rentals

B. Decrease (shift left) in Demand for Louisville car rentals

C. Increase (shift right) in Supply of Louisville car rentals

D. Decrease (shift left) in Supply of Louisville car rentals

E. Increase (shift right) in Demand for Louisville car rentals and Increase (shift right) in Supply of Louisville car rentals

F. Decrease (shift left) in Demand for Louisville car rentals and Decrease (shift left) in Supply of Louisville car rentals

G. Increase (shift right) in Demand for Louisville car rentals and Decrease (shift left) in Supply of Louisville car rentals

H. Decrease (shift left) in Demand for Louisville car rentals and Increase (shift right) in Supply of Louisville car rentals

2. The data in the table below is taken from the Energy Information Administration website, and provides the monthly retail price and quantity sold of regular gasoline within the U.S.

Month/Year	Price	Quantity
Jun-2021	3.064	318,580.9
Jul-2021	3.136	318,794.3
Aug-2021	3.158	315,952.9
Sep-2021	3.175	308,440.8
Oct-2021	3.291	306,070.4
Nov-2021	3.395	304,391.4
Dec-2021	3.307	298,393.4
Jan-2022	3.315	273,815.2
Feb-2022	3.517	295,297.0
Mar-2022	4.222	302,435.0

Assume that the demand and supply curves associated with this market have their typical slope and that the prices and quantities you observe in the table 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. Given these changes that must have occurred, you must infer which shift(s) took place to give us that change in equilibrium.

Match the change in P* and Q* you determined between each pair of dates 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 2022 and Feb 2022, there was an increase in both the price and quantity sold of regular gasoline within the US, which means P* and Q* both increased. If you believe 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. Aug 2021 to Sept 2021

b. Oct 2021 to Nov 2021

c. Nov 2021 to Dec 2021

d. Jan 2022 to Feb 2022

e. Feb 2022 to Mar 2022

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

3. In this question, you'll be working with the Louisville snack food market, which includes all snack foods like granola bars, chips and candy sold within the city of Louisville. You'll be predicting how each of the various events most likely affects the current equilibrium price and quantity of Louisville snack food. E.g., if you believe that the first event leads to a decrease in the current equilibrium price and quantity of snack food sold within Louisville, then your answer would be "B". Note that you'll want to approach this question by first determining how the curve(s) in the demand and supply model for this market would shift, and then use that shift(s) to decide on how the equilibrium price and quantity will change.

Events:

a. Decrease in the price of soft drinks within Louisville, a complement to snack food.

b. Decrease in the price of snack food substitutes in the Louisville area

c. Decrease in the cost of various ingredients that go into the making of most snack foods

d. Rising gas prices increase the cost of distribution for all goods sold within Louisville

e. 5% increase in the local population within Louisville as students return to school at the beginning of the Fall semester

Effect: ΔP* and ΔQ* in the Louisville snack food 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-Table1.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, Nov 2022", followed by a column for "unadjusted indexes" with Dec 2021, Nov 2022 and Dec 2022.

Using the column under the heading "unadjusted indexes" for Dec 2022 (shaded yellow), answer the following question. Note that you are simply reporting a number that you find in the table, and **you're not calculating anything**.

The value of the Dec 2022 CPI for "All items" is _____

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

5. Use the *CPI-Table3.pdf* file 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, Nov. 2022" for each expenditure category (shaded yellow). These values are the CPI weights we discussed in class. Based on what the table says, match each expenditure category (left) to the appropriate weight (right). E.g., if the table says that Services has a relative importance of 12.310, then you'll match Services to answer item E.

Note, there is no partial credit on this question, <u>your overall answer must be completely correct</u>.

Expenditure category	**Relative Importance (Nov 2022)**
a) Services	A. 4.906
b) Durables	B. 5.021
c) Nondurables	C. 6.041
d) Food and beverages	D. 8.260
e) Fuels and utilities	E. 12.310
f) Housing	F. 14.659
g) Education & Communication	G. 18.282
h) Recreation	H. 26.661
i) Medical Care	I. 42.599
j) Transportation	J. 61.029

6. To answer this question, use the *CPI-Table3.pdf* file posted in the Homework #2 material folder in Course Documents at Blackboard.

Use the column of CPI values for Dec 2022 (shaded yellow) under unadjusted indexes to answer the questions below. Note that in order to answer these questions, you need to know two things. First, that the CPI in Table 3 represents the average price of certain goods or services in Dec 2022, and second, you'll need to know the value of the CPI in the base year.

<u>To answer this question, indicate each of the true statements below (from a through f).</u>

Note that you'll either be comparing the base year CPI to the Dec 2022 CPI or you'll use the base year CPI value with the Dec 2022 CPI value to calculate an inflation rate (as we did in class).

Note as well, ***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 310.725%

d. relative to the base year, the average price of Photography has decreased

e. the average price of Medical Care in Dec 2022 is double that of the average price of Medical Care in the base year

f. relative to the base year, the average price of Education has increased by more than the average price of (all) Commodities

Consumer Price Index for All Urban Consumers (CPI-U):
All Items, selected regions, Dec 2022 (1982-84=100)

Regions	**CPI-U**
West	314.599
Midwest	275.182
Northeast	308.150
South	288.205

Use the table above to answer question 7.

7. On the CPI table above, you're provided with the Dec 2022 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. Assume that you are offered a job that paid you a nominal income of $10,000 in December 2022. Use the table above to determine the real income of that $10,000 in each of these 4 regions.

a. If you live in the West with nominal income of $10,000 during this period, then you have a real income of _____

b. If you live in the Midwest with nominal income of $10,000 during this period, then you have a real income of _____

c. If you live in the Northeast with nominal income of $10,000 during this period, then you have a real income of _____

d. If you live in the South with nominal income of $10,000 during this period, then you have a real income of _____

Note: *express your answer in terms of dollars (rounded to the nearest whole dollar), or dollars and cents (rounded to the nearest whole cent). Be sure to include a $ in your answer, but you have the option of including the comma on your answer (i.e. if one of your answers is $8,333.231, then you can write your answer as any of the following: $8,333, $8,333.23, $8333, or $8333.23).*

Questions #8-9: next page

Use the table below to answer Questions #8-9.

The table 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
2022	Biden	$400,000	292.3

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. Biden

9. Based on the table above, which President had the lowest 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. Biden