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Economics 202
Spring 2025

Homework #2 (due by 9:00pm on Friday, February 7)

*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 roommate ate 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”) and that if you do not correctly submit your work, then you will not receive credit. I.e., Blackboard has a Save button and a Save and Submit button, and you must 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 – answers to the 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. A more complete discussion of these rules is provided at Blackboard. Reading this section is strongly recommended.

Formatting matters with the answers in these questions. For this reason, **understand that your answer can be technically correct but graded as wrong because you didn't follow the directions provided below.** Given that formatting is considered part of your answer, a wrongly formatted answer is still a wrong answer. I.e., you will not have points added to your homework score if you got answers wrong due to formatting mistakes. However, this is still something you will want to bring to Professor Haworth’s attention. *In addition, if you are not sure how to round an answer (e.g. whether 3.25 rounds to 3.2 or 3.3), then please contact Professor Haworth to get your questions answered.*

Homework Questions 6 and 9

Please note the following comments regarding formatting on Questions 6 and 9 below.

On Questions #6 and 9, round your answer to the nearest whole dollar. Note that the dollar sign (\$) and commas are optional here. E.g., if you calculate an answer of 15,300.275, then you can record your answer as \$15,300, \$15300, 15,300, or 15300 – but not as \$15,300.275, \$15,300.28, 15300.275 or 15300.28.

Homework #2 Questions

1. Assume that in the city of Louisville, there is a market for lawn care services which consists of many suppliers (i.e. companies who mow lawns, provide landscaping services, etc) and demanders (i.e. anyone who hires lawn care service providers to mow their lawn, provide landscaping services, etc). Assume this service is a normal good.

In this question, you'll predict how various events affect the **lawn care services market in Louisville**, which means you'll be predicting how the demand and supply curves associated with this market are affected by each event. 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 curves within the market. E.g., if you believe that the first event increases Demand for this service in Louisville, then your answer would be A.

Events:

- a. Louisville City government makes some changes in local regulations which lead to new lawn care service companies entering the Louisville market.
- b. A significant price decrease in the cost of lawn mowers leads the demanders of lawn care services to start mowing their own lawn (i.e. stop hiring lawn care companies to mow their lawn).
- c. During a period of time when the state experiences recession, there is a decrease in the income of the average Louisville citizen.
- d. Assume there is a decrease in the number of demanders of lawn care services within Louisville.
- e. Federal government passes legislation which leads to an increase in the wages paid by lawn care suppliers to their employees.
- f. A decrease in gas prices lowers the transportation cost of lawn care suppliers who must drive to each location where they perform these services.

Effect: Shift in Curve(s) within the Louisville ride share market

- A. Increase (shift right) in Demand within the Louisville lawn care services market
- B. Decrease (shift left) in Demand within the Louisville lawn care services market
- C. Increase (shift right) in Supply within the Louisville lawn care services market
- D. Decrease (shift left) in Supply within the Louisville lawn care services market
- E. Increase (shift right) in Demand within the Louisville lawn care services market and Increase (shift right) in Supply within the Louisville lawn care services market
- F. Decrease (shift left) in Demand within the Louisville lawn care services market and Decrease (shift left) in Supply within the Louisville lawn care services market
- G. Increase (shift right) in Demand within the Louisville lawn care services market and Decrease (shift left) in Supply within the Louisville lawn care services market
- H. Decrease (shift left) in Demand within the Louisville lawn care services market and Increase (shift right) in Supply within the Louisville lawn care services market

2. In this question, you'll be working with the Louisville area market for new automobiles, which consists of many sellers and buyers. Note that this market does not include used automobiles, and only includes automobiles sold within the city of Louisville. Used automobiles would be a substitute good bought and sold in a different market, the Louisville area used car market. We will also assume that new automobiles are a normal good.

In this question, you must determine how each event affects the equilibrium price and quantity of automobiles in Louisville's new automobile market.

Here's the process you will want to use. First, determine how each event affects the demand and supply curves in the Louisville new automobile market. Second, given the shift (or shifts) you believe occurred, determine how this shift affects the equilibrium price and quantity in this market. Note that, once you've determined a shift that must result from each event below, you may want to draw that shift on a graph in order to ascertain how price and quantity will change.

E.g., in part a, it says that an improved distribution system increases the productivity associated with supplying new automobiles. If you believe that this event leads to an increase in the demand for new automobiles sold in the Louisville market, then you will draw the shift on a graph (or use your notes) and see that an increase in demand leads to an increase in the equilibrium price and an increase in the equilibrium quantity. In that situation, your answer would be "A".

Events:

- a. An improved distribution system increases the productivity associated with supplying new automobiles within the Louisville market.
- b. Kentucky State government increases their tax on all suppliers of new automobiles, a tax paid when new automobiles are purchased in Kentucky.
- c. Indiana State government increases their tax on all suppliers of new automobiles, a tax paid when new automobiles are purchased in Indiana.
- d. Price competition within Louisville leads to a significant decrease in the price of used cars.
- e. Assume that an increase in interest rates leads to suppliers having a higher cost of operation, due to paying off debts that suppliers incurred from borrowing to buy capital.
- f. The demanders of new automobiles expect a decrease in the future price of new automobiles within the Louisville market.

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

3. The data below provides the monthly retail price of gasoline and quantity of gasoline sold within the U.S. between January and September, 2024.

Month/Year	Price	Quantity*
Jan-2024	3.075	8.54
Feb-2024	3.212	8.28
Mar-2024	3.426	8.46
Apr-2024	3.611	8.84
May-2024	3.603	8.63
June-2024	3.455	9.11
July-2024	3.484	9.29
Aug-2024	3.389	9.11
Sept-2024	3.214	8.98

* millions of barrels per day

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.

Here's the process for answering parts a-f below. First, determine how the price and quantity changed between the two months given to you. E.g., in part a, you're given "Jan 2024 to Feb 2024", so you need to determine how the price and quantity changed between January, 2024, and February, 2024. You'll note that there was an increase in the price of gasoline and a decrease in the quantity of gasoline sold (i.e. $P \uparrow$ and $Q \downarrow$). Once you know how price and quantity have changed between those two months, the next step is to determine the shift(s) that would explain this change in P and Q . E.g., in part a, if you believe that $P \uparrow$ and $Q \downarrow$ is the result of an increase in demand, then your answer for part a would be "A" on the right-side column below.

Change in P^* and Q^* :

- a. Jan 2024 to Feb 2024
- b. Mar 2024 to April 2024
- c. April 2024 to May 2024
- d. May 2024 to June 2024
- e. June 2024 to July 2024
- f. Aug 2024 to Sept 2024

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

4. Go to the Course Materials folder in the Course Content section at Blackboard. To answer the question below, go into the folder Homework #2 material, and find the article “Inflation Experiences for Lower and Higher Income Households”. Read the article, and then, based on this article, answer the question by selecting every true statement below. Each statement refers to the time period analyzed within the article (2005-2021).

Note: there is more than 1 correct answer below and since there is no partial credit on this question, your overall answer must be completely correct.

- a. lowest income households spend a greater share of their budget on rent and household utilities than highest income households
- b. lowest income households spend a greater share of their budget on motor fuels than highest income households
- c. although they face a lower inflation rate, the CPI associated with spending by the highest income households is typically higher than the CPI associated with spending by the lowest income households
- d. both the lowest and highest income households tend to face higher inflation rates than all urban households overall
- e. except for a brief period during 2021, the inflation rate facing the lowest income households tends to be higher than the inflation rate facing the highest income households

*Questions #5-7 can be answered by using the file **cpi-table.pdf**, a file created from data provided by the Bureau of Labor Statistics (BLS). This file is located in the Homework #2 material folder in Course Materials at Blackboard and the file shows different values for the Consumer Price Index for All Urban Consumers (CPI-U) by expenditure category.*

5. Consider the following 6 expenditure categories in the file cpi-table.pdf. Note that each item has a value listed in the column entitled “Relative Importance, Sept 24”.

- Food
- Energy
- Shelter
- Medical care services
- Apparel
- Gasoline (all types)

Given the relative importance listed for these different expenditure categories, which answer below is correct (i.e. based on this CPI file, which two categories are the most important items in the typical consumer’s budget). *Note that to correctly answer this question, you may want to record the actual relative importance values for each category above, and then choose the categories with the 2 largest values.*

- a. Food and Energy
- b. Energy and Shelter
- c. Food and Shelter
- d. Shelter and Medical care services
- e. Apparel and Medical care services
- f. Gasoline (all types) and Shelter

6. Use the *cpi-table.pdf* file posted in the Homework #2 material folder in Course Materials at Blackboard to answer the question below (note the formatting instructions for this question).

Assume that you receive \$10,000 in nominal income in October, 2024. Use the All Items CPI for October, 2024 to calculate the real income of this amount of money.

In October, 2024, \$10,000 in nominal income is equal to _____ in real income.

7. Use the *cpi-table.pdf* file posted in the Homework #2 material folder in Course Materials at Blackboard to answer the question below.

Note that in order to answer this question, you first need to know the value of the CPI in the base year. This would have been discussed in class. Note as well that that the CPI in this table represents the average price of a specific group of goods or services in October 2024.

Here's how to do this question.

First, we want to understand what each response is saying. Start with response a below, which refers to the average price of food. The question is asking you to compare the CPI for food in the base year to the CPI for food in October 2024. Since doubling something means that one value is twice as large as the other value, this question asking whether it's true that the CPI for food in October 2024 is twice as large as that of the CPI for food in the base year.

*Second, we need to determine whether the response is correct by looking at the CPI values in the table. Before we can do that we need to determine what the CPI is in the base year. This is always mentioned in class, and so your notes are a good starting point. Let's assume that you believe the CPI for food in the base year is equal to 200. The *cpi-table.pdf* file says that the October 2024 CPI for Food is equal to 332.678. Since doubling the base year value of 200 would be 400, and that the October CPI for food is less than 400, then you could say that the average price of food has less than doubled between the base year and October 2024. That would make this response an incorrect statement. Of course, if the CPI in the base year was 50 (i.e. not 200), then the statement would be true since 332.678 is more than double the value of 50.*

Similarly, if a response asks about the inflation rate between October 2024 and the base year, then you'll calculate the inflation rate as discussed in class.

Given the information in this table, select each true statement from the list below.

*Note that **there is more than 1 correct answer below** and since there is **no partial credit** on this question, your overall answer must be **completely correct**.*

- a. between the base year and October 2024, the average price of *Food* has more than doubled
- b. between the base year and October 2024, the average price of *Food away from home* has more than tripled
- c. between the base year and October 2024, the inflation rate of *Electricity* was 280.47%
- d. between the base year and October 2024, the inflation rate of *Apparel* was 33.179%
- e. between the base year and October 2024, the average price of *Medical Care services* has more than quintupled (i.e. the average price has increased by 5x the amount of the base year)
- f. between the base year and October 2024, the average price of *Motor Vehicle Insurance* has decreased

Questions #8-11 require that you use the **CPI Tables 2-3** file posted in the Homework #2 material folder in Course Materials at Blackboard.

8. Find **Table 2** in the *CPI Tables 2-3* file and use this file to answer the question below.

If you earned \$20,000 in nominal income during October 2024, in which region of the country would have the lowest purchasing power?

- a. South
- b. West
- c. Northeast
- d. Midwest

9. Find **Table 2** in the *CPI Tables 2-3* file and use the CPI data associated with the cities listed in the table to answer the questions below (note the formatting instructions for this question).

a. If you live in the South and earn a nominal income of \$10,000 in October 2024, then you have a real income of _____ in October 2024

b. If you live in the West and earn a nominal income of \$10,000 in October 2024, then you have a real income of _____ in October 2024

c. If you live in the Northeast and earn a nominal income of \$10,000 in October 2024, then you have a real income of _____ in October 2024

d. If you live in the Midwest and earn a nominal income of \$10,000 in October 2024, then you have a real income of _____ in October 2024

10. Find **Table 3** in the *CPI Tables 2-3* file and use the CPI data in the table to answer this question: which President had the greatest real salary?

- 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

11. Find **Table 3** in the *CPI Tables 2-3* file and use the CPI data in the table to answer this question: which President had the lowest real salary?

- 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