ECO 150, Winter 2022, Exam #1

Instructions

1. This exam consists of thirteen questions. Answer them all. You are encouraged to use the models from class (especially supply and demand) when formulating your answers.

2. Some questions are open ended. You will be graded more on the quality of your explanation than your specific answers. On "true/false" questions, for example, answering only "true" or "false" will receive no credit, even if correct.

3. Do not just copy from the course materials. Doing so will receive no credit.

4. This is an open note exam. You may use your notes, the textbook, and all course materials from the website. You may use electronic versions of these materials as well. You may not, however, use other materials, access the internet for any reason besides obtaining the allowed materials, or solicit help from any other person while taking this exam.

Please sign the following statement:

In completing this exam, I did not access any online resources besides the approved course materials, the textbook, and my own notes, nor did I communicate with any other student or person about this exam. I understand that doing so would be a violation of the Student Conduct Policy.

Sign: Key

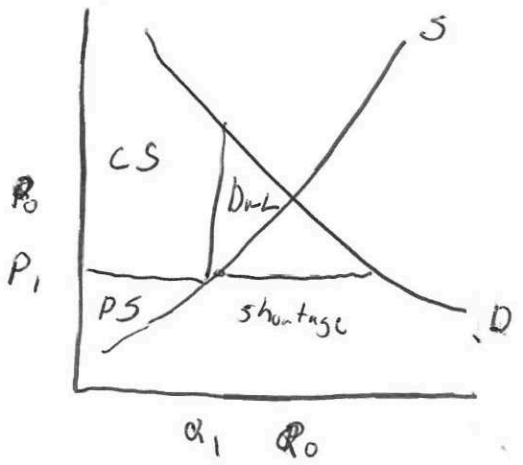
Printed Name: Key

1. Consider a potential a carbon tax. Discuss how scarcity relates to this policy debate.

Scarcity means we cannot satisfy all of our wants. Here, we cannot have as much production (e.g. transportation) and as clean of an environment as we would like. This creates a trade-off between these wants.

2. What tradeoffs exist in the decision to enact price ceilings on rental housing?

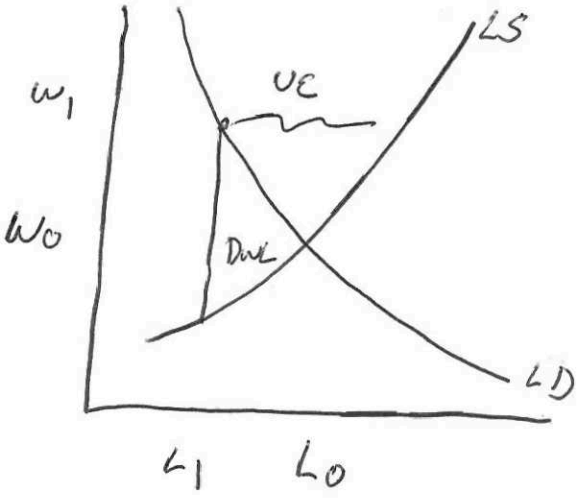
A price ceiling only impacts the market, if the price is below the equilibrium price. If so, it creates shortage where demand is greater than supply. Producer surplus falls, consumer surplus may rise or fall.



- Renters able to find housing benefit.
- Renters and landlords who cannot obtain housing, lose
- Quality may also suffer.

3. What causes economists to disagree over whether a higher minimum wage is good or bad policy?

- This is a price floor. Low wage workers who remain employed benefit.
- It may create a surplus of labor, called unemployment. workers who become unemployed lose.
- Firms likely lose and consumers might also lose if higher costs are passed on to them
- Economists disagree on the size of these effects, and how to weigh them.



Consider the market for electric cars. Assume that both firms and households are price takers and that they have full information. Note that table provides *total* cost and utility, not *marginal*.

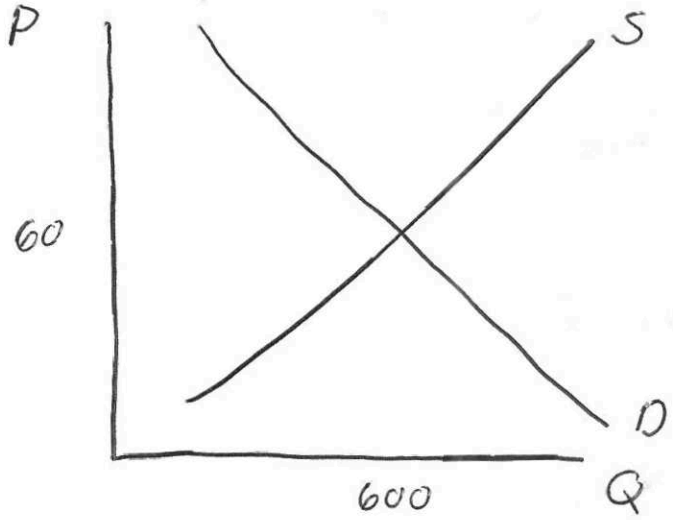
Table 1: Market for Electric Cars

Units	Total Cost	Total Utility	MC	MU_0	MU_1
100	20	200	20	200	270
200	50	350	30	150	220
300	80	470	30	120	190
400	120	570	40	100	170
500	170	650	50	80	150
600	230	710	60	60	130
700	300	760	70	50	120
800	380	800	80	40	110
900	480	830	100	30	100
1000	600	840	120	10	80

4. True or False. The supply curve for electric cars is upward sloping because the evidence shows that all supply curves, in all markets, have this shape.

False. This supply curve is upward sloping because marginal cost is increasing. But this is not the case in all markets.

5. Graph supply and demand. Solve for the equilibrium price and quantity.

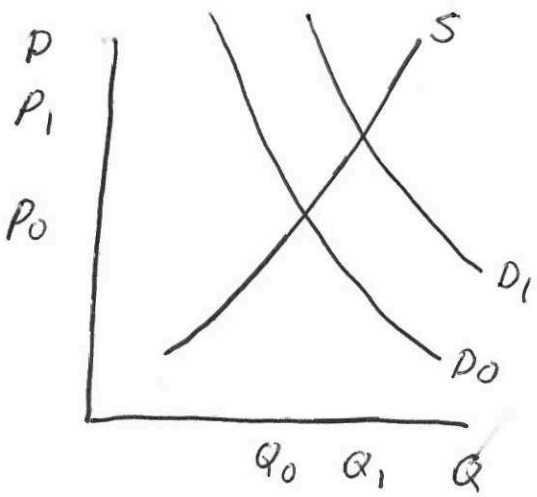


P = 60

Q = 600

6. Suppose that the price of gasoline increases. Explain how this will likely impact the market for electric cars. Note that there is not a single correct answer and your scores will depend on your explanation. [Hint: Make your assumptions very clear].

If we assume that electric cars are substitutes for gasoline powered cars, then we would expect demand for EVs to increase. This leads to a higher quantity and price.



7. Suppose that the price of electric cars falls from 100 to 80. Calculate the price elasticity of demand.

This is a 20% price drop

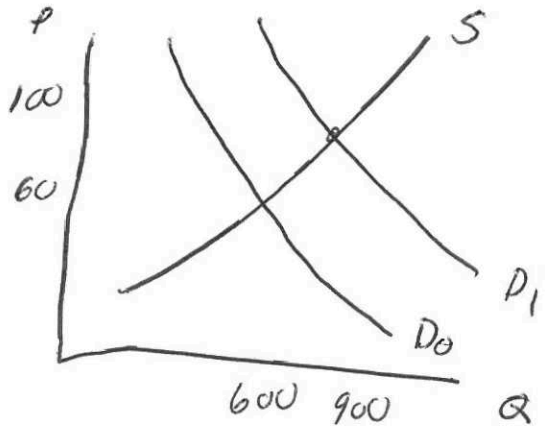
$$\%\text{ change in } Q = \frac{400-500}{500} = -25\%$$

$$e^d = \frac{-25}{20} = -1.25$$

8. Suppose that average household income increases by 20%. As a result, *marginal* utility rises by 70 for all units. Show what happens to the equilibrium price and quantity. Also state whether electric cars are a normal or inferior good.

- Because demand increases with income, EVs are a normal good.

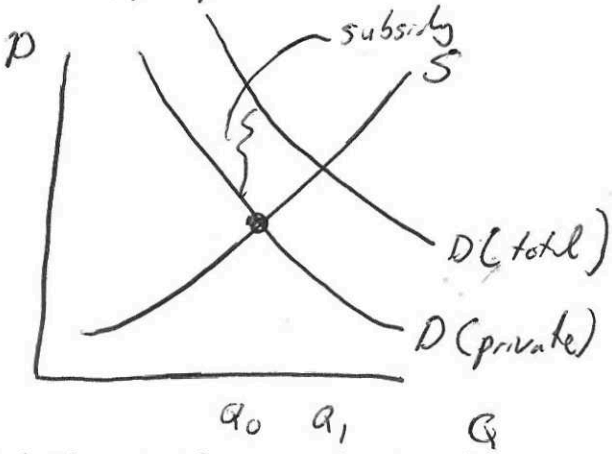
- The new equilibrium price is 100 and the new quantity is 900.



9. Would a subsidy for electric car suppliers improve efficiency (the sum of consumer and producer surplus).

It depends. If there is a positive externality, where the use of EVs provides a public benefit (lower cost or higher utility), then an appropriate sized subsidy could restore efficiency.

Here, the private market delivers Q_0. A subsidy could deliver Q_1.



10. Why is having a large number of households in the market important for our model of supply and demand?

- If each household is a small part of the market, then each household is a price taker and is unable to exert market power.

11. Consider a musical performance where it is costless to allow additional audience members but where it is possible to prevent them from attending (*e.g* a concert hall). Discuss whether this is a private or public good.

A public good must be both non-rivalrous in consumption and non-excludable. Because customers may be excluded, this is not a public good.

12. Describe a potential market failure connected to the covid-19 pandemic.

There were many good answers:

- Many suggested that mask wearing or vaccines are a positive externality.
- Some argued that mask wearing created environmental harm, a negative externality.
- Some argued that vaccine development is an example of a production spillover

- A high price, however, is not, by itself, a market failure.

13. True or False? In order to remedy a positive externality (*e.g* production spillover, education), a government must offer a subsidy to those who demand the good or service.

False. A subsidy is one, but not the only way, to remedy a ~~market~~ failure positive externality. A mask mandate is arguably another example if we assume masks are a positive externality. Furthermore, a subsidy can be offered to either the supplier or demander.