EC155a: Problem set #3 - SOLUTIONS

1. You have an extra ticket to Hamilton, still the hottest ticket on Broadway this year. The table below shows the willingness to pay of four potential buyers in the market for a ticket to see the show.

Buyer	Willingness to Pay
Julia	$500
Richard	$400
Lamar	$350
Analise	$300

   a. You hold an auction to sell the ticket. Who makes the winning bid, and what does (s)he offer to pay for the ticket? Justify your answer.
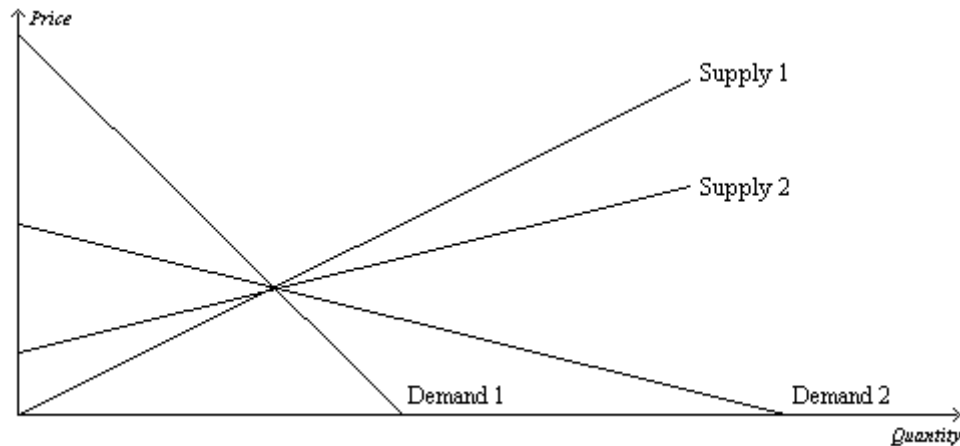
   The winning bid will be above $400 (so that only Julia can purchase it) and no more than $500 (as she is not willing to pay more than $500)

   b. Now imagine that you have two tickets for the show: in this case, how much will you sell the tickets for? Will any of the buyers have a consumer surplus after the sale? If so, how much? Will you have a producer surplus after the sale? Justify your answers.

   Assuming that you sell the tickets for the same price, the winning bid will be above $350 (so that only Julia and Richard can purchase it) and no more than $400 (as Richard is not willing to pay more than $400). The consumer surplus for each of the buyers will be their WTP ($500 and $400, respectively) – the final sale price.

   Your producer surplus will be the final sale price – your marginal cost. If this is an extra ticket that you can't otherwise use, your marginal cost = 0 (it does not cost you anything to sell it), so the producer surplus will = the final sale price.

   Note that the seller will presumably have some producer surplus if they are willing to sell it at this price. Otherwise, they would not sell it!

2. Refer to the figure above: which pair - one demand curve and one supply curve - will minimize the deadweight loss from a tax? Which pair - one demand curve and one supply curve - will maximize the deadweight loss from a tax? Justify and illustrate your answers. What general conclusions, if any, can we reach about elasticities and the size of a deadweight loss after a tax?
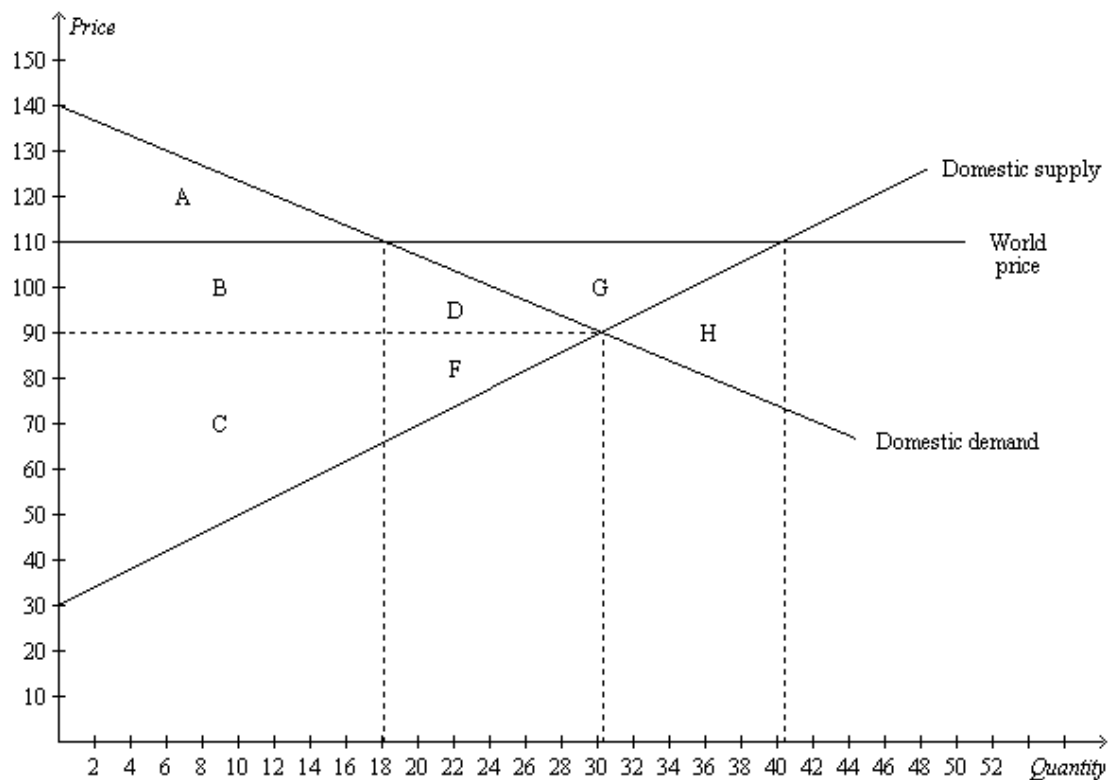
Supply 1 and Demand 1 would minimize the DWL; Supply 2 and Demand 2 would maximize the DWL since you are comparing two DWL triangles with the same base (the size of the tax wedge) with different heights (the larger quantity response with Supply 2 and Demand 2 because they are more elastic.) Ceteris peribus, the more elastic the relevant curves, the higher the DWL.

3. Explain and illustrate why tax revenue rises and then falls as the size of a tax increases. Under what conditions would a country want to increase its tax rates? Lower its rates? Justify your answers.

This is the Laffer Curve idea, which you should illustrate with a graph. A country should raise its taxes if it wants to increase tax revenues and it is on the left-hand side of the Laffer Curve's maximum. A country should lower its taxes if (a) it wants to increase tax revenues and/or reduce the DWL and it is on the right-hand side of the Laffer Curve's maximum; OR (b) it wants to reduce tax revenues and/or reduce the DWL and it is on the left-hand side of the Laffer Curve's maximum.

4. Using a graphical model (with two graphs), illustrate how trade increases the social welfare in for two countries that begin to trade, one with a comparative advantage in good A and the other in good B. Under what conditions, if any, should a country impose a tariff on a good that it imports? Justify your answers.

The best way to do this is to show two graphs for each country, exporting (importing) good A and importing (exporting) good B, respectively. You can then use our basic trade model to show that in all cases, social welfare (= consumer surplus + producer surplus) increases. A country should impose a tariff if it wants to 'protect' it suppliers and/or raise revenues from a tariff.

Price

150
140
130
120
110 — World price
100
90
80
70
60
50
40
30
20
10

A
B
C
D
F
G
H

Domestic supply
World price
Domestic demand

2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 Quantity

5. The figure above illustrates the market for coffee in Guatemala. Calculate the exact size of social welfare for Guatemala if it does not trade? By how much will social welfare increase if it begins to trade?

   In autarky (no trade), social welfare = A + B + C + D + F = 0.5*30*110 [=140-30] = $1650.

   With trade social welfare will increase by area G (see our basic trade model), which = 0.5*20*22 = $220, so the total social welfare = 1650 + 220 = $1870

6. Should President Obama and President Trump have supported the Trans-Pacific Partnership (TPP) Free Trade Agreement? Why or why not? Justify your answer with two citations.

   A good answer will make a clear case, one way or the other; or offer the pros and cons, using two citations.

7. If a country imposes a pollution tax on the production of steel such that it reduces the equilibrium quantity in this market, how can one be sure that the tax maximizes social welfare? Justify your answer.

A tax will only maximize social welfare if it sets marginal benefit = marginal cost. In this case, this would be setting WTP = social marginal cost, the private marginal cost + the size of the externality.

8. Identify and describe a setting where the Coase theorem is relevant in the lives of Middlebury students. How and under what conditions would a Coasian trade improve social welfare of students? Under what conditions would a Coasian trade be unlikely to improve social welfare of students? Justify your answers.

   A good answer will make a clear case about the Coase theorem and present a policy that is consistent with our reading. Note that a Caosiam trade will improve social welfare if the owner of the 'property right' sells it to another party. If she/he/they do not sell it, there is no improvement of social welfare.

   And if transactions cost are too high, there can be no improvement either.

9. Identify and describe a public good *or* a common property resource at Middlebury that affects the lives of students. How and under what conditions is this good used sub-optimally? What policy do you propose to move toward a more optimal use of this good, and why is your policy better than an alternative?

   A good answer will make a clear case about such a good (e.g., plates and utensils in Proctor!) and present a policy that is consistent with our reading.