Chapter 8 Review
Government Intervention in Markets: Taxes

Readings
Chapter 8, all
Chapter 12, pp 249 (begin with “Taxes and Efficiency” – end

Outline

I. Overview
   A. Why do we care?
   B. Goals for a Tax System

II. What Does A Tax Do? The Intuition.

III. Tax Effects Graphically
   A. CS, PS, Tax Revenues, Net Gain, and Deadweight loss
   B. ED, ES, and economic incidence
   C. ED, ES, and deadweight loss
   D. Policy implication: Tax things with low ED and ES

IV. The Laffer Curve (We will not be going over this in class. It will, however, be on the exam. i.e. Read your text carefully)
   Tax Revenues and tax rates

V. Policy Applications: Efficiency
   A. Henry George’s land tax proposal
   B. Some problems … Is this the only issue?
   C. Summary … Suggestions for What to Tax

VI. (chapter 12) Equity
   A. Horizontal equity.
   B. Vertical Equity
      1. definition
      2. benefits vs ability to pay
      3. regressive, proportional, or progressive

Chapter 8 Text and Study Guide Questions
Questions for Review: all (3, 4, and 5 are my favorites)
Problems and Applications: 1 -12 (2, 3, 5, 6, 7, 11 are my favorites)

Chapter 12 Text and Study Guide Questions
Questions for Review: 4 - 7
Problems and Applications: 6 - 11
Other Problems

1. a. Below, you are given supply and demand curves for taxi cab rides from the Chugwater, Wyoming airport. Assume the government has no (i.e. $0) on this activity. Indicate the areas which are: Consumer Surplus, Producer Surplus, Tax Revenues, and Deadweight Loss. Also, fill in the blanks below left.

   **1a. No tax/unit**
   - Consumer Surplus = $________
   - Producer Surplus = $________
   - Tax Revenues = $________
   - Deadweight Loss = $________

b. Below, you are given the same supply and demand curves for taxi cab rides from the Chugwater, Wyoming airport. Assume the government has a $4/unit tax on this activity. Indicate the areas which are: Consumer Surplus, Producer Surplus, Tax Revenues, and Deadweight Loss. Also, fill in the blanks below left.

   **1b. tax = $4/unit**
   - Consumer Surplus = $________
   - Producer Surplus = $________
   - Tax Revenues = $________
   - Deadweight Loss = $________
c. Déjà vu. Below, you are given supply and demand curves for taxi cab rides from the Chugwater, Wyoming airport. Assume the government has a $8/unit tax on this activity. Indicate the areas which are: Consumer Surplus, Producer Surplus, Tax Revenues, and Deadweight Loss. Also, fill in the blanks below left.

1c. tax = $8/unit

Consumer Surplus = $

Producer Surplus = $

Tax Revenues = $

Deadweight Loss = $


d. Below, you are given a depiction, done by a (not quite) world famous impressionist artist, of the market for taxi cab rides from the Chugwater, Wyoming airport. Assume the government has a $12/unit tax on this activity. Indicate the areas which are: Consumer Surplus, Producer Surplus, Tax Revenues, and Deadweight Loss. Also, fill in the blanks below left.

1d. tax = $12/unit

Consumer Surplus = $

Producer Surplus = $

Tax Revenues = $

Deadweight Loss = $

e. Below, you are, not given, but temporarily loaned, supply and demand curves for taxi cab rides from the Chugwater, Wyoming airport. Assume the government has a $16/unit tax on this activity. Indicate the areas which are: Consumer Surplus, Producer Surplus, Tax Revenues, and Deadweight Loss. Also, fill in the blanks below left.

1e. tax = $16/unit

Consumer Surplus = $_________
Producer Surplus = $_________
Tax Revenues = $_________
Deadweight Loss = $_________

f. Below, you are given a pretty picture with deep meaning. Assume the government has a $20/unit tax on this activity. Indicate the areas which are: Consumer Surplus, Producer Surplus, Tax Revenues, and Deadweight Loss. Also, fill in the blanks below left.

1f. tax = $20/unit

Consumer Surplus = $_________
Producer Surplus = $_________
Tax Revenues = $_________
Deadweight Loss = $_________
g. Below, you are given ... Oh for the love of humanity! Make it stop! Anyway, assume the
government has a $24/unit tax on this activity. Indicate the areas which are: Consumer
Surplus, Producer Surplus, Tax Revenues, and Deadweight Loss. Also, fill in the
blanks below left.

1g. tax = $24/unit
Consumer Surplus = $ _________
Producer Surplus = $ _________
Tax Revenues = $ _________
Deadweight Loss = $ _________
h. And now for the grand finale! Assume the government has a $28/unit tax on this activity. Indicate the areas which are: Consumer Surplus, Producer Surplus, Tax Revenues, and Deadweight Loss. Also, fill in the blanks below left.

1h. tax = $28/unit
Consumer Surplus = $ _________
Producer Surplus = $ _________
Tax Revenues = $ _________
Deadweight Loss = $ _________

i. Make a graph of (some of) your data with Tax Rate on the horizontal axis and Tax Revenue on the vertical axis. What is the name of this curve?


#'s 2 – 8: Below, you are given the supply and demand curves, before any taxes, for (day long) horse back rides in Valley county, Montana. The city then decides to impose a tax, with the legal incidence on sellers, of $20 per (day long) ride.

2. How many horse back rides will be sold after the tax?
   a. 550  
   b. 450  
   c. 350  
   d. 250  
   e. none of the above

3. What is price will buyers be paying per horseback ride after the tax?
   a. $60  
   b. $55  
   c. $50  
   d. $45  
   e. none of the above

4. What is the $ amount, per ride, that sellers will get to keep after the tax?
   a. $60  
   b. $55  
   c. $50  
   d. $45  
   e. none of the above

5. What is the level of consumer surplus after the tax?
   a. $1,250  
   b. $2,625  
   c. $4,500  
   d. $6,875  
   e. none of the above

6. What is the level of producer surplus after the tax?
   a. $1,250  
   b. $2,625  
   c. $4,500  
   d. $6,875  
   e. none of the above

7. What is the level of deadweight loss after the tax?
   a. $500  
   b. $1,125  
   c. $2,000  
   d. $4,500  
   e. none of the above

8. What is the level of tax revenues generated by this tax?
   a. $3,500  
   b. $4,500  
   c. $7,000  
   d. $7,500  
   e. none of the above
Answer questions 9 – 10 based on the information in the table below. Assume you are the commissioner of a tax advisory board in the beautiful metropolis of Chugwater, Wyoming. You and your commission have been asked to place a 5% sales tax on one of the items listed below. The legal incidence of this tax will be on the seller.

<table>
<thead>
<tr>
<th>Good</th>
<th>Price (before tax)</th>
<th>Qty sold (before tax)</th>
<th>$E_D$</th>
<th>$E_s$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Licorice</td>
<td>$2.00/bag</td>
<td>10,000 bags</td>
<td>4.73</td>
<td>1.02</td>
</tr>
<tr>
<td>Limes</td>
<td>$2.00/lb</td>
<td>10,000 lbs.</td>
<td>2.67</td>
<td>1.06</td>
</tr>
<tr>
<td>Leather</td>
<td>$2.00/ft2</td>
<td>10,000 ft2</td>
<td>0.17</td>
<td>1.14</td>
</tr>
<tr>
<td>Lace</td>
<td>$2.00/sheet</td>
<td>10,000 sheets</td>
<td>0.91</td>
<td>1.10</td>
</tr>
</tbody>
</table>

9. A tax on which item will result in the **highest excess burden**?
   a. licorice  
   b. limes  
   c. leather  
   d. lace  
   e. more information is needed to answer this question.

10. A tax on which item will result in the **most revenue**?
    a. licorice  
    b. limes  
    c. leather  
    d. lace  
    e. more information is needed to answer this question.

10. It is 2004 and the Republican candidate for President, Senator Hutchinson, states; “Lowering income tax rates may increase tax revenues, or at the very least, will only cause tax revenues to fall a small amount.” Recently there have been several studies on labor demand and labor supply. Which study **most** supports her claim?
    a. The Roosevelt Institute Study: $E_{DLabor} = 1.28$, $E_{SLabor} = 0.64$
    b. The Coolidge Institute Study: $E_{DLabor} = 1.28$, $E_{SLabor} = 1.24$
    c. The Truman Institute Study: $E_{DLabor} = 0.69$, $E_{SLabor} = 0.64$
    d. The Wilson Institute Study: $E_{DLabor} = 0.69$, $E_{SLabor} = 1.24$

11. Who wrote the book *Progress and Poverty*?
    a. Lester Thurow  
    b. John Marshall  
    c. Henry George  
    d. Alfred Marshall  
    e. David Ricardo

12. What type of tax was advocated in the book *Progress and Poverty*?
    a. a tax on real property excluding the value of land (i.e. a tax on building)  
    b. a tax on newborn babies (paid by their parents)  
    c. a head tax (everyone pays the same amount regardless)  
    d. a tax on land (excluding the value of any property on that land)  
    e. a general sales tax on all items bought or sold

13. Which government has come to closest to imposing the kind of tax advocated in *Progress and Poverty*?
    a. Great Britain  
    b. the U.S. federal government  
    c. France  
    d. Santa Monica  
    e. Pittsburgh
14. Which of the following best illustrates a typical graph of *excess burden* as a function of the tax rate?

- [Graph a.](#)
- [Graph b.](#)
- [Graph c.](#)
- [Graph d.](#)
- [Graph e.](#)

15. Which of the following best illustrates a typical graph of *tax revenues* as a function of the tax rate?

- [Graph a.](#)
- [Graph b.](#)
- [Graph c.](#)
- [Graph d.](#)
- [Graph e.](#)
Key to “Other Problems” # 1

1. a. Below right you are given supply and demand curves for taxi cab rides from the Chugwater, Wyoming airport. Assume the government has no (i.e. $0) on this activity. Indicate the areas which are: Consumer Surplus, Producer Surplus, Tax Revenues, and Deadweight Loss. Also, fill in the blanks below left.

1a. No tax/unit

Consumer Surplus = $ 24,500
Producer Surplus = $ 24,500
Tax Revenues = $ 0
Deadweight Loss = $ 0.

Total: $ 49,000

b. Below right you are given the same supply and demand curves for taxi cab rides from the Chugwater, Wyoming airport. Assume the government has a $4/unit tax on this activity. Indicate the areas which are: Consumer Surplus, Producer Surplus, Tax Revenues, and Deadweight Loss. Also, fill in the blanks below left.

1b. tax = $4/unit

Consumer Surplus = $ 18,000
Producer Surplus = $ 18,000
Tax Revenues = $ 12,000
Deadweight Loss = $ 1,000.

Total: $ 49,000
c. Déjà vu. Below right you are given supply and demand curves for taxi cab rides from the Chugwater, Wyoming airport. Assume the government has a $8/unit tax on this activity. Indicate the areas which are: Consumer Surplus, Producer Surplus, Tax Revenues, and Deadweight Loss. Also, fill in the blanks below left.

1c. tax = $8/unit
Consumer Surplus = $12,500
Producer Surplus = $12,500
Tax Revenues = $20,000
Deadweight Loss = $4,000
Total: $49,000


d. Below right you are given a depiction, done by a (not quite) world famous impressionist artist, of the market for taxi cab rides from the Chugwater, Wyoming airport. Assume the government has a $12/unit tax on this activity. Indicate the areas which are: Consumer Surplus, Producer Surplus, Tax Revenues, and Deadweight Loss. Also, fill in the blanks below left.

1d. tax = $12/unit
Consumer Surplus = $8,000
Producer Surplus = $8,000
Tax Revenues = $24,000
Deadweight Loss = $9,000
Total: $49,000
e. Below right you are, not given, rather temporarily loaned, supply and demand curves for taxi cab rides from the Chugwater, Wyoming airport. Assume the government has a $16/unit tax on this activity. Indicate the areas which are: Consumer Surplus, Producer Surplus, Tax Revenues, and Deadweight Loss. Also, fill in the blanks below left.

1e. tax = $16/unit
Consumer Surplus = $ 4,500
Producer Surplus = $ 4,500
Tax Revenues = $ 24,000
Deadweight Loss = $ 16,000
Total: $ 49,000

f. Below right you are a pretty picture with deep meaning. Assume the government has a $20/unit tax on this activity. Indicate the areas which are: Consumer Surplus, Producer Surplus, Tax Revenues, and Deadweight Loss. Also, fill in the blanks below left.

1f. tax = $20/unit
Consumer Surplus = $ 2,000
Producer Surplus = $ 2,000
Tax Revenues = $ 20,000
Deadweight Loss = $ 25,000
Total: $49,000
g. Below right you are given supply and demand curves for ... Oh for the love of humanity!
Make it stop! Anyway, assume the government has a $24/unit tax on this activity. Indicate
the areas which are: Consumer Surplus, Producer Surplus, Tax Revenues, and Deadweight Loss. Also, fill in the blanks below left.

1g. tax = $24/unit
Consumer Surplus = $ 500
Producer Surplus = $ 500
Tax Revenues = $ 12,000
Deadweight Loss = $ 36,000.
Total: $ 49,000

h. And now for the grand finale! Assume the government has a $28/unit tax on this activity.
Indicate the areas which are: Consumer Surplus, Producer Surplus, Tax Revenues, and Deadweight Loss. Also, fill in the blanks below left.

1h. tax = $28/unit
Consumer Surplus = $ 0
Producer Surplus = $ 0
Tax Revenues = $ 0
Deadweight Loss = $ 49,000.
Total: $ 49,000

Yowza! We’ve taxed the market out of existence!

1i. You are on your own here.

2 – 15. You are on your own here.