Chapter 3 Review: Tools of Normative Analysis: John

Readings: Rosen: Chapter 3 all

Outline

I. Welfare economics
   A. Goals
   B. Other Standards
   C. A minimum (economic) standard:

II. The Edgeworth Box
   A. What is it?
   B. Example
   C. (Pareto) efficiency conditions

III. Can/Will This Happen?
   A. 1st Fundamental Theorem of Welfare Economics
   B. What about equity?
      1. Are pareto efficient outcomes always “fair”?
      2. 2nd Fundamental Theorem of Welfare Economics

IV. Modelling equity concerns: The social welfare function
   A. First: Utilities possibility curve
   B. Social indifference curves

V. Adding production
   A. The production possibilities curve
   B. More efficiency conditions
   C. Key points
   D. Producers
   E. Consumers

Discussion Questions (pp 48 - 49)
#’s 1, 2, 4, 5, 6

Practice Problems

1. • What is Pareto Efficiency?
   • Construct an Edgeworth Box. Explain what the box is and what any points or lines in the box are.
   • Using your Edgeworth Box, illustrate one or more situations that are not pareto efficient and explain why.
   • Illustrate one or more pareto efficient points and explain why they are pareto efficient. What conditions are necessary for pareto efficiency in an “Edgeworth Box world”.
• Pick a pareto efficient point in your Edgeworth box. Use it to illustrate why society may want more than just pareto efficiency.

• What aspects of the economy does an “Edgeworth Box world” ignore. You may have already answered this when you described the Edgeworth Box.

2. What are the economy wide efficiency conditions discussed in this course? Explain your terms or definitions.

• Explain why these conditions are considered efficient. You may wish to describe an inefficient situation and then contrast it with an efficient situation. You may use graphs in your answer but are not required to do so. Your answer, should, however, be relatively intuitive. Just cranking through the graphs and/or math is not enough.

• Will the private sector (i.e. markets) meet these efficiency requirements? If so, why and under what conditions?

3. The country of Volsvershaft has, after careful study, managed to satisfy all the conditions of the Fundamental Theorem of Welfare Economics. Yippee! The economy is pareto efficient! Is that the end of the story? Can there any room for improvement if the situation is pareto efficient?

4. A principles of economics text lists the following reasons/rationales for government intervention: 1) establish & enforce property rights

   2) deal with and prevent situations in which markets result in a lack of competition (i.e. conduct anti-trust policy)

   3) provide for public goods

   4) correct for externalities

   5) correct for asymmetric information and other information problems

   6) promote macroeconomic stability

   7) promote economic growth

   Yikes! The authors left one out. What major reason/rationale for government did the authors forget?

5. Billy has two Mr. Pareto Head dolls and no Mrs. Pareto Head dolls. Billy, has a strong fettish, however, for Mrs. Pareto Head dolls. Sally, Billy’s younger sister, has no dolls whatsoever but strongly desires Mr. Pareto head dolls. Is this situation pareto efficient?
6. Consider the following 2 good, 2 person, one pizza parlor world. The two people are Wilma (W) and Betty (B). The two goods are Pizza (P) and Soda (S).\(^1\) There is a fixed amount of each good (i.e. no production in this example). The two individuals have all the pizza and soda divvied up (i.e. there will be no unconsumed pizza or sodas), on their placemats and ready to eat. There are no externalities involved in the consumption of either good. Both people act competitively (i.e. there is no market power). Currently, the pizza and soda are divvied up such that, if each person eats what’s on her respective placemat, their marginal utilities are as follows:

\[
\text{MU}^W_{P} = 4 \quad \text{MU}^W_{S} = 2 \\
\text{MU}^B_{P} = 6 \quad \text{MU}^B_{S} = 3
\]

a) What is each person’s Marginal Rate of Substitution (MRS\(_{P,S}\))?

b) Is the current situation Pareto Efficient? Explain why this is. If there is not enough information to answer this situation, tell me what missing information you need and why you need it.

c) Illustrate the current situation with an Edgeworth box. Label as much as you can, including values. For instance, tell me what the slopes of the curves mean, as well as what they are at each person’s consumption point.

d) Assume there are zero transactions costs to trading. Assume Wilma and Betty each care only about their own utility, not the other person’s. What will Wilma and Betty tend to do? Why? Illustrate this with numbers. i.e. What’s happening to their MU’s, and MRS’s as they trade? Show this move (if there is a move) in your Edgeworth box.

7. Consider the following 2 good, 2 person, one whiskey joint world. The two people are Fred (F) and Barney (B). The two goods are Peanuts (P) and Whiskey (W).\(^2\) There is a fixed amount of each good (i.e. no production in this example). The two individuals have all the peanuts and whiskey divvied up (i.e. there will be no unconsumed peanuts or whiskey), on their placemats and ready to eat. There are no externalities involved in the consumption of either good. Both people act competitively (i.e. there is no market power). Currently, the peanuts and whiskey are divvied up such that, if each person eats what’s on his respective placemat, their marginal utilities are as follows:

\[
\text{MU}^F_{P} = 10 \quad \text{MU}^F_{W} = 8 \\
\text{MU}^B_{P} = 8 \quad \text{MU}^B_{W} = 4
\]

a) What is each person’s Marginal Rate of Substitution (MRS\(_{P,W}\))? 

b) Is the current situation Pareto Efficient? Explain why this is. If there is not enough information to answer this situation, tell me what missing information you need and why you need it.

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\(^1\) Or Coke (C) for you true southern folks.

\(^2\) Or Coke (C) for you true southern folks.
c) Illustrate the current situation with an Edgeworth box. Label as much as you can, including values. For instance, tell me what the slopes of the curves mean, as well as what they are at each person’s consumption point.

d) Assume there are zero transactions costs to trading. Assume Fred and Barney each care only about their own utility, not the other person’s. What will Fred and Barney tend to do? Why? Illustrate this with numbers. i.e. What’s happening to their MU’s, and MRS’s as they trade? Show this move (if there is a move) in your Edgeworth box.

8. Consider the following 2 good, 2 consumer, one producer world. Moe, the producer, makes Soda (S) and Moon Pies (P). Homer (H) is one consumer. Barney (B) is the other. (Moe ate at home so he is not a consumer for this one.) There are no externalities involved in the consumption of either good. Everyone, including Moe, acts competitively. Homer and Barney have placed their orders, but there is still time to change them. Money can be used for nothing other than to purchase soda or moon pies. Currently, the situation is such that, if each person eats what’s on his respective order, their marginal utilities are as follows:

\[
\begin{align*}
MU_{S}^{Homer} &= 10 & MU_{P}^{Homer} &= 20 \\
MU_{S}^{Barney} &= 8 & MU_{P}^{Barney} &= 16 \\
MC_{S} &= $1.00 & MC_{P} &= $1.50
\end{align*}
\]

a) What is each person’s Marginal Rate of Substitution \((MRS_{S,P})\)?

b) What is the producer’s (Moe’s) Marginal Rate of Technical Substitution \((MRTS_{S,P})\)?

c) Is the current situation allocatively efficient? Explain why this is. If there is not enough information to answer this situation, tell me what missing information you need and why you need it.

d) Is this situation (pareto) efficient when we consider Moe’s production costs and his ability to change production? Explain why this is. If there is not enough information to answer this situation, tell me what missing information you need and why you need it.

e) Assume Homer, Barney, and Moe each care only about their own utility, not any other person’s. What will our three heros tend to do? Why? Illustrate this with numbers. i.e. What’s happening to their MU’s, MRS’s, and the MRTS as they make the changes?

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3 Moe hasn’t read the monopoly chapter in his principles of economics text. He still acts competitively and still sets Price = MC.
9. Consider the following 2 good, 2 consumer, one producer world. Moe, the producer, makes Soda (S) and Moon Pies (P). Homer (H) is one consumer. Barney (B) is the other. (Moe ate at home so he is not a consumer for this one.) There are no externalities involved in the consumption of either good. Everyone, including Moe, acts competitively. Homer and Barney have placed their orders, but there is still time to change them. Money can be used for nothing other than to purchase soda or moon pies. Currently, the situation is such that, if each person eats what’s on his respective order, their marginal utilities are as follows:

<table>
<thead>
<tr>
<th>Good</th>
<th>MU_S Homer</th>
<th>MU_P Homer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soda</td>
<td>60</td>
<td>45</td>
</tr>
<tr>
<td>Moon Pies</td>
<td>24</td>
<td>18</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MC_S</th>
<th>$2.00</th>
</tr>
</thead>
</table>

a) What is each person’s Marginal Rate of Substitution \((MRS_{S,P})\)?

b) What is the producer’s (Moe’s) Marginal Rate of Technical Substitution \((MRTS_{S,P})\)?

c) Is the current situation allocatively efficient? Explain why this is. If there is not enough information to answer this situation, tell me what missing information you need and why you need it.

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