Student Problem Set

for Use with

The Economy Today
The Macro Economy Today
The Micro Economy Today

Ninth Edition

BRADLEY R. SCHILLER

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TO THE STUDENT

To really learn economics, you've got to work with some numbers, formulas, and graphs. The exercises in this Problem Set are designed for that purpose. Six to eight problems are assigned to each chapter. All of the problems require a little math or graphing. Oftentimes these draw on data from the tables, news boxes, or graphs contained in the textbook itself. They are designed to illustrate the core concepts of each chapter. Sometimes the answers aren't perfect integers—the answer might be "between 4 and 5," rather than exactly 4 or 5. That's the way the real world works. It *is* possible to produce 7.4 cars in a day, just as it is possible to finish half your homework in an evening. So don't be dismayed if the correct answers also look that way at times.

Your instructor has the answers to these problems. If your instructor doesn't *require* you to do these problems, you might want to do them for practice anyway and ask the instructor to give you the correct answers. If you find any problems to be "impossible," e-mail me directly at bschill@american.edu and I'll try to help.

Good luck with econ!

Brad Schiller

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Problems on the Core Issues of Economics

Name: _____

- Chapter 1 in *The Economy Today*

1. According to Table 1.1 (or Figure 1.1), what is the opportunity cost of the
   (*a*) Fourth shoe? _____
   (*b*) Fifth shoe? _____

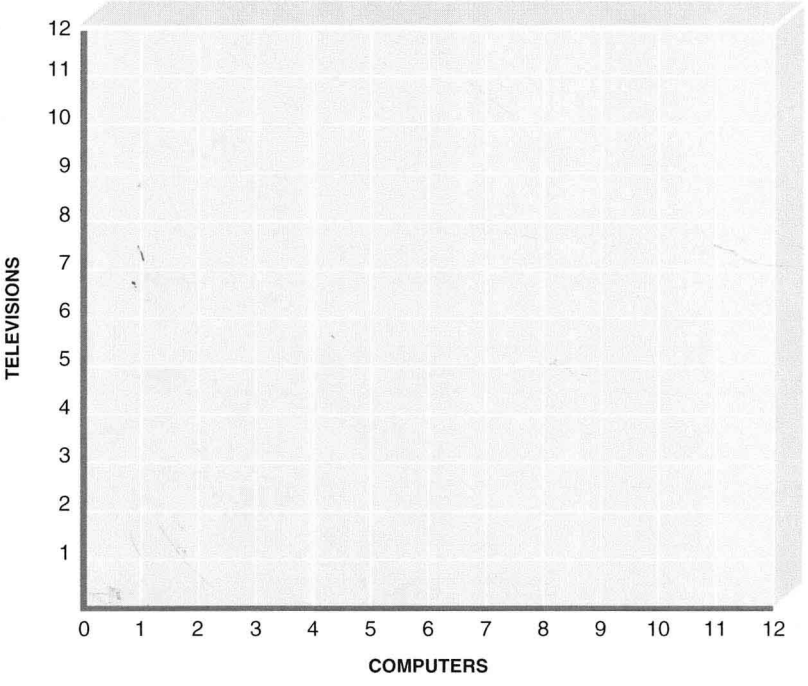
2. (*a*) According to Figure 1.2, what is the opportunity cost of North Korea's military force at point *N*? _____
   (*b*) How much of a peace dividend would North Korea get if it cut the military establishment from OD to OH? _____

3. How much of a peace dividend is generated in a $10 trillion economy when defense spending is cut from 3.5 percent to 3.0 percent of total output? _____

4. Suppose either computers or televisions can be assembled with the following labor inputs:

Units produced	1	2	3	4	5	6	7	8	9	10
Total labor used	3	7	12	18	25	33	42	54	70	90

   (*a*) Draw the production possibilities curve for an economy with 54 units of labor. Label it P54.
   (*b*) What is the opportunity cost of the eighth computer? _____
   (*c*) Suppose immigration brings in 36 more workers. Redraw the production possibilities curve to reflect this added labor. Label the new curve P90.
   (*d*) Suppose advancing technology (e.g., the miniaturization of electronic circuits) increases the productivity of the 90-labor workforce by 20 percent. Draw a third production possibilities curve (PT) to illustrate this change.



Problems on the Core Issues (cont'd)

Name: _____

5. Suppose there's a relationship of the following sort between study time and grades:

	(*a*)	(*b*)	(*c*)	(*d*)	(*e*)
Study time (hours per week)	0	2	6	12	20
Grade-point average	0	1.0	2.0	3.0	4.0

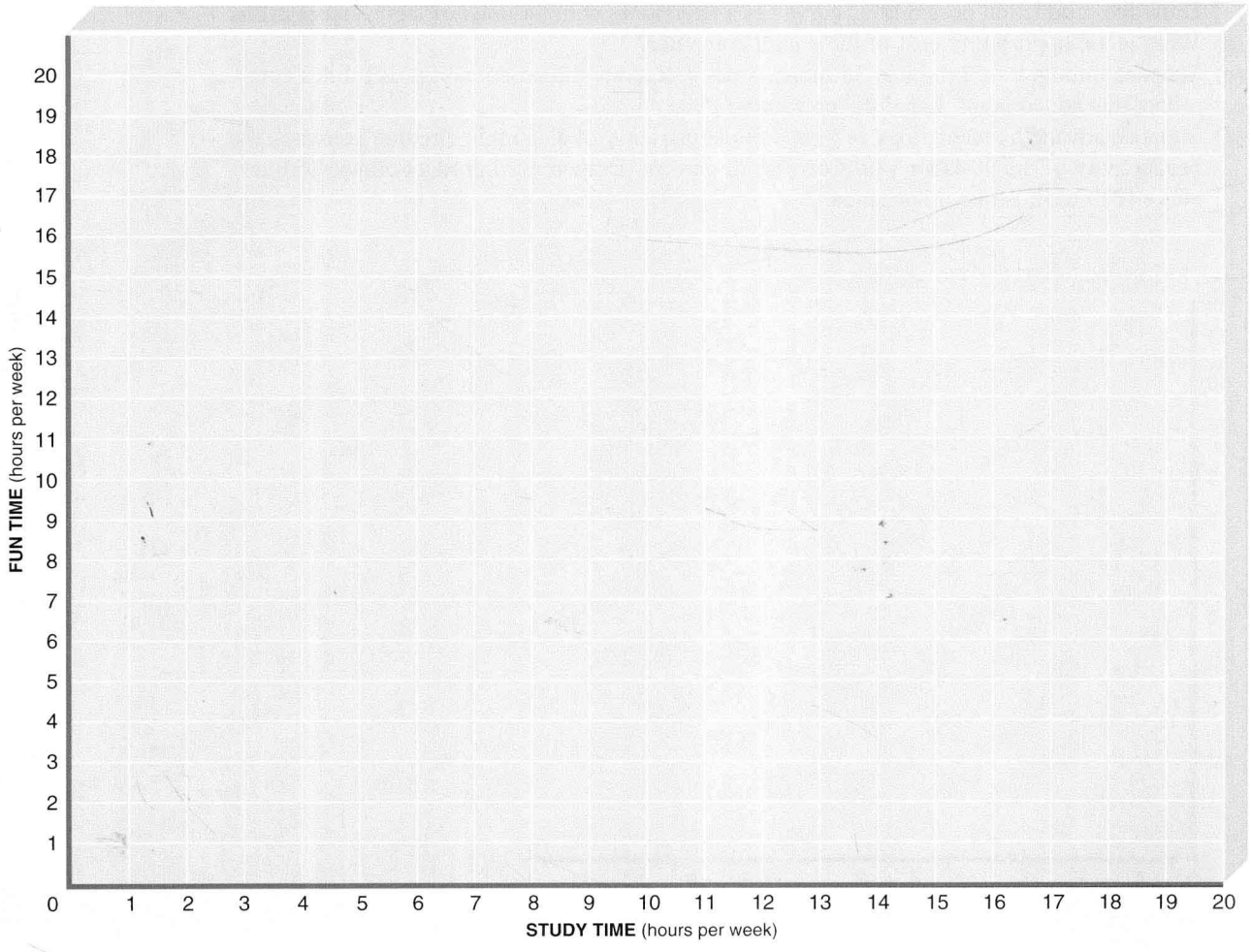
If you have only 20 hours per week to use for either study time or fun time,

(*a*) Draw the production possibilities curve on the graph below that represents the alternative uses of your time.

(*b*) What is the opportunity cost of raising your grade-point average from 2.0 to 3.0? Illustrate this effort on the graph (point *C* to point *B*). _____

(*c*) What is the opportunity cost of increasing your grades from 3.0 to 4.0? Illustrate as point *B* to point *A*. _____

(*d*) Why does the opportunity cost change? _____



Problems on the U.S. Economy

Name: _____

- Chapter 2 in *The Economy Today*

1. According to the World View on p. 28, what percentage of America's GDP per capita is available to the average citizen of
   (*a*) Mexico _____%
   (*b*) China _____%
   (*c*) Ethiopia _____%

2. If Haiti's per capita GDP of roughly $1,150 increases by an exceptionally fast 10 percent a year, what will its per capita GDP be in
   (*a*) 10 years? _____
   (*b*) 20 years? _____
   (*c*) How long would it take to attain the level of per capita GDP the United States now enjoys? _____

3. According to Table 2.1, how fast does total output have to grow in order to raise per capita GDP in
   (*a*) France? _____
   (*b*) Nigeria? _____

4. U.S. real gross domestic product increased from $3.8 trillion in 1980 to $4.8 trillion in 1990. During that same decade the share of durable goods (e.g., cars, appliances) fell from 18.5 percent to 17.0 percent. What was the value of durable-goods output
   (*a*) In 1980? _____
   (*b*) In 1990? _____
   (*c*) By how much did durable output change? _____

5. Using the data in Figure 2.6,
   (*a*) Compute the average income of U.S. households. _____
   (*b*) If all incomes were equalized by government taxes and transfer payments, how much would the average household in each income quintile gain (via transfers) or lose (via taxes)?
   (*i*) Lowest fifth _____
   (*ii*) Second fifth _____
   (*iii*) Third fifth _____
   (*iv*) Fourth fifth _____
   (*v*) Highest fifth _____
   (*c*) What is the implied tax rate on the highest quintile? _____

6. (Macro course only) Using the data from the endpapers of this book, complete the following table.

	Share of Total Output	
Sector	1950	2000
Consumption	_____	_____
Investment	_____	_____
Government purchases	_____	_____
Exports	_____	_____
Imports	_____	_____

   (*a*) Which sector share has increased the most? _____
   (*b*) Which sector share has decreased the most? _____

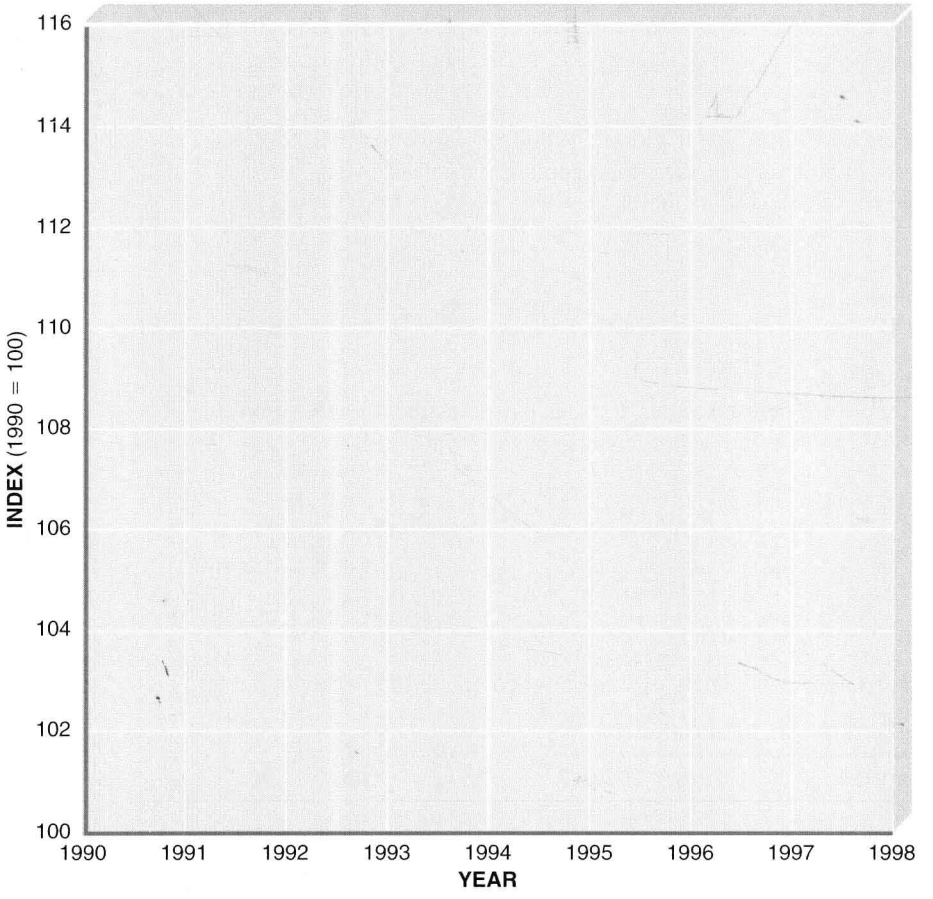
Problems on the U.S. Economy (cont'd)

Name: _____

7. For Macro course: Use the graph below to illustrate the trends since 1990 in
   (*a*) Real GDP
   (*b*) The civilian labor force
   or For Micro course:
   (*c*) Business sector output
   (*d*) Hours worked
   How can the difference in these trends be explained? _____

   _____

   (*Note:* To do this, use 1990 values as a base (=100), and divide values in later years by the 1990 value.)



Problems on Supply and Demand

Name: _____

- Chapter 3 in *The Economy Today*

1. According to Figure 3.3, at what price would Tom buy 15 hours of web tutoring?
   (*a*) Without a lottery win. _____
   (*b*) With a lottery win. _____

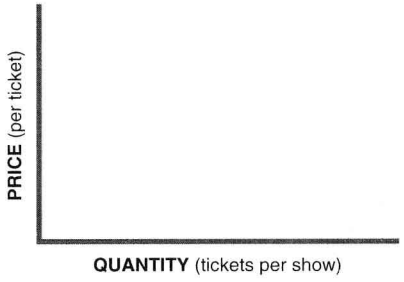
2. According to Figures 3.5 and 3.6, what would the new equilibrium price of web services be if Ann decided to stop offering web services? _____

3. Given the following data, identify the amount of shortage or surplus that would exist at a price of
   (*a*) $5.00 _____
   (*b*) $3.00 _____
   (*c*) $1.00 _____

A. Price	$5.00	$4.00	$3.00	$2.00	$1.00
B. Quantity demanded					
Al	1	2	3	4	5
Betsy	0	1	1	1	2
Casey	2	2	3	3	4
Daisy	1	3	4	4	6
Eddie	1	2	2	3	5
Market total	—	—	—	—	—

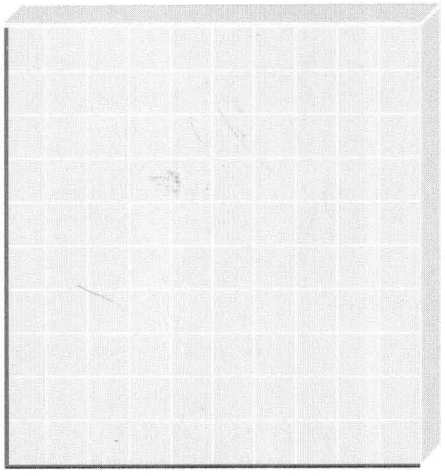
	$5.00	$4.00	$3.00	$2.00	$1.00
C. Quantity supplied					
Alice	3	3	3	3	3
Butch	7	5	4	4	2
Connie	6	4	3	3	1
Dutch	6	5	4	3	0
Ellen	4	2	2	2	1
Market total	—	—	—	—	—

4. Graph the official and equilibrium prices for the U2 rock concert (see News, page 60).

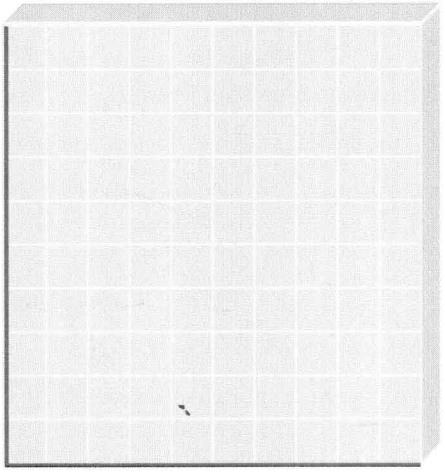


5. In the World View on page 63, menu prices are continuously adjusted. Graph the initial and final (adjusted) prices for the following situations. Be sure to label axes and graph completely.

(*a*) Customers are ordering too little haddock



(*b*) The kitchen is running out of beef ribs



Problems on Supply and Demand (cont'd)

Name: _____

6. In Figure 3.8, when a price ceiling is imposed, by how much does
   (*a*) The quantity of electricity demanded increase? _____
   (*b*) The quantity of electricity supplied decrease? _____
   (*c*) How large is the resulting shortage? _____

7. In the California electricity market (Figure 3.8), what was
   (*a*) The "old" equilibrium price?
   (*b*) The "new" equilibrium price?
   (*c*) Why was the price ceiling not a problem in 1996 but was a problem in 2001?

   _____

8. What is the relationship of Idaho power to California power? (circle one)
   (*a*) Complementary good (*b*) Substitute good
   Illustrate on the graphs below the impacts of a new California price ceiling (at P_c) on the California and Idaho electricity markets.
   (*c*) Which determinant of demand for Idaho electricity changed in this case? _____