Economics 104B

Solutions to Homework Assignment #1

Required Assignment #1
Textbook Questions
* denotes graded questions

Chapter 1, Problem 4*

The opportunity cost of taking this trip is $550 plus 8 hours of study time.
The opportunity cost is the highest-valued activity that you will give up by going
skiing for the weekend. In taking the trip, you'll forgo all the goods and services
that you could have bought with the income from your weekend job ($100) plus
your expenditure on travel and accommodation ($350), food ($40), and ski rental
($60). You'll also forgo 8 hours of study time.

Chapter 1, Web Exercise 3

a) Number of people employed in Missouri was 2722.8 (in thousands) in
November 2004.
b) Compared to last month, October, it has increased from 2716.0 to 2722.8.
c) Missouri's per capita income in 2000 was 27,445 in current dollars and 25,564
in 1996 dollars.

Chapter 1 Appendix, Problem 6

a. To make a graph that shows the relationship between x and y, plot x on the x-
axis and y on the y-axis. The relationship is negative because x and y move in
opposite directions: As x increases, y decreases.
b. The slope, in absolute terms, increases as x increases. Slope is equal to the
change in y divided by the change in x as we move along the curve. When x
increases from 1 to 2 (a change of 1), y decreases from 24 to 22 (a change of -2),
so the slope is -2. But when x increases from 4 to 5 (a change of 1), y decreases
from 8 to 0 (a change of -8), so the slope is -8. Hence the absolute value of the
slope increases, from 2 to 8 in this example.
c. The less expensive a good, the greater is the number of people who buy it. The
higher the interest rate, the smaller is the number of people who take out home
mortgages. The less expensive the gasoline, the greater the distance car owners
drive.

Chapter 1 Appendix, Problem 16*

a. The relationship is a set of curves, one for each different level of rainfall.
To draw a graph of the relationship between the price and the number of
umbrellas, keep the rainfall at 0 inches and plot the data in that column against the
price. The curve that you draw is the relationship between price and number of
umbrellas when the rainfall is 0 inches. Now repeat the exercise but keep the
rainfall at 1 inch. Then repeat the exercise but keep the rainfall at 2 inches.
b. The relationship is a set of curves, one for each different price.

To draw a graph of the relationship between the rainfall and the number of umbrellas, keep the price at $10.00 an umbrella and plot the data in that row against the rainfall. The curve shows the relationship between rainfall and the number of umbrellas when the price is $10.00 an umbrella. Now repeat the exercise but keep the price at $20.00 an umbrella. Repeat the exercise again and keep the price at $30.00 an umbrella and then at $40.00 an umbrella.
c. The relationship is a set of curves, one for each different number of umbrellas. To draw a graph of the relationship between the rainfall and price, keep the number of umbrellas at 7 and plot the data along the diagonal in the table. The curve is the relationship between rainfall and price at which 7 umbrellas are purchased. Now repeat the exercise and keep the number of umbrellas at 4. Repeat the exercise again and keep the number of umbrellas at 2 and then at 8.

Chapter 1 Appendix, Web Exercises 1*
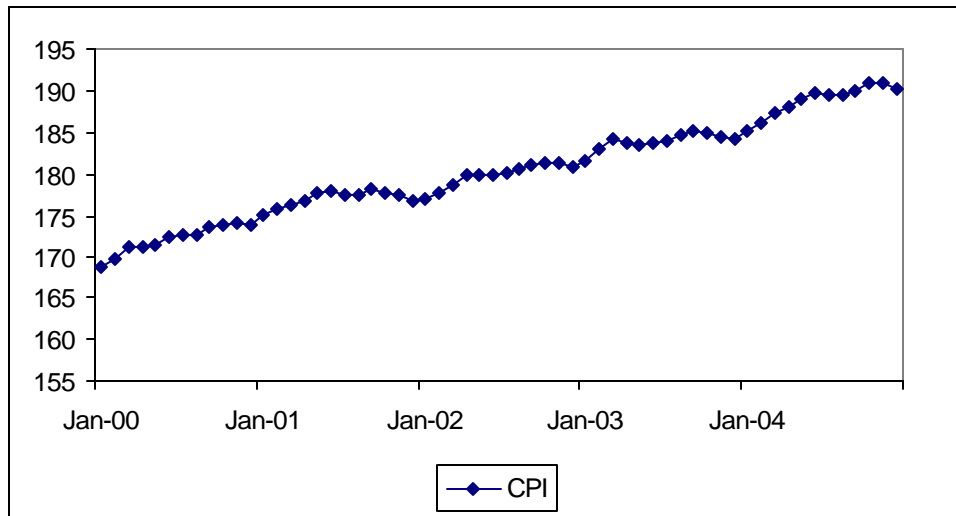
Compared to last month (November), CPI has fallen from 191 to 190.3 in December 2004. From 08/2004 to 10/2004 it increased at an increasing rate, between 10/2004 and 12/2004 it decreased at an increasing rate.

Chapter 1 Appendix, Web Exercises 2
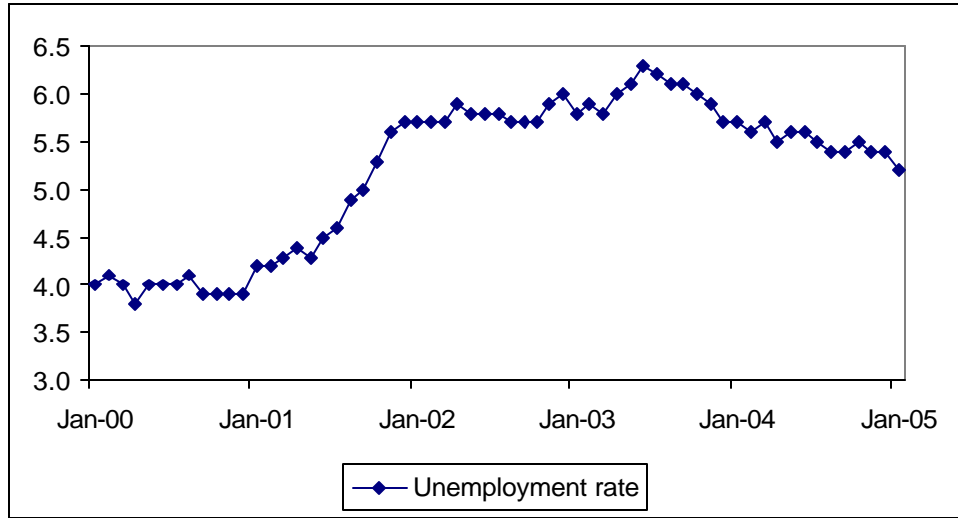
Between 11/2004 and 12/2004 unemployment rate remained unchanged at 5.4.
However it fell in Jan 2005, to 5.2. It has been falling slowly since its peak in
2003.

Chapter 1 Appendix, Web Exercises 4
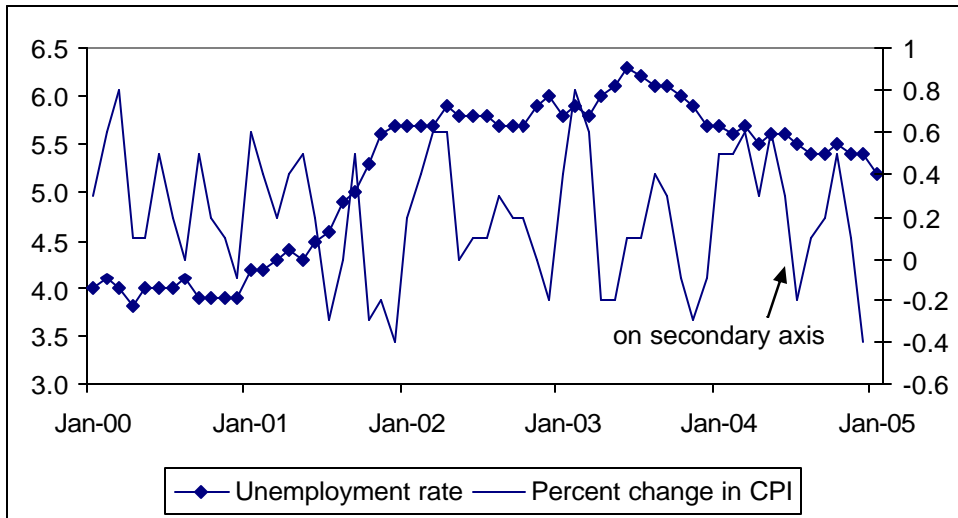
There is not much of a discernable relationship, although the average level of
inflation (percent change in CPI) appears to be a bit higher in the early period
when unemployment is lower.

Chapter 2, Problem 2

    a. Tina's opportunity cost of a day of skating is 1.5 percentage points.
When Tina increases the time she skis from 2 days to 4 days per month, her grade
in math falls from 85 percent to 82 percent. Her opportunity cost of 2 days of
skiing is 3 percentage points. So her opportunity cost of 1 day of skiing is 1.5
percentage points.
    b. Tina's opportunity cost of a day of skiing is 2.5 percentage points.

When Tina increases the time she skis from 4 days to 6 days per month, her grade in math falls from 82 percent to 77 percent. Her opportunity cost of 2 days of skiing is 5 percentage points. So her opportunity cost of 1 day of skiing is 2.5 percentage points.

Chapter 2, Problem 6*

a. Tina skis 4 days per month.

When Tina increases the time she skis from 0 to 2 days a month, her opportunity cost of one additional day of skiing is 1 percentage point. When Tina increases the time she skis from 2 to 4 days a month, her opportunity cost of one additional day of skiing is 1.5 percentage points. And when she increases the time she skis from 4 to 6 days a month, her opportunity cost of one additional day of skiing is 2.5 percentage points. Tina's opportunity cost of skiing increases as she spends more time skiing. Opportunity cost is plotted at the midpoint of the range. That is, the opportunity cost of one additional day is 1 percentage point at 1 day of skiing a month. The opportunity cost of one additional day is 1.5 percentage points at 3 days of skiing a month. And the opportunity cost of one additional day is 2.5 percentage points at 5 days of skiing a month. This curve is Tina's marginal cost of an additional day of skiing.

Tina uses her time efficiently if she skis for 4 days a month—marginal benefit from skiing equals its marginal cost. Tina's marginal benefit when she skies for 4 days a month is 2 percentage points and her marginal cost of the fourth day of skiing in the month is 2 percentage points. When Tina skis for 4 days a month, her grade in math (from her *PPF*) is 82 percent.

b. Tina will be worse off because the marginal cost of an additional day (fifth day) a month skiing exceeds her marginal benefit from skiing for a fifth day. Tina would be more efficient (better off) if she spent 4 days a month skiing and took a higher grade.

Chapter 3, Problem 2*

a. The price of a DVD player falls, and fewer DVD players will be sold.

A DVD is a complement of a DVD player. If the price of a DVD rises, fewer people will want to own a DVD player, so the demand for DVD players will decrease. With all other influences on the demand and supply of DVD players remaining the same, the price of a DVD player will fall. The quantity of DVD players bought will decrease.

b. The price of a DVD player rises, and more DVD players will be sold.

A DVD is a complement of a DVD player. If the price of a DVD falls, more people will want to own a DVD player, so the demand for DVD players will increase. With all other influences on the demand and supply of DVD players remaining the same, the price of a DVD player will rise. The quantity of DVD players bought will increase.

c. The price of a DVD player will fall, and the quantity of DVD players sold will increase.

If the supply of DVD players increases, the price of a DVD player will fall and the quantity bought will increase.

d. The price of a DVD player will fall, and fewer DVD players will be sold.
The decrease in consumers' incomes will decrease the demand for DVD players.
Other things remaining the same, the price of a DVD player will fall and fewer
DVD players will be bought.
e. The price of a DVD player will rise, and the quantity sold will decrease.
If the wage of workers who produce DVD players increases, the cost of producing
a DVD player increases and the supply of DVD players decreases. Other things
remaining the same, the price will rise, and people will buy fewer DVD players.
f. The price of a DVD player will rise, but the quantity might increase, decrease,
or remain the same.
A rise in the wage rate of the workers who make DVD players will decrease the
supply of DVD players. The fall in the price of a DVD will increase the demand
for DVD players. Taking the two events together, the decrease in supply and the
increase in demand will lead to a rise in the price of a DVD player. The quantity
bought might increase, decrease, or remain the same.