• Review Questions

Choose the letter that represents the **BEST** response.

Labor Economics: Some Basic Concepts

1. A unique feature of the labor market relative to standard product markets is
   a. individuals are the sellers, firms are the buyers.
   b. nonpecuniary characteristics play a larger role in labor market transactions.
   c. intense competition exists among the sellers.
   d. both **a** and **b**.

2. Feelings, emotions, personalities, and working conditions play an important role in labor market transactions because
   a. labor services cannot be separated from workers.
   b. people strive to make themselves as happy as they can.
   c. people are sometimes irrational.
   d. both **a** and **b**.

3. Which of the following is a statement associated with positive economic reasoning?
   a. Workers are entitled to a just wage.
   b. An increase in the payroll tax paid by firms will reduce wages and employment opportunities.
   c. Employers should be required to pay for health insurance for their employees.
   d. Professional athletes are overpaid.

4. Which of the following is a statement associated with normative economic reasoning?
   a. It is important that everyone who wants to attend college be able to do so.
   b. Holding all else constant, workers in more dangerous occupations earn more than those employed under safer conditions.
   c. Welfare programs can lead to reductions in work incentives.
   d. Subsidies given to firms that purchase new capital equipment will lead to an increase in employment.

5. Which of the following is a true statement about economic models?
   a. A model is deliberately abstract.
   b. A model accurately captures the all of the complexity of the real world.
   c. A model shows the thought process people go through when making decisions.
   d. A model must accurately predict behavior to be useful.

The Models and Predictions of Positive Economics

6. The goal often pursued in positive economic models of the labor market is
   a. utility maximization.
   b. profit maximization.
   c. income maximization.
   d. either **a** or **b**.

7. Positive economic models typically assume
   a. people cannot get everything they want and so must make choices.
   b. people undertake a particular course of action if the marginal benefits of that action outweigh the marginal costs.
   c. people are often inconsistent and inflexible when making their choices.
   d. both **a** and **b**.

8. Predictions of positive economic models are usually conditional on
   a. individuals caring only about themselves.
   b. the transactions being mutually beneficial.
   c. everything else being held constant.
   d. both **a** and **b**.

9. For a positive economic model to be useful, it must
   a. explain how people should behave.
   b. tend to predict how people behave on average.
   c. explain how people actually behave.
   d. apply to everyone.

Normative Economics

10. Normative economic statements
    a. must be based on the principle of mutually beneficial gain.
    b. are based on ethical principles or goals.
    c. relate to voluntary transactions only.
    d. both **b** and **c**.

11. A Pareto efficient outcome has been achieved when
    a. all mutually beneficial transactions have been made.
    b. it is impossible to make someone better off without making someone else worse off.
    c. at least one person can gain and no one else will lose.
    d. both **a** and **b**.

12. Which of the following is true about a Pareto efficient outcome?
    a. the outcome must have been purely voluntary.
    b. the outcome may not satisfy society's sense of fairness.
    c. the outcome is unique.
    d. Both **a** and **b**.

13. Policies that move two parties from one Pareto efficient outcome to another
    a. will make one of the parties worse off.
    b. are often influenced by the parties' initial endowment of resources.
    c. can be designed scientifically outside of the political system.
    d. both **a** and **b**.

14. Pareto efficient transactions may not occur because
    a. parties may not have all the relevant information.
    b. they may be against the law.
    c. the cost associated with completing the transaction may deter one or more of the parties.
    d. all of the above.

15. Government may help to bring about Pareto efficient outcomes by
    a. producing public goods.
    b. eliminating capital market imperfections.
    c. providing a way to substitute for market transactions.
    d. all of the above.

Statistical Testing of Labor Market Hypotheses (Appendix 1A)

16. Least squares regression assumes that
    a. the relationship between the independent variables is linear.
    b. the coefficients associated with the independent variables are greater than zero.
    c. a random error term accounts for any differences between the actual and predicted values of the dependent variable.
    d. all of the above.

17. One can be reasonably confident a relationship between an independent and a dependent variable has been found if
    a. the standard error of the estimated parameter is small.
    b. the standard error of the estimated parameter is less than half the value of the estimated parameter.
    c. the error term of the least squares regression is random.
    d. the *t*-statistic for the estimated parameter is about 0.5.

    In answering Questions **18** through **20**, please refer to the following information.

    Suppose that for a sample of 10,000 individuals, the relationship between annual hours supplied (H), the hourly wage rate in dollars (W), and the level of nonlabor income in dollars (V) (e.g., interest income, gifts, public assistance) was estimated by multiple regression to be

$$H_i = 1200 + 0.5W_i - 0.04V_i.$$
$$\quad\quad (225) \quad (0.2) \quad\quad (0.01)$$

    The subscript i refers to the ith household where $i = 1$ to 10,000. Standard errors of the estimated parameters are in parentheses.

18. The coefficient of –0.04 associated with the independent variable V means that
    a. on average, when a person's wage and nonlabor income both increase by $1, he wishes to work 0.04 hours less.
    b. on average, when a person's nonlabor income increases by $1, he wishes to work 0.04 hours less, holding all else constant.
    c. the true value of the parameter associated with the V variable is equal to zero.
    d. both **b** and **c**.

19. Comparing the size of the coefficient on the *W* variable and its standard error, one can conclude that
    a. the relationship between *H* and *W* has been estimated with reasonable precision.
    b. statistically, one can be confident that the true relationship between *H* and *W* is not zero.
    c. from an economic standpoint, the relationship between *H* and *W* is insensitive to changes in *W*.
    d. all of the above.

20. Suppose *W* and *V* are positively correlated (e.g., people with high wages save more and thus earn more interest income). What would happen if *V* were omitted from the multiple regression?
    a. The coefficient on *W* would become smaller.
    b. The coefficient on *W* would become larger.
    c. The standard error associated with the coefficient on *W* would become smaller.
    d. Both **b** and **c**.

• Problems

Labor Economics: Some Basic Concepts

21. The concept of a model is one of the most important concepts in economics. Helping the reader to understand and apply labor market models is the primary purpose of this book. Figure 1-1 is an example of a model, but in this case, it is a model of a human being.

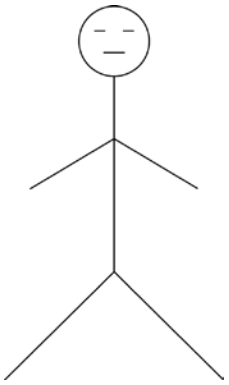

Figure 1-1

21a. What does it mean to call this drawing a model?

21b. What essential characteristics of a human being does it capture? What characteristics does it push into the background?

21c. Why do you think such a simple drawing was used to illustrate the concept of a model? Would a more realistic drawing make for a better model?

21d. Is this model a positive or normative model? Explain your reasoning.

22. Models of positive economics typically assert that people weigh costs and benefits in a consistent manner. That is, if the benefits of following a particular course of action exceed the costs, then that action will be taken, otherwise it will not.

Consider a worker who is told he can save $5 on his dental insurance premium of $50 if he goes to the company's personnel office and fills out a form. The whole process will take 30 minutes. Suppose the worker fills out the form.

A month later, the same worker is told that he can reduce his health insurance premium from $1,000 to $995 by taking 30 minutes to fill out a form in the personnel office. The worker declines the offer.

22a. Does the model of rational choice based on costs and benefits serve as a positive economic model for this person? If not, can you explain why the person might have acted as he did?

22b. When an economic model fails to predict behavior accurately, does that mean it is useless? What other purpose could the model serve?

Pareto Efficiency

23. Consider a labor market in which there are 10 firms and 10 workers. Each firm can hire only one of these workers. Each firm has a maximum it would be willing to pay the worker. It would like to hire its worker for as far below this maximum as possible, but if no other options exist, it will hire a worker at a wage equal to its maximum willingness to pay value. The maximum wage each firm is willing to pay is shown in Table 1-2.

Suppose that each worker in this market can work for only one firm. Each worker has a minimum wage that will just be acceptable. Any offer below this minimum will be rejected and the worker will not participate in the market. Each worker would like to be hired at a wage as much above the minimum acceptable wage as possible, but if no other options exist, will work at a wage just equal to this minimum. The minimum wage acceptable to each worker is also shown in Table 1-2.

Table 1-2

Firm #	Maximum Acceptable Wage ($)	Person #	Minimum Acceptable Wage ($)
1	520	1	240
2	500	2	260
3	480	3	280
4	460	4	300
5	440	5	320
6	420	6	340
7	400	7	360
8	380	8	380
9	360	9	400
10	340	10	420

23a. Suppose that the first 8 workers are hired by the first 8 firms and each worker is paid a wage of $380. Show why this is a Pareto efficient outcome.

23b. Concerned that workers will be exploited by firms, suppose that the government passes a law that prohibits deals below $480; that is, individuals and firms must contract for work at $480 or above. What will be the consequences of this law?

23c. Assuming the Pareto efficient outcome from **23a** would have emerged without government interference, which workers gain because of the law in **23b**? How much do they gain? Who loses because of the law? How much do they lose?

23d. Is it possible for the winners in **23c** to fully compensate the losers and still come out ahead? If not, how could such a law be justified?

23e. Now suppose that the maximum willingness to pay values in Table 1-2 represent values for a single firm that is the only buyer of labor. Also suppose that this firm is aware of each worker's minimum acceptable wage. In this situation, the firm could offer the first worker a wage of $240, and since the only other option would be not to work at all, the worker would accept. Similarly, the second worker could be offered a wage of $260 (the first would still earn $240) and he would accept. How many workers would be hired under this pay scheme?

23f. Is the answer to **23e** a Pareto efficient outcome? Is it an equitable outcome?

Statistical Testing of Labor Market Hypotheses (Appendix 1A)

24. Up until the 1970s economists believed there was a stable tradeoff between the unemployment rate and the rate of wage inflation. This relationship is known as the Phillips curve. To summarize briefly, the logic of the Phillips curve rests on two assertions. The first is that the general rate of change in wages is proportional to the amount by which the number of jobs exceeds the number of people looking for work on a percentage basis. For example, when the number of jobs exceeds the number of people willing to work by 10 percent, the wage is presumed to rise at a faster pace than when the number of jobs exceeds the number of people willing to work by only 5 percent.

    The second assertion is that the unemployment rate is inversely related (probably in a nonlinear way) to the percentage difference between the number of jobs and the number of people willing to work. As Chapter 15 will point out, even when the number of jobs and the number of people willing to work are equal, there will still be a small positive rate of unemployment. This rate should diminish (probably at a decreasing rate) as jobs become more plentiful relative to the supply of workers. On the other hand, as the number of jobs falls below the number of workers, the unemployment rate will rise.

    The result of these two assertions is that the rate of wage inflation will be inversely related (probably in a nonlinear way) to the unemployment rate. By the 1970s economists began to realize that there were also a number of other factors that could change over time and cause the terms of the entire tradeoff to either worsen or improve. In other words, a stable tradeoff exists only at a particular point in time. The difficulties a shifting tradeoff can cause for economists wishing to empirically measure the Phillips curve are explored in the problems below.

24a. Plot the 1960–69 data in Table 1-3 with the unemployment rate on the horizontal axis and wage inflation on the vertical axis.

24b. Fitting a linear equation to the data for 1960–69 using the least squares regression technique yields

$$\%\Delta W_t = 9.2 - 1.1 UR_t,$$
$$(1.21)\ \ (0.25)$$

    where $\%\Delta W_t$ refers to the wage inflation for any year t, and UR_t refers to the unemployment rate for any year t. The standard errors of the estimated parameters (the vertical intercept and the slope) are in parentheses. Add this line to the graph produced in Question **24a**.

Table 1-3 contains the annual unemployment rate and rate of wage inflation experienced by the U.S. economy each year over the period 1960–79.

Table 1-3

Year	Unemployment Rate (%)	Rate of Wage Inflation (%)
1960	5. 4	3. 4
1961	6. 5	3. 0
1962	5. 4	3. 4
1963	5. 5	2. 8
1964	5. 0	2. 8
1965	4. 4	3. 6
1966	3. 7	4. 3
1967	3. 7	5. 0
1968	3. 5	6. 1
1969	3. 4	6. 7
1970	4. 8	6. 6
1971	5. 8	7. 2
1972	5. 5	6. 2
1973	4. 8	6. 2
1974	5. 5	8. 0
1975	8. 3	8. 4
1976	7. 6	7. 2
1977	6. 9	7. 6
1978	6. 0	8. 1
1979	5. 8	8. 0

Source: *Economic Report of the President: 1989*, Table B-39 (p. 352) and Table B-44 (p. 358).

*24c. Assess how well this line fits the data. For each of the years 1960–69, find the difference between the actual level of wage inflation and the level predicted by the regression line (these differences are called residuals). Make a plot where the unemployment rate is on the horizontal axis and the corresponding residual value is on the vertical axis.

*24d. Do the residuals plotted in **24c** seem to be the result of just random errors? Is there a curve other than a straight line that could fit this data a little better?

*24e. To capture the nonlinearities suggested by the plot of the data and the residuals from the linear regression line, the rate of wage inflation was regressed on the reciprocal of the unemployment rate (since the reciprocal function decreases at a decreasing rate). The least squares technique yielded the following relationship.

$$\%\Delta W_t = -1.43 + 24.6 \left(\frac{1}{UR_t}\right)$$
$$(0.98)\ \ (4.25)$$

Add a plot of this line to the graph created in **24a** and **24b**.

*24f. Compute the residual errors using the nonlinear relationship estimated above. Plot the new residuals (using different symbols) on your previous residual plot. Where has the fit of the line improved most?

24g. Create a graph where all of the data in Table 1-3 are plotted with unemployment on the horizontal axis and wage inflation on the vertical axis. Use one symbol to denote data from the period 1960–69 and a different one to denote data from the period 1970–79.

24h. Since the data from the 1970s generally seem to follow a different pattern than the 1960s data, suppose we define a variable $D70$ such that $D70 = 1$ if the data come from the period 1970–79, otherwise it takes on a value of zero. Adding this variable to the basic linear model yielded the following least squares estimates:

$$\%\Delta W_t = \underset{(1.17)}{5.4} - \underset{(0.24)}{0.28}\ UR_t + \underset{(0.61)}{3.7}\ D70_t.$$

Plot the estimated line implied by this equation for the 1960s data on the graph from **24g**. Do the same for the 1970s data.

24i. If a researcher assumed that the tradeoff between unemployment and wage inflation was the same during the 1960s and 1970s, then the variable $D70$ would be omitted and linear least squares regression yields the equation

$$\%\Delta W_t = \underset{(1.86)}{2.9} + \underset{(0.34)}{0.53}\ UR_t.$$

Add a plot of this line to the graph from **24h**. Why does the omission of the $D70$ variable make such a difference in the estimated line? Does omitting an independent variable from a regression equation always make such a difference?

*24j. The equation estimated in Question **24h** assumed that the position of the entire curve shifted during the 1970s but that the slope remained the same. Write the equation that would be estimated if both the position and slope of the curve were allowed to change.