

**SPRING 1999****Labor Economics Comprehensive Exam****Masters/Polachek****PART I** 90 minutes

## The Literature

- A. Explain as briefly as you can (hopefully in one sentence) the main contribution of five of the following ten articles:
- a. R.E. Hall, "Importance of Lifetime Work in the U.S. Economy," *AER*, September, 1982
  - b. Yoram Ben-Porath, "The Production of Human Capital over the Life Cycle," *JPE*, July/August 1967
  - c. Isaac Ehrlich and Chuma Hiroiyuki, "A Model of the Demand for Longevity and the Value of Life Extension," *JPE*, August, 1990
  - d. K. Murphy and Finis Welch, "Empirical Age-Earnings Profiles," *JOLE*, 1990, 8
  - e. David Card and Alan Krueger, "School Quality and Black-White Relative Wages: A Direct Assessment," *OJE*, February, 1992
  - f. J. Heckman, "Sample Bias as a Specification Error," *Econometrica*, 1979
  - g. Orley Ashenfelter and Alan Krueger, "Estimates of the Economic Return to Schooling from a New Sample of Twins," *AER*, December, 1994
  - h. Solomon Polachek, "Occupational Segregation Among Women: A Human Capital Approach," *R.E. STAT.*, March, 1981
  - i. R. Gibbons and H. Katz, "Layoffs and Lemons," *JOLE*, October, 1991
  - j. E. Lazear and S. Rosen, "Rank-Order Tournaments as Optimum Labor Contracts," *JPE*, October, 1981

B. Answer three of the following six questions about the literature as briefly as possible (at most a few sentences):

1. Why does Paula England claim that Human Capital Theory fails to explain occupational segregation?
2. How do Polachek and Horwath explain migration periodicity?
3. How do Carl Shapiro and Joseph Stiglitz explain the existence of “equilibrium of unemployment” in the labor market?
4. How does Jacob Mincer measure earnings function concavity?
5. How does Edward Lazear justify mandatory retirement?
6. How do Raff and Summers explain why the Ford Motor company began to pay the very high wage of \$5/day in 1914?

**Part II** 90 minutes

Answer three of the following five questions:

1. Briefly discuss how the standard theory of labor supply can be used to examine the effects of
  - a. An increase in a fixed per capita tax
  - b. An increase in a proportional income tax
  - c. A shift from a proportional to a progressive income tax, holding tax revenue constant
  - d. An increase in the overtime premium from 50 to 100%
  - e. A temporary versus a permanent increase in the wage rate.
- 2A. Discuss the theory of compensating differences as it relates to occupational health and safety. Evaluate the relevance of this theory for the issue of
  - a. Whether there is any role for government regulation of occupational health and safety.
  - b. If there is any such role, what that role might be.
- B. Do arguments change in any significant way if minimum wage legislation and unions play important roles in the labor market? Explain

- 3A. Discuss changes in earnings inequality in the United States over the past twenty five years. Which aspects of inequality have increased and which have decreased?
- B. What are the most plausible explanations for these changes? Why?
- 4A. Why do large firms pay higher wage rates than smaller ones? Discuss the empirical evidence for or against the various hypotheses that have been advanced to explain this finding.
- B. Would you expect inequality by race and gender to have any relation to firm size? Explain.
- 5A. What are the Hicks-Marshall laws of derived demand?
- B. Discuss the relevance of these laws for union bargaining power.
- C. Discuss how your answers above can help explain
- i. The rise of national unions in the United States in the late 19<sup>th</sup> century and early 20<sup>th</sup> century.
  - ii. The decline of unions in the United States in the late 19<sup>th</sup> century.

**Part III** 60 minutes

Answer 2 of the following 6 as rigorously as you can:

1. (a) Why do McDonald-Solow and others claim that union wage settlements are often “off” the demand curve?
 

(b) Prove that firm isoprofit curves peak along the firm's labor demand curve.
2. (a) Distinguish between the Stigler search model and sequential search models.
 

(b) Prove that in the Stigler search model search duration increases with dispersion of the wage offer distribution. You may choose as simple a wage offer distribution as you want.
3. Prove that workers expecting to drop out of the labor market (for more than minuscule time periods) will choose jobs with the lower “atrophy” rates.

4. Assume the following notation:

$i(t)$  = the proportion of one's available time spent seeking information about wages,

$\dot{\ell}(t)$  = a measure of the extent to which one moves (migrates) in period  $t$ ,

$W(t)$  = one's wage (rental rate per unit of human capital) at time  $t$ , and

$I(t)$  = one's stock of information in period  $t$ .

Assuming one is an income maximizer, his objective function is:

$$\text{Max}_{i, \dot{\ell}} \int_0^T [1-i(t)] W - C(\dot{\ell}) dt$$

subject to:

$$(a) \dot{I} = i^\alpha - \beta \dot{\ell}$$

$$(b) \dot{W} = I \dot{\ell}$$

where

$$\dot{I} = dI/dt,$$

$$\dot{W} = dW/dt,$$

$C(\dot{\ell})$  = the direct cost of migration,  
and  $\alpha, \beta$  are positive parameters less than one in value.

- A. Write out the Hamiltonian and first-order conditions for the decision to migrate.
- B. Interpret the first-order conditions.

5. Contrast the Mincer-Polachek (Journal of Political Economy, 1974) and the Polachek (International Economic Review, 1975) or Goldin-Polachek (American Economic Review, 1987) approaches to measuring the "explained" male-female wage gap? Be as rigorous as you can in answering the question.

6. (a) Assume a corporate vice-president currently earning  $w_0$  vies to become president of the corporation at a wage  $w_1$ . This vice-president can put out more effort ( $e$ ) at a cost of  $D(e)$  such that  $D(e) = e^2$ . The probability of succeeding is  $P(e) = a e$  indicating that success is proportional to effort. Prove that holding  $w_0$  constant, effort expended to become corporate president increases with  $w_1$ .
- (b) What empirical evidence is there that effort expended is positively related to wage gain? Cite specific studies.