

Economics 261A
Labor Economics I:
Time Allocation, Human Capital, and the Family

1. Course Description

This is the first course in a three-course sequence in graduate labor economics. I will cover the following topics: (a) models of labor supply and time allocation; (b) models of human capital investment, education and the earnings function, with special attention to the models of self-selection; and (c) models of family and household formation and familial resource allocation decisions. In the subsequent courses in the graduate labor economics sequence, you will cover additional topics, including labor demand, labor market equilibrium and wage determination, compensating wage differentials, and many more. As a field, modern labor economics has drawn on neoclassical economic theory—of the consumer and firm, as well as the theory of compensating differentials—to guide its investigations, has been decidedly empirical, and has been the “proving grounds” for many advances in econometric methods. Modern labor economics has spawned a number of theoretical and econometric advances that have had impacts on research in other fields within economics and in other disciplines.

This course is not designed to provide a comprehensive survey of any of the areas that I cover. Rather, my treatment will place a good deal of emphasis on modeling and econometric methods. While not as thoroughly, we also will examine the empirical validity of many of the models we consider. Finally, in my lectures, I will focus on only a subset of papers the papers on my reading list or that we could cover. In addition to focusing on these papers, I will try to give you a sense of how these papers fit into the broader literature in the field and how they relate to other work that we will not be able to cover in class.

2. Lectures and Classroom Discussion

The course will be a mixture of straight lecture and student participation. I will introduce topics and some of the main modeling and estimation issues. I will also pick out papers that I will ask *all* students to read carefully and be prepared to discuss in class. For each paper that we discuss, I want students to be prepared to address the following questions (as they are applicable) about the particular paper:

1. What is the question or issues that this paper is seeking to address? That is, what questions or puzzles motivate the paper?
2. What is the background for the paper? That is, how does it relate to previous literatures?
3. What theoretical model or framework is being used in the paper? (Be prepared to provide a summary of the model.)
 - a) Does the model make sense? That is, does it seem to account for the behavior under investigation?

- b) Is it internally consistent?
- c) Does the model discriminate itself from other explanations of observed phenomena?
- 4. What econometric approach is used in the paper (if applicable)?
 - a) What is the author trying to estimate and/or what hypotheses are being tested?
 - b) How does the author(s) obtain identification of the effects of interest?
 - c) What econometric methods are being used in estimation?
 - d) Do the methods being used seem appropriate?
 - e) Are the methods robust to the intrusion of various types of biases?
- 5. What conclusions, theoretical or empirical, does the author(s) reach?
 - a) Do they make sense?
 - b) Are they convincing and robust ones?
 - c) Does the author(s) draw the correct inferences from their work?
- 6. If you were writing the paper, what would you do differently?
- 7. What extensions, alternative modeling or estimation do you think make sense?

During these discussions, I will call on students and expect them to carry the discussion of these questions for a paper (or papers). This means that *all* students need to prepare *all* papers. The above discussion questions are reproduced on the course website.

3. Course Website

I have established a website for the course. It's URL is:

<http://www.econ.ucla.edu/hotz/e261a>

You can obtain the following materials from the website: (a) this syllabus, and its updates; (b) the Schedule for the Lectures; (c) the Study Questions provided above; (d) Some of the course readings and/or their location on the web; (e) materials and schedule for those students planning to take the Labor Comps. I will be updating the website throughout the course, so please check it frequently.

4. Course Grading

A student's grade in this course will be based their participation in class and on a final exam. Currently, the final exam is scheduled for *Wednesday, December 15, 1999*. All students who want credit for the course must take the final exam.

5. Students Planning to have Labor Economics as One of their Fields

There are two requirements for a student who plans to have Labor Economics as one of their fields. First, the student must take EC 261A, EC 261B and EC 261C and to obtain at least an A- in each course. Second, the student must write, submit and present an original research paper on a topic in labor or an approved topic to the Labor Economics Faculty Comprehensive Committee (Currie, Devereux, and Hotz). In preparing the paper, students must complete each of several

steps throughout the 1999-2000 academic year. These steps, and their deadlines, are described in a write-up on a website for the Labor Economics Comps. The URL for this website is:

<http://www.econ.ucla.edu/hotz/labcomp>

Please make sure you check this website and obtain the information and schedule related to the preparation of the paper.

6. My Office Hours

My office is Bunche 8276, my email address is hotz@ucla.edu and telephone number is 310-647-6617. My office hours will be on *Tuesdays* from *1:30-3:30 p.m.* If you need to see me at other times, please contact my administrative assistant, Ms. Gwen Matthews, at gknm@ucla.edu or at 310-206-4898 to make an appointment.

7. Lecture Schedule and Readings:

The following is schedule of the topics to be considered and the readings that students should prepare before each lecture. I will attempt to maintain this schedule; if I deviate from it, I will inform the students in class and try to revise the “Schedule of Lectures” on the course website

Schedule of Lectures and Assigned Readings

Date	Topic	Readings*
Labor Supply and Time Allocation Models		
Mon., Oct. 4	Labor Facts & Trends; Static Lab. Supply & Time Allocation Models	Pencavel (1986); Killingsworth and Heckman (1986); Blundell and MaCurdy (1999); Heckman (1993)
Wed., Oct. 6	Static Labor Supply Model; Estimation of Static Labor Supply Models	Goldin (1994); Blundell & MaCurdy (1999); Heckman (1974); Becker (1965); Gronau (1977)
Mon., Oct. 11	Estimation of Static Labor Supply Models	Heckman (1974); Becker (1965); Gronau (1977); Heckman (1979); Moffitt (1990)
Wed., Oct. 13	Static Labor Supply: Empirical Evidence	Heckman (1974); Heckman (1979); Moffitt (1990); Pencavel (1986); Killingsworth and Heckman (1986)
		Ashenfelter & Heckman (1974); Mroz (1987); Ashenfelter & Plant (1990); Lemieux, Fortin, & Fréchet (1994); Jacoby (1993)
Mon., Oct. 18	No Class	
Wed., Oct. 20	Dynamic Labor Supply Models	MaCurdy (1981); Heckman and MaCurdy (1980); Browning, Deaton & Irish (1985)
Mon., Oct. 25	Econometric Issues in Estimating Dynamic Labor Supply Models	MaCurdy (1981); Heckman & MaCurdy (1980); Blundell & MaCurdy (1999)
Wed., Oct. 27	No Class	
Human Capital Models		
Mon., Nov. 1	Empirical Evidence on Dynamic Labor Supply Models	Rosen (1977); Weiss (1986); Willis (1986); Card (1999)
Wed., Nov. 3	Human Capital Investments, Schooling and Earnings Models	Heckman (1993); Card (1994); Blundell & MaCurdy (1999)
		Mincer (1974); Ben-Porath (1976); Rosen (1977)

Date	Topic	Readings*
<i>Sat., Nov. 6**</i>	Estimating Returns to Schooling: IV Methods	Card (1999); Angrist & Krueger (1991); Kane, Rouse & Staiger (1998)
Mon., Nov. 8	Estimating Returns to Schooling: Using Siblings and Twins	Card (1999); Griliches (1977); Griliches (1979); Ashenfelter & Krueger (1994); Ashenfelter & Zimmerman (1997)
Wed., Nov. 10	Estimating Effects of School Quality on Earnings and Achievement	Card & Krueger (1992); Heckman, Layne-Farrar & Todd (1996); Krueger (1999)
Mon., Nov. 15	No Class	
Wed., Nov. 17	The Roy Model: The Theory of Self-Selection	Roy (1951); Maddala (1983); Willis (1986); Neal and Rosen (1999)
Mon., Nov. 22	The Roy Model: The Theory of Self-Selection	Roy (1951); Maddala (1997); Willis (1986); Neal and Rosen (1999)
Wed., Nov. 24	The Roy Model: Applications	Borjas (1987); Willis & Rosen (1979); Heckman & Sedlacek (1997); Siow (1984)
<i>Economics of Family Formation and Decision-Making</i>		
Mon., Nov. 29	Economic Models of Fertility	Hotz, Klerman, & Willis (1997); Schultz (1997); Bergstrom (1997)
Wed., Dec. 1	Economic Models of Fertility	Hotz, Klerman, & Willis (1997); Becker (1960); Willis (1973); Becker and Lewis (1973)
<i>Sat., Dec. 4**</i>	Out-of-Wedlock and Teenage Childbearing	Hotz, Klerman, & Willis (1997); Hotz and Miller (1988); Wolpin (1984)
Mon., Dec. 6	Economics of Marriage	Willis (1999); Hotz, McElroy & Sanders (1997)
		Weiss (1997); Becker (1973, 1974); Becker, Landes, & Michael (197); Lundberg & Pollak (1996); Thomas (1990)
Wed., Dec. 8	Economic Theories of the Family	Willis (1987); Becker (1991); Bergstrom (1989); Chiapori (1988, 1992); Hao, Hotz and Jin (1999)
Wed., Dec. 15	<i>Final Exam</i>	

*All assigned readings should be read before the lecture. I will inform you of which readings students should be prepared to discuss in class. While not all of the readings will be covered in the Lectures (or discussion), *all* of them will be “fair game” for the final exam.

**Make-up classes, to be held 1 p.m. – 3 p.m.; Room to be announced.

Readings to be Covered in Class and on Final Exam

* Denotes required readings

[C] Indicates that reading is available on EC 261A Course Website

[N] Indicates that reading is available at NBER website [www.nber.org]

[J] Indicates that reading is available at JSTOR website [www.jstor.org]

Readings with no designation must be obtained from the library.

1. The Supply of Labor

1.1 Survey Papers

*Blundell, R. and T. MaCurdy (1999), "Labor Supply: A Review of Alternative Approaches," in *Handbook of Labor Economics*, Vol. 3A, 1999, 1560-1695. [C]

*Heckman, J. (1993), "What Have We Learned about Labor Supply in the Last 25 Years?" *American Economic Review*, 83(2), May, 116-121. [J]

*Killingsworth, M. and J. Heckman, (1986), "Labor Supply of Women," in Ashenfelter and Layard (eds.) *Handbook of Labor Economics*, Vol. 1, 1986. [C]

*Pencavel, J. (1986), "Labor Supply of Men: A Survey," in *The Handbook of Labor Economics*, Vol. 1, 1986. [C]

Angrist, J. and A. Krueger (1999), "Empirical Strategies in Labor Economics," in *The Handbook of Labor Economics*, Vol. 3A, 1999, Section 3. [C]

Gronau, R., "Home Production—A Survey," in O. Ashenfelter and R. Layard, eds., *The Handbook of Labor Economics*, Volume I, Amsterdam: North-Holland, 1986.

1.2 Empirical Facts about and Trends in Labor Force Participation and Hours of Work

*Blundell, R. and T. MaCurdy (1999), "Labor Supply: A Review of Alternative Approaches," in *Handbook of Labor Economics*, Vol. 3A, 1999, Section 3. [C]

*Goldin, C. (1994), "Labor Markets in the Twentieth Century," NBER Historical Paper No. 58, June 1994. [N]

1.3 The Static Labor Supply Model: The Basic Theory and Econometrics

*Becker, G. (1965), "A Theory of the Allocation of Time," *Economic Journal*, 75:493-517. [J]

*Gronau, R. (1977), "Leisure, Home Production, and Work—The Theory of Allocation of Time Revisited," *Journal of Political Economy* 85, 1977, 1099-1123. [J]

*Heckman, J. (1974), "Shadow Prices, Market Wages, and Labor Supply." *Econometrica*, July 1974. [J]

*Heckman, J. (1979), "Sample Selection Bias as a Specification Error." *Econometrica*, 47, 1979, 153-162. [J]

*Moffitt, R., (1990), "The Econometrics of Kinked Budget Constraints," *Journal of Economic Perspectives*, 4(2), Spring 1990, pp. 119-139. [J]

Heckman, J. (1974), "Effects of Child-Care Programs on Women's Work Effort," *Journal of Political Economy*, 82, S136-S163. [J]

Killingsworth, M. (1983), *Labor Supply*. Cambridge University Press, 1983, Chapters 3 and 4.

1.4 The Static Labor Supply Model: Empirical Applications

*Ashenfelter, O and M. Plant (1994), "Non-Parametric Estimates of the Labor Supply Effects of Negative Income Tax Programs," *Journal of Labor Economics* 8(1), part 2. [C]

*Ashenfelter, O. and J. Heckman (1974), "The Estimation of Income and Substitution Effects in a Model of Family Labor Supply," *Econometrica*, 42(1), January, 73-86. [J]

*Jacoby, H. (1993), "Shadow Prices and Peasant Family Labour Supply: An Econometric Application to the Peruvian Sierra," *Review of Economic Studies*, 60(4), October, 903-21. [J]

*Lemieux, T., B. Fortin, and P. Fréchet (1994), "The Effect of Taxes on Labor Supply in the Underground Economy," *American Economic Review*, 84, 231-254. [C]

*Mroz, Thomas (1987), "The Sensitivity of an Empirical Model of Married Women's Hours of Work to Economic and Statistical Assumptions." *Econometrica*, 55(4): 765-799. [J]

Blundell, R., A. Duncan, and C. Meghir (1998), "Estimation of Labour Supply Responses using Tax Policy Reforms," *Econometrica*, 66(4), 827-61. [C]

Cogan, J. (1981), "Fixed Costs and Labor Supply." *Econometrica*, 49(4), 945-963. [J]

Eissa, N. (1996), "Labor Supply and the Economic Recovery Tax Act of 1981," in *Empirical foundations of household taxation*, M. Feldstein and J. Poterba, eds., University of Chicago Press, 5-32. See also Comment by J. Heckman, same volume.

Hausman, J. A. (1980), "The Effect of Wages, Taxes, and Fixed Costs on Women's Labor Force Participation." *Journal of Public Economics*, 14, 161-194. [C]

Juhn, C. (1992), "The Decline of Male Labor Market Participation: The Role of Declining Market Opportunities", *Quarterly Journal of Economics*, 79-122. [J]

Smith, J. and M. Ward (1985), "Time-Series Growth in the Female Labor Force", *Journal of Labor Economics*, Part 2, 1985, S59-S90.

1.5 The Life Cycle Labor Supply Model with Exogenous Wage Rates

*Blundell, R. and T. MaCurdy (1999), "Labor Supply: A Review of Alternative Approaches," in *Handbook of Labor Economics*, Vol. 3, 1999. [C]

- *Browning, M., A. Deaton and M. Irish (1985), "A Profitable Approach to Labor Supply and Commodity Demand Over the Life-Cycle," *Econometrica*, 1985, 503-543. [J]
- *Card, D. (1994), "Intertemporal Labor Supply: An Assessment," (1994), in C. Sims, ed., *Advances in Econometrics Sixth World Congress*, vol. II, Cambridge University Press, 1994. [C]
- *Heckman, J. and T. MaCurdy (1980), "A Life Cycle Model of Female Labour Supply." *Review of Economic Studies*, 47(1), 47-74. [J]
- *MaCurdy, T. (1981), "An Empirical Model of Labor Supply in a Life Cycle Setting," *Journal of Political Economy*, 89(6), 1059-1089. [J]
- Heckman, J. (1976), "A Life Cycle Model of Earnings, Learning and Consumption." *Journal of Political Economy*, 84(4), part 2, August, S11-S44. [J]
- Hotz, V. J., F. Kydland and G. Sedlacek (1988), "Intertemporal Preferences and Labor Supply," *Econometrica*, 57(2), 1988, 335-360. [J]
- Killingsworth, M. (1983), *Labor Supply*, Chapter 5, 6.1, 6.6.
- MaCurdy, T. (1983), "A Simple Scheme for Estimating an Intertemporal Model of Labor Supply and Consumption in the Presence of Taxes and Uncertainty," *International Economic Review*, June 1983, 265-289.
- Rust, J., (1989), "A Dynamic Programming Model of Retirement Behavior," in *The Economics of Aging*, D. Wise, ed., University of Chicago Press, 1989, 359-98.

2. Human Capital

2.1 Survey Papers

- *Card, D. (1999), "The Causal Effect of Education on Earnings," in *The Handbook of Labor Economics*, Vol. 3, 1999. [C]
- *Rosen, S. (1977), "Human Capital: A Survey of Empirical Research." In *Research in Labor Economics*, ed., by R. G. Ehrenberg, Vol. 1, 1977, 3-40. [C]
- *Weiss, Y., (1986), "The Determination of Life Cycle Earnings: A Survey," in *Handbook of Labor Economics*, Vol. I, O.Ashenfelter and R. Layard, ed., North-Holland, 1986. [C]
- *Willis, R. (1986), "Wage Determinants: A Survey and Reinterpretation of Human Capital Earnings Functions", in *Handbook of Labor Economics*, Vol. I, O.Ashenfelter and R. Layard, ed., North-Holland, 1986. [C]

2.2 Human Capital Investment Models: Schooling, Work Experience and Earnings Functions

- *Ben Porath, Y. (1967), "The Production of Human Capital and the Life Cycle of Earnings." *Journal of Political Economy* 75(4), part 1, August, 352-65. [J]
 - *Mincer, J., (1974), *Education, Experience, and Earnings*, New York: Columbia University Press, Chapter 1 and 2. [C]
 - *Rosen, S. (1977), "Human Capital: A Survey of Empirical Research." In *Research in Labor Economics*, ed., by R. G. Ehrenberg, Vol. 1, 3-40. [C]
- Becker, G. (1993), *Human Capital*, 3rd Edition, Chicago: University of Chicago Press.
- Heckman, J. (1975), "Estimates of a Human Capital Production Function Embedded in a Life Cycle Model of Labor Supply." In N. Terleckyj, (ed.), *Household Production and Consumption*, 1975.
- Keane, M. and K. Wolpin (1996), "Career Decisions of Young Men." mimeo, U. of Penn, July 1996.

2.3 Estimating the Returns to Education

- *Angrist, J. and A. Krueger, (1991), "Does Compulsory Schooling Attendance Affect Schooling and Earnings?" *Quarterly Journal of Economics*, 106(4), November, 979-1014. [J]
 - *Ashenfelter, O. and A. Krueger, (1994), "Estimates of the Economic Return to Schooling from a New Sample of Twins", *American Economic Review*, 84(5), December, 1157-73. [C]
 - *Ashenfelter, O. and D. Zimmerman (1994), "Estimates of the Returns to Schooling from Sibling Data: Fathers, Sons, and Brothers," *Review of Economics and Statistics*, LXXIX(1), February, 1-9. [C]
 - *Card, D. (1999), "The Causal Effect of Education on Earnings," in *The Handbook of Labor Economics*, Vol. 3, 1999. [C]
 - *Griliches, Z. (1977), "Estimating the Returns to Schooling: Some Econometric Problems," *Econometrica*, 45(1), January, pp. 1-22. [J]
 - *Griliches, Z. (1979), "Sibling Models and Data in Economics: Beginnings of a Survey," *Journal of Political Economy* 87, October, S37-S64. [J].
 - *Kane, T., C. Rouse, and D. Staiger (1999), "Estimating Returns to Schooling when Schooling is Misreported," Unpublished manuscript, Princeton University. [C]
- Angrist, J. and A. Krueger, (1999), "Empirical Strategies in Labor Economics," in *The Handbook of Labor Economics*, volume III, Section 2. [C]

Bound, J., D. Jaeger, and R. Baker (1995), "Problems with Instrumental Variables Estimation when the Correlation between the Instruments and the Endogenous Explanatory Variable is Weak," *Journal of the American Statistical Association*, June 1995, 443-50.

Card, D. (1995), "Earnings, Schooling, and Ability Revisited," in: S. Polachek, ed. *Research in Labor Economics* 14, 23-48.

Goldin, C. and L. Katz (1999), "The Returns to Skill in the United States Across the Twentieth Century," NBER Working Paper 7126, May. [N]

Griliches, Z. and W. Mason (1972), "Education, Income and Ability," *Journal of Political Economy* 1972, pp. S74-S103. [J]

2.4 The Effects of Quality of Education on Earnings

*Card, D. and A. Krueger (1992), "Does School Quality Matter: Returns to Education and Characteristics of Public Schools in the United States," *Journal of Political Economy* February 1992. [J]

*Heckman, J., A. Layne-Farrar, and P. Todd (1996), "Human Capital Pricing Equations with an Application to Estimating the Effect of Schooling Quality on Earnings," *Review of Economics and Statistics*, November 1996, 562-610. [C]

*Krueger, A. (1999), "Experimental Estimates of Education Production Functions," *Quarterly Journal of Economics*, May 1999, 497-532. [C]

Card, D. and A. Krueger (1992), "School Quality and Black-White Relative Earnings: A Direct Assessment," *Quarterly Journal of Economics*, 117(1), 1992, 151-200. [J]

2.5 The Roy Model: The Theory of Self-Selection

*Borjas, G. (1987), "Self-Selection and the Earnings of Immigrants," *American Economic Review*, 77(4), September, 531-553. [J]

*Heckman, J. and G. Sedlacek (1985), "Heterogeneity, Aggregation, and Market Wage Functions: An Empirical Model of Self-Selection in the Labor Market," *Journal of Political Economy*, 93(6), December, 1077-1125. [J]

*Maddala, G. S. (1983), *Limited-Dependent and Qualitative Variables in Economics*, New York: Cambridge University Press, 257-290. [C]

*Neal, D. And S. Rosen (1999), "Theories of the Distribution of Labor Earnings," in *Handbook of Income Distribution*, forthcoming. [C]

*Roy, A. (1951), "Some Thoughts on the Distribution of Earnings," *Oxford Economic Papers*. [C]

*Siow, A. (1984), "Occupational Choice under Uncertainty," *Econometrica*, 52(3), May, 631-646. [J]

*Willis, R. (1986), "Wage Determinants: A Survey and Reinterpretation of Human Capital Earnings Functions", in *Handbook of Labor Economics*, Vol. I, O.Ashenfelter and R. Layard, ed., North-Holland. [C]

*Willis, R. and S. Rosen (1979), "Education and Self-Selection," *Journal of Political Economy* 87(5), part 2, October, S7-S36. [J]

Heckman, J. and B. Honore (1990), "The Empirical Content of the Roy Model," *Econometrica*, 58(5), 1121-49. [J]

Heckman, J., Lochner, L., and Taber, C. (1998), "Explaining Rising Wage Inequality: Explorations with a Dynamic General Equilibrium Model of Labor Earnings with Heterogeneous Agents," *Review of Economic Dynamics*, 1998. [C]

3. Economic Theories of Fertility

3.1 Static Models

*Becker, G. (1960), "An Economic Analysis of Fertility, in *Demographic and Economic Change in Developed Countries*, Princeton: Princeton University Press, 209-240. [C]

*Becker, G. and H. G. Lewis (1973), "On the Interaction between the Quantity and Quality of Children," *Journal of Political Economy*, 81(2), Part 2, Mar-Apr, S279-S288. [J]

*Hotz, V. J., J. Klerman, and R. Willis (1997), "The Economics of Fertility in Developed Countries," in *Handbook of Population and Family Economics*, M. Rosenzweig and O. Stark, eds., Elsevier Science, 276-348. [C]

*Rosenzweig, M. and K. Wolpin (1980a), "Testing the Quantity-Quality Fertility Model: The Use of Twins as a Natural Experiment," *Econometrica*, January, 48(1), 227-40, [J]

*Rosenzweig, M. and K. Wolpin (1980b), "Life-Cycle Labor Supply and Fertility: Causal Inferences from Household Models," *Journal of Political Economy*, 88(2), April, 328-48. [J]

*Schultz, T. P. (1997), "Demand for Children in Low Income Countries," in *Handbook of Population and Family Economics*, M. Rosenzweig and O. Stark, eds., Elsevier Science, 349. [C]

*Willis, R. (1973), "A New Approach to the Economic Theory of Fertility Behavior," *Journal of Political Economy*, 81(2), Part 2, Mar-Apr, S14-S64. [J]

Browning, M., (1992), "Children and Household Economic Behavior," *Journal of Economic Literature*, 30(3), 1434-75. [J]

3.2 Dynamic Life Cycle Models

*Hotz, V. J. and R. A. Miller (1988), "An Empirical Analysis of Life Cycle Fertility and Female Labor Supply", *Econometrica*, Vol. 56 No. 1 (January 1988): 91-118. [J]

*Hotz, V. J., J. Klerman, and R. Willis (1997), "The Economics of Fertility in Developed Countries," in *Handbook of Population and Family Economics*, M. Rosenzweig and O. Stark, eds., Elsevier Science, 276-345. [C]

*Rosenzweig, M. and T. P. Schultz (1985), "The Demand for and Supply of Births: Fertility and Its Life Cycle Consequences," *American Economic Review*, 75(2), December, 992-1015. [J]

*Wolpin, K. (1984), "An Estimable Dynamic Stochastic Model of Fertility and Child Mortality," *Journal of Political Economy*, 92(5), October, 852-74. [J].

Heckman, J. and R. Willis (1975), "Estimation of a Stochastic Model of Reproduction: An Economic Approach," in N. Terleckyj, (ed.), *Household Production and Consumption*, 1975. [C]

Hotz, V. J. and R. Miller (1993), "Conditional Choice Probabilities and the Estimation of Dynamic Models," *Review of Economic Studies*, 60(3), No. 204, July, 497-530. [J]

3.3 Economic Models of Teenage and Out-of-Wedlock Childbearing

*Hotz, V. J., S. McElroy, and S. Sanders (1997), "The Costs and Consequences of Teenage Childbearing for the Mothers and the Government," in *Kids having Kids: The Economic Costs and Social Consequences of Teen Pregnancy*, ed. by R. Maynard, Urban Institute Press, 1997, pp. 55-94. [C]

*Willis, R. (1999), "A Theory of Out-of-Wedlock Childbearing," *Journal of Political Economy*, forthcoming. [C]

Akerloff, G., J. Yellen, and M. Katz (1996), "An Analysis of Out-of-Wedlock Childbearing in the United States," *Quarterly Journal of Economics*, 111(2), 277-317.

Bronars, S., and J. Grogger (1994), "The Economic Consequences of Unwed Motherhood: Using Twins as a Natural Experiment," *American Economic Review* 84, December, 1141-1156.

Neal, D. (1999), "The Economics of Family Structure," Unpublished manuscript, University of Wisconsin, July. [C]

4. Economic Theories of Marriage and Divorce

*Becker, G. (1973), "A Theory of Marriage, Part I," *Journal of Political Economy*, 81(4), July-August, 813-46. [J]

*Becker, G. (1974), "A Theory of Marriage, Part II," *Journal of Political Economy*, 82(2), Part 2, Mar-Apr, S11-S26. [J]

*Becker, G., E. Landes, and R. Michael (1977), "An Economic Analysis of Marital Instability," *Journal of Political Economy*, 85(6), December, 1141-1188. [J]

*Lundberg, S., and R. Pollak (1996), "Bargaining and Distribution in Marriage," *Journal of Economic Perspectives*, 10(4), Fall, 139-58. [C]

- *Thomas, D. (1990), "Intra-Household Resource Allocation: An Inferential Approach," *Journal of Human Resources*, 25(4), Fall, 635-64. [C]
- *Weiss, Y. (1997), "The Formation and Dissolution of Families: Why Marry? Who Marries Whom? And What Happens Upon Divorce," in *Handbook of Population and Family Economics*, M. Rosenzweig and O. Stark, Amsterdam: Elsevier Science, 81-124. [C]
- Johnson, W. R. and J. Skinner (1986), "Labor Supply and Marital Separation," *American Economic Review*, 76(3), June, 455-469. [J]
- McElroy, M. (1990), "The Empirical Content of the Nash-Bargained Household Behavior," *Journal of Human Resources*, 25, 559-553.
- McElroy, M. and M. J. Horney (1981), "Nash Bargained Household Decisions," *International Economic Review*, 22(2), June, 333-49.
- McElroy, M. B. and Mary Jean Horney (1981), "Nash-bargained Household Decisions: Toward a Generalization of the Theory of Demand." *International Economic Review*, 22, 333-349. [C]
- Stapleton, D. (1991), "Implicit Marriage Markets with Collective Goods," Unpublished manuscript, Lewin-VHI.
- Weiss, Y. and R. Willis (1985), "Children as Collective Goods and Divorce Settlements," *Journal of Labor Economics*, 3(3), July, 268-92. [C]

4.1 Economic Theories Family Decision-Making

- *Becker, G. (1991), *A Treatise on the Family*, Enlarged Edition, Cambridge: Harvard University Press, Chapter 8. [C]
- *Bergstrom, T. (1989), "A Fresh Look at the Rotten Kid Theorem and other Household Mysteries," *Journal of Political Economy*, 97(5), 1138-1159. [J]
- *Bergstrom, T. (1996), "A Survey of Theories of the Family," in *Handbook of Population and Family Economics*, M. Rosenzweig and O. Stark, eds., Vol. I, 1996, 21-78. [C]
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