DEPARTMENT OF ECONOMICS **J. Powell, G. Imbens**
UNIVERSITY OF CALIFORNIA **Spring 2004**

Economics 241A
Econometrics

This course will cover nonlinear statistical models for the analysis of cross-sectional and panel data, with applications in microeconomics. It is intended both for students specializing in econometric theory and for students interested in applying statistical methods to economic data. Economics 240A-B (or equivalent) is prerequisite. The grade for the second half of the semester will be based upon problem sets and an in-class midterm (on May 10).

COURSE OUTLINE FOR SECOND HALF OF SEMESTER

1. Conditional moment restrictions

Reverences:

Powell, J.L. (1994), "Estimation of Semiparametric Models," in Engle, R.F. and D.L. McFadden, eds., *Handbook of Econometrics, Vol. 4* (North Holland), Sec. 2.1.

*Chamberlain, G. (1992), "Efficiency Bounds for Semiparametric Regression," *Econometrica*, 60, 597-626.

*Newey, W.K. (1994), "The Asymptotic Variance of Semiparametric Estimators," *Econometrica*, 62: 1349-1382.

2. Nonparametric density and regression estimation

References:

Pagan, A.P. and A. Ullah (1999), *Nonparametric Econometrics* (Cambridge University Press), chapters 1-3

Powell, "Estimation of Semiparametric Models," Sec. 1.

*Hardle, W. and O. Linton (1994), "Applied Nonparametric Methods," in R.F. Engle and D.L. McFadden, eds., *Handbook of Econometrics, Vol. 4* (North-Holland), chapter 38.

*Silverman, B.W. (1986), *Density Estimation for Statistics and Data Analysis* (Chapman-Hall), chapters 2,3.

*Manski, C.F. (1989), *Analog Estimation Methods in Econometrics* (Chapman-Hall), sections 2.2, 3.4.

*Bierens, H.J. (1987), "Kernel Estimators of Regression Functions," in T.F. Bewley, ed., *Advances in Econometrics, Fifth World Congress, Vol. 1*, (Cambridge University Press).

3. Quantile regression

References:

Amemiya, T. (1984) *Advanced Econometrics* (Harvard University Press),.section 4.6.

Powell, "Estimation of Semiparametric Models," Sec. 2.2.

*Koenker R. and G.S. Bassett Jr. (1978), "Regression Quantiles," *Econometrica*, 46, 33-50.

*Koenker R. and G.S. Bassett Jr. (1982), "Robust Tests for Heteroskedasticity Based on Regression Quantiles," *Econometrica,* 50, 43-62.

4. Semiparametric binary response models

References:

Pagan and Ullah, *Nonparametric Econometrics*, Sec. 7.1-7.3, Sec. 7.5.1-7.5.4.

Powell, "Estimation of Semiparametric Models," Sec. 3.1.

Amemiya, *Advanced Econometrics*, chapter 9.

*Manski, C.F. (1985), "Semiparametric Analysis of Discrete Response, Asymptotic Properties of the Maximum Score Estimator," *Journal of Econometrics*, 27, 205-228.

*Han, A.K. (1987a), "Non-Parametric Analysis of a Generalized Regression Model: The Maximum Rank Correlation Estimator," *Journal of Econometrics*, 35, 303-316.

*Cosslett, S.R. (1983), "Distribution-Free Maximum Likelihood Estimator of the Binary Choice Model," *Econometrica*, 51, 765-782.

*Horowitz, J.L. (1992), "A Smoothed Maximum Score Estimator for the Binary Response Model," *Econometrica*, 60, 505-531.

5. Single index regression models

References:

Pagan and Ullah, *Nonparametric Econometrics*, Sec. 7.4, 7.5.6.

Powell, “Estimation of Semiparametric Models,” Sec. 3.2.

*Stoker, T.M. (1986), "Consistent Estimation of Scaled Coefficients," *Econometrica*, 54, 1461-1481.

*Powell, J.L., J.H. Stock and T.M. Stoker (1989), "Semiparametric Estimation of Weighted Average Derivatives," *Econometrica*, 57, 1403-1430.

*Hardle, W. and T.M. Stoker (1989) "Investigating Smooth Multiple Regression by the Method of Average Derivatives," *Journal of the American Statistical Association*, 84, 986-995.

*Ruud, P. (1986), "Consistent Estimation of Limited Dependent Variable Models Despite Misspecification of Distribution," *Journal of Econometrics*, 32, 157-187.

*Klein, R.W. and R.H. Spady (1993), "An Efficient Semiparametric Estimator for Discrete Choice Models," *Econometrica*, 61, 387-421.

*Ichimura, H. (1993), "Semiparametric Least Squares (SLS) and Weighted SLS Estimation of Single Index Models," *Journal of Econometrics*, 58, 71-120.

6. Semiparametric censored and truncated regression models

References:

Pagan and Ullah, *Nonparametric Econometrics*, Sec. 9.5-9.7.

Powell, “Estimation of Semiparametric Models,” Sec. 3.3.

Amemiya, *Advanced Econometrics,* chapter 10..

*Powell, J.L. (1984), "Least Absolute Deviations Estimation for the Censored Regression Model," *Journal of Econometrics*, 25, 303-325.

*Powell, J.L. (1986), "Symmetrically Trimmed Least Squares Estimation of Tobit Models," *Econometrica*, 54, 1435-1460.

*Horowitz, J.L. (1986), "A Distribution-Free Least Squares Estimator for Censored Linear Regression Models," *Journal of Econometrics*, 32, 59-84.

*Buchinsky, M. and J. Hahn (1998), "An Alternative Estimator for the Censored Quantile Regression Model," *Econometrica*, 66, 653-672.

7. Semilinear regression and semiparametric selection models

References:

Pagan and Ullah, *Nonparametric Econometrics*, Sec. 5.1-5.2, 8.1-8.3.

Powell, "Estimation of Semiparametric Models," Sec. 3.4.

*Robinson, P. (1988b), "Root-N-Consistent Semiparametric Regression," *Econometrica*, 56, 931-954.

*Cosslett, S.R. (1991), "Distribution-Free Estimator of a Regression Model with Sample Selectivity," in Barnett, W.A., J.L. Powell, and G. Tauchen, eds., *Nonparametric and Semiparametric Methods in Econometrics and Statistics* (Cambridge University Press).

*Powell, J.L. (2001), "Semiparametric Estimation of Censored Selection Models," in Hsiao, C., K. Morimune, and J.L. Powell, eds., *Nonlinear Statistical Modeling* (Cambridge University Press).

*Ahn, H. and J.L. Powell (1993), "Semiparametric Estimation of Censored Selection Models with a Nonparametric Selection Mechanism," *Journal of Econometrics*, 58, 3-29.

8. Semiparametric panel data models

References:

Powell, "Estimation of Semiparametric Models," Sec. 3.5.

*Manski, C.F. (1987), "Semiparametric Analysis of Random Effects Linear Models from Binary Panel Data," *Econometrica*, 55, 357-362.

*Honoré, B.E. (1992), "Trimmed LAD and Least Squares Estimation of Truncated and Censored Regression Models with Fixed Effects," *Econometrica*, 60, 533-565.

*Kyriazidou, E. (1997), "Estimation of a Panel Data Sample Selection Model," *Econometrica*, 65, 1335-1364.

*Honoré, B.E. and E. Kyriazidou (2000), "Panel Data Discrete Choice Models with Lagged Dependent Variables," *Econometrica*, 68, 839-874.

9. Nonparametric and semiparametric models with endogeneity

References:

Pagan and Ullah, *Nonparametric Econometrics*, Sec. 6.5.

Blundell R. and J.L. Powell (2003), "Endogeneity in Nonparametric and Semiparametric Regression Models," in Dewatripont, M., L.P. Hansen, and S.J. Turnovsky, eds., *Advances in Economics and Econometrics: Theory and Applications, Eighth World Congress, Vol. II* (Cambridge University Press).

*Newey, W.K. and J.L. Powell (2003), "Instrumental Variables Estimation for Nonparametric Models," *Econometrica*, 71: 1565-1578.

*Heckman, J.J. and E.J. Vytlacil (2001), "Local Instrumental Variables," in Hsiao, C., K. Morimune, and J.L. Powell, eds., *Nonlinear Statistical Modeling* (Cambridge University Press).

*Newey, W.K., J.L. Powell, and F. Vella (1999), "Nonparametric Estimation of Triangular Simultaneous Equations Models," *Econometrica*, 67, 565-604.

*Lewbel, A. (1998), "Semiparametric Latent Variable Model Estimation with Endogenous or Mismeasured Regressors," *Econometrica*, 66, 105-122.

*Das, M., W.K. Newey, and F. Vella (2000), "Semiparametric Estimation of Sample Selection Models," manuscript, Department of Economics, Columbia University.

*Blundell, R. and J.L. Powell (2003), "Endogeneity in Semiparametric Binary Response Models," manuscript, University of California at Berkeley.

*Imbens, G.W. and W.K. Newey (2000), "Nonparametric Identification of Triangular Simultaneous Equation Models Without Additivity," manuscript, Department of Economics, UCLA.