

Recent Developments in Cross Section and Panel Count Models

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References

- Bago d'Uva, T. 2005. Latent class models for use of primary care: evidence from a British panel. *Health Economics*, 14: 873–892
- Bago d'Uva, T. 2006. Latent class models for use of health care. *Health Economics*, 15: 329–343.
- Besag, J. 1974. Spatial interaction and the statistical analysis of lattice systems. *Journal of Royal Statistical Society 36B*, 192–225.
- Bhat, C.R. 2001. Quasi-random maximum simulated likelihood estimation of the mixed multinomial logit model. *Transportation Research: Part B*, 35, 677-693.
- Blundell, R., Griffith, R., and Windmeijer, F. 2002. Individual effects and dynamics in count data models. *Journal of Econometrics*, 102, 113-131.
- Bohning, D., Kuhnert, R. 2006. Equivalence of truncated count mixture distributions and mixtures of truncated count distributions, *Biometrics*, 62(4), 1207-1215.
- Breslow, N.E. and Clayton, D.G. 1993. Approximate inference in generalized linear mixed models. *Journal of American Statistical Association*, 88, 9-25.
- Cameron, A.C., T. Li, Trivedi, P.K., and Zimmer, D.M. 2004. Modeling the differences in counted outcomes using bivariate copula models: with application to mismeasured counts, *Econometrics Journal*, 7(2), 566-584.
- Cameron, A.C., and Trivedi, P.K. 1998. *Regression Analysis of Count Data*. New York: Cambridge University Press.
- Cameron, A.C., and Trivedi, P.K. 2005. *Microeconometrics: Methods and Applications*. Cambridge: Cambridge University Press.
- Cameron, A.C., and Trivedi, P.K. 2009. *Microeconometrics Using Stata*. College Station, TX: Stata Press
- Cameron, A.C. and Johansson, P. 1997. Count data regressions using series expansions with applications. *Journal of Applied Econometrics*, 203-223
- Chamberlain, G. 1992. Comment: sequential moment restrictions in panel data. *Journal of Business and Economic Statistics*, 10, 20-26.
- Chang, F-R., and Trivedi, P.K. 2003. Economics of self-medication: theory and evidence. *Health Economics*, 12, 721-739.
- Chib, S., Greenberg, E., and Winkelmann, R. 1998. Posterior simulation and Bayes factor in panel count data models. *Journal of Econometrics*, 86, 33-54.
- Chib, S. and Winkelmann, R. 2001. Markov chain Monte Carlo analysis of correlated count data. *Journal of Business and Economic Statistics*, 19, 428-435.

- Crepon, B. and Duguet, E. 1997. Research and development, competition and innovation: pseudo-maximum likelihood and simulated maximum likelihood method applied to count data models with heterogeneity”, *Journal of Econometrics*, 79, 355-378.
- Davidson, R., and MacKinnon, J.G. 2004. *Econometric Theory and Methods*, Oxford: Oxford University Press.
- Davis, R.A., Dunsmuir, W.T.M., Streett, S.B., 2003. Observation-driven models for Poisson counts. *Biometrika* 90, 777–790.
- Deb, P. 2007. FMM: Stata module to estimate finite mixture models. Statistical Software Components S456895. Boston College Department of Economics.
- Deb, P. 2007. FMM: Stata module to estimate finite mixture models. Statistical Software Components S456895. Boston College Department of Economics.
- Deb, P., and Trivedi, P.K. 1997. Demand for medical care by the elderly: a finite mixture approach. *Journal of Applied Econometrics*, 12, 313-326.
- Deb, P., and Trivedi, P.K. 2002. The structure of demand for medical care: latent class versus two-part models. *Journal of Health Economics* 21: 601-625.
- Deb, P., and Trivedi, P.K. 2006a. Specification and simulated likelihood estimation of a non-normal treatment-outcome model with selection: application to health care utilization. *Econometrics Journal* 9, 307–331.
- Deb, P., and Trivedi, P.K. 2006b. Maximum simulated likelihood estimation of a negative-binomial regression model with multinomial endogenous treatment. *Stata Journal* 6: 1-10.
- Deb, P., Munkin, M.K. and Trivedi, P.K. 2006a. Private insurance, selection, and the health care use: a Bayesian analysis of a Roy-type Model. *Journal of Business and Economic Statistics*, 24, 403-415
- Deb, P., Munkin, M.K. and Trivedi, P.K. 2006b. Bayesian analysis of the two-part model with endogeneity: application to health care expenditure, *Journal of Applied Econometrics*, 21(6), 1081-1099, (2006).
- Delgado, M.A. 1992. Semiparametric generalized least squares in the multivariate nonlinear regression model”, *Econometric Theory*, 8, 203-222.
- Demidenko, E. 2007. Poisson regression for clustered data. *International Statistical Review*, 75, 1, 96-113.
- Diggle, P., Heagerty, P., Liang, K-Y., Zeger, S. 2002. *Analysis of Longitudinal Data*. Oxford: Oxford University Press
- El-Sayyad, G.M. 1973. Bayesian and Classical Analysis of Poisson Regression," *Journal of the Royal Statistical Society. Series B (Methodological)*, Vol. 35, 3, 445-451

- Gouriéroux, C. and Monfort, A. 1991. Simulation based inference in models with heterogeneity. *Annales d'Economie et de Statistique*, 20/21, 69-107.
- Gourieroux, C., and Monfort, A. 1997. *Simulation Based Econometric Methods*, Oxford: Oxford University Press.
- Greene, W.H. 2007a. *LIMDEP 9.0 Reference Guide*. Plainview: Econometric Software, Inc.
- Greene, W.H. 2007b. Functional form and heterogeneity in models for count data. *Foundations and Trends in Econometrics*, 1 (2), 113-218.
- Griffith, D.A. and Haining, R. 2006. Beyond mule kicks: the Poisson distribution in geographical analysis. *Geographical Analysis*. 38, 123-139.
- Guo, J-Q., and Trivedi, P.K. 2002. Flexible parametric distributions for long-tailed patent count distributions. *Oxford Bulletin of Economics and Statistics*, 64, 63-82.
- Gurmu, S. and Elder, J. 2007. A simple bivariate count data regression model. *Economics Bulletin*, 3 (11), 1-10.
- Gurmu, S., and Trivedi, P.K. 1996. Excess zeros in count models for recreational trips. *Journal of Business and Economic Statistics*, 14, 469-477.
- Hardin, J.W., Schmiediche, H., and Carroll, R.A. 2003. Instrumental variables, bootstrapping, and generalized linear models. *Stata Journal* 3: 351–360.
- Hausman, J. A., Hall, B.H., and Griliches, Z. 1984. Econometric Models For Count Data with an Application to the Patents - R and D Relationship. *Econometrica*, 52, 909–938.
- Hinde, J. 1982. Compound Poisson regression models. in R. Gilchrist ed., pp. 109-121, GLIM 82: Proceedings of the International Conference on Generalized Linear Models, New York: Springer-Verlag.
- Jung, R.C, Kukuk, M., Liesenfeld, R. 2006. Time series of count data: modeling, estimation and diagnostics. *Computational Statistics & Data Analysis* 51, 2350 – 2364
- Kaiser, M., and Cressie, N. 1997. Modeling Poisson variables with positive spatial dependence. *Statistics and Probability Letters* 35, 423–32.
- Karlis, D. and Xekalaki, E. 1998. Minimum Hellinger distance estimation for Poisson mixtures. *Computational Statistics and Data Analysis*, 29, 81-103.
- Kitazawa, Y. 2000. TSP procedures for count panel data estimation. Kyushu Sangyo University.
- Koenker, R. 2005. *Quantile Regression*. New York: Cambridge University Press.
- Koop, G., Poirier, D.J., and Tobias, J.L. 2007. *Bayesian Econometric Methods*, Volume 7 of Econometric Exercises Series, Cambridge University Press.

- Lancaster, T. 2000. The incidental parameters problem since 1948. *Journal of Econometrics*, 95, 391-414.
- Long, J.S. and Freese, J. 2006. *Regression Models for Categorical Dependent Variables Using Stata*, second edition. College Station, TX: Stata Press.
- Lourenco, O.D. and P.L. Ferreira. 2005. Utilization of public health centres in Portugal: effect of time costs and other determinants. Finite mixture models applied to truncated samples. *Health Economics*. 14: 939–953.
- Lu, Z, Hui, YV, Lee, AH. 2003. Minimum Hellinger distance estimation for finite mixtures of Poisson regression models and its applications, *Biometrics*, 59(4). 1016-1026
- MacDonald, I.L. and Zucchini, W. (1997) *Hidden Markov and Other models for Discrete-Valued Time Series*. London: Chapman & Hall.
- Machado J., and Santos Silva, J. 2005. Quantiles for counts. *Journal of American Statistical Association* 100: 1226–1237.
- Marshall, A.W., and Olkin, I. 1990. Multivariate distributions generated from mixtures of convolution and product families,” in H. W. Block, A. R. Sampson and T. H. Savits, eds., *Topics in Statistical Dependence*, IMS Lecture Notes-Monograph Series, Volume 16, 371-393.
- Miranda, A. 2006. QCOUNT: Stata program to fit quantile regression models for count data. Statistical Software Components S456714. Boston College Department of Economics.
- Miranda, A. 2008. Planned fertility and family background: a quantile regression for counts analysis. *Journal of Population Economics* 21: 67–81.
- Morton, R. 1987. A generalized linear model with nested strata of extra-Poisson variation. *Biometrika*, 74, 247-257.
- Mullahy, J. 1997. Instrumental variable estimation of Poisson regression models: application to models of cigarette smoking behavior. *Review of Economics and Statistics*, 79, 586-93.
- Munkin, M., and Trivedi, P.K. 1999. Simulated maximum likelihood estimation of multivariate mixed-Poisson regression models, with application. *Econometric Journal*, 1, 1-21.
- Munkin, M.K. and Trivedi, P.K. 2003. Bayesian analysis of self-selection model with multiple outcomes using simulation-based estimation: an application to the demand for healthcare. *Journal of Econometrics*, 114, 197-220.
- Munkin, M.K. and Trivedi, P.K. 2008. Bayesian analysis of the ordered Probit model with endogenous selection, *Journal of Econometrics*, 143, 334–348.
- Munkin, M.K. and Trivedi, P.K. 2009. A Bayesian analysis of the OPES Model with a non-parametric component: application to dental insurance and dental care. Forthcoming in *Advances in Econometrics, Volume 23: Bayesian Econometrics*, edited by Siddhartha Chib, Gary Koop, and

Bill Griffiths. Elsevier Press.

Nelsen, 2006. *An Introduction to Copulas Second edition*. New York: Springer

Newey, W. 1987. Efficient estimation of limited dependent variable models with endogenous explanatory variables. *Journal of Econometrics* 36: 231-250.

Pitt, M., Chan, D., Kohn, R. 2006. Efficient Bayesian inference for Gaussian copula regression. *Biometrika*, 93, 537-554.

Rabe-Hesketh, S., Skrondal A., Pickles, A. 2002. Reliable estimation of generalized linear mixed models using adaptive quadrature. *Stata Journal*, 2, 1-21.

Romeu A. 2004. *ExpEnd*: Gauss code for panel count data models. *Journal of Applied Econometrics* 19, 429-434.

Skrondal, A. and Rabe-Hesketh, S. 2004. *Generalized Latent Variable Modeling: Multilevel, Longitudinal and Structural equation Models*. London: Chapman & Hall.

Terza, J. 1998. Estimating count data models with endogenous switching: sample selection and endogenous switching effects. *Journal of Econometrics*, 84, 129-139.

Train, K. 2002. *Discrete Choice Methods with Simulation*. New York: Cambridge University Press.

Trivedi, P.K. and Zimmer, D.M. 2007. Copula modeling: an introduction for practitioners. *Foundations and Trends in Econometrics*, 1(1), 1-110.

Vuong, Q. 1989. Likelihood ratio tests for model selection and non-nested hypotheses. *Econometrica*, 57, 307-333.

Wang, K; Yau, KKW; Lee, AH. 2002. A hierarchical Poisson mixture regression model to analyze maternity length of hospital stay *Statistics in Medicine*, 21, 3639-3654.

Windmeijer, F. and Santos Silva, J.M.C. 1997. Endogeneity in count data models. *Journal of Applied Econometrics*, 12, 281-294.

Windmeijer, F. 2008. GMM for panel count data models. *Advanced Studies in Theoretical and Applied Econometrics*, 46, 603-624.

Winkelmann, R. 2005. *Econometric Analysis of Count Data 5th edition*, Berlin, Springer-Verlag.

Wooldridge, J.M. 1997. Multiplicative panel data models without the strict exogeneity assumption. *Econometric Theory*, 13, 667-678.

Wooldridge, J.M. 1999. Distribution-free estimation of some nonlinear panel data models. *Journal of Econometrics* 90, 77-97.

Wooldridge, J.M. 2002. *Econometric Analysis of Cross Section and Panel Data*, 2001. Cambridge, MIT Press.

Xiang, L.; Yau, K. K.W.; Van Hui, Y.; Lee, A. H.; 2008. Minimum Hellinger distance estimation for k-Component Poisson mixture with random effects, *Biometrics* 64(2), 508-518.

Zimmer, D.M. and Trivedi, P.K. 2006. Using trivariate copulas to model sample selection and treatment effects: application to family health care demand, *Journal of Business and Economic Statistics*, 24(1), 63-76.