

A NOTE ON THE STRONG CONSISTENCY OF LEAST SQUARES ESTIMATES

JOÃO LITA DA SILVA

Faculdade de Ciências e Tecnologia
Universidade Nova de Lisboa
Quinta da Torre, 2829–516 Caparica, Portugal

e-mail: jfls@fct.unl.pt

Abstract

The strong consistency of least squares estimates in multiples regression models with i.i.d. errors is obtained under assumptions on the design matrix and moment restrictions on the errors.

Keywords: least squares estimates, linear models, strong consistency.

2000 Mathematics Subject Classification: 60F15.

REFERENCES

- [1] Y.S. Chow and H. Teicher, *Probability Theory: Independence, Interchangeability, Martingales* (third edition) Springer 1997.
- [2] Chen Xiru, *Consistency of LS estimates of multiple regression under a lower order moment condition*, *Sci. Chin.* **38** (12) (1995), 1420–1431.
- [3] R.A. Horn and C.R. Johnson, *Matrix Analysis*, Cambridge University Press 1985.
- [4] H. Drygas, *Consistency of the least squares and Gauss-Markov estimators in regression models*, *Z. Wahrscheinlichkeitstheorie Verw. Gebiete* **17** (1971), 309–326.

- [5] H. Drygas, *Weak and strong consistency of the least squares estimators in regression model*, Z. Wahrscheinlichkeitstheorie Verw. Gebiete **34** (1976), 119–127.
- [6] C. Gui-Jing, T.L. Lai and C.Z. Wei, *Convergence systems and strong, consistency of least squares estimates in regression models*, J. Multivariate Anal. **11** (1981), 319–333.
- [7] C. GuiJing, *Extension of Lai-Robbins-Wei's theorem*, Acta Mathematicae Applicatae Sinica **1** (1) (1984), 2–7.
- [8] J. Mingzhong, *Some new results of the strong consistency of multiple regression coefficients*, in: S. Tangmanee & E. Schulz, eds. World Scientific, *Proceedings of the Second Asian Mathematical Conference 1995* (R. Nakhon 1995), 514–519.
- [9] T.L. Lai, H. Robbins and C.Z. Wei, *Strong consistency of least squares estimates in multiple regression II*, J. Multivariate Anal. **9** (1979), 343–362.
- [10] B.M. Makarov, M.G. Goluzina, A.A. Lodkin and A.N. Podkorytov, *Selected Problems in Real Analysis* (American Mathematical Society, Providence R.I. 1992).
- [11] J.T. Mexia, P. Corte Real, M.L. Esquível e J. Lita da Silva, *Convergência do estimador dos mínimos quadrados em modelos lineares*, Estatística Jubilar. Actas do XII Congresso da Sociedade Portuguesa de Estatística, Edições SPE (2005), 455–466.
- [12] J.T. Mexia e J. Lita da Silva, *A consistência do estimador dos mínimos quadrados em domínios de atracção maximais*, Ciência Estatística. Actas do XIII Congresso Anual da Sociedade Portuguesa de Estatística, Edições SPE (2006), 481–492.
- [13] J.T. Mexia and J. Lita da Silva, *Sufficient conditions for the strong consistency of least squares estimator with α -stable errors*, Discussiones Mathematicae - Probability and Statistics **27** (2007), 27–45.

Received 15 November 2009