

# **LSE in the Regression with LRD and Constraints: Approximate Representation and Applications**

**Elina M. Moldavskaya**

*Department of Mathematics, Bar-Ilan University  
Ramat-Gan 52900, Israel  
E-mail: elinam@bgu.ac.il*

**Key words:** long-range dependence, constraints, approximate representation

We consider linear regression models with long-range dependence (LRD) in the noise and equality and inequality constraints on the parameters. We examine the solution of minimization problem of the least squares functional in these models. It is proved that this solution (least squares estimator) converges in distribution to the solution of the quadratic programming problem. The latter solution is non-Gaussian in typical cases as opposite to known results for LRD without constraints for which least squares estimator is asymptotically Gaussian in many typical cases. Approximate representation for least squares estimator is given. From this representation one can see the concrete structure of the estimators.