Estimating variance components in Stata

Yulia Marchenko
StataCorp
College Station, TX
ymarchenko@stata.com

Abstract. This article gives a brief overview of the popular methods for esti-mating variance components in linear models and describes several ways to obtain such estimates in Stata for various experimental designs. The article's emphasis is on using `xtmixed` to estimate variance components. Prior to Stata 9, `loneway` could be used to estimate variance components for one-way random-effects models. For other experimental designs, variance components could be computed manually using saved results after `anova`. The latter approach is viable but requires tedious computations for complicated experimental designs. Instead, as of Stata 9, vari-ance components are easily obtained by using `xtmixed`.

Keywords: st0095, variance components, experimental design, ANOVA, REML, ML, multilevel, random coefficients, mixed models