



Heteroskedastic Generalized Linear Models to explore income inequality in Latin American countries

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The heteroskedastic generalized linear model (HGLM) is a generalized linear model (GLM) where the conditional variance of a dependent variable y_i is a function of a vector of covariates x_i . This paper aims to analyze differential income inequality among groups in Brazil, Colombia, and Uruguay –all countries in Latin America, a region with high income inequality–, by modeling log-income variance. Heteroskedastic models can be useful to understand the characteristics of economic inequality in the region, and highlight the variables that can be subject to public policies in order to improve income distribution. We use household surveys datasets produced by these countries' National Statistical Offices, and standardized by the Luxembourg Income Study (LIS) project to enhance comparability. The analysis starts with a Variance-Equation-only model for each country to determine between-groups differences in income variability. A Mean-and-Variance-Equations model is also estimated to control for between-groups differences in mean income. We compute a ratio of coefficients of both models to determine if differences in income inequality would diminish after controlling for mean differences. In all three countries, income inequality is greater among older people, women, the self-employed labor force, high-skilled workers, and people working in the agricultural sector. After controlling for mean-income differentials, the differences in income variability increases between men and women, and between dependent and independent workers.

Keywords: Heteroskedastic linear models; income inequality; log-income variance.