

Time Series Based Errors and Empirical Errors in Fertility Forecasts in the Nordic Countries*

Nico Keilman^{1,2} and Dinh Quang Pham²

¹ *Department of Economics, University of Oslo, Norway. E-mail: nico.keilman@econ.uio.no*

² *Statistics Norway, Oslo, Norway*

Summary

We use ARCH time series models to derive model based prediction intervals for the Total Fertility Rate (TFR) in Norway, Sweden, Finland, and Denmark up to 2050. For the short term (5–10 yrs), expected TFR-errors are compared with empirical forecast errors observed in historical population forecasts prepared by the statistical agencies in these countries since 1969. Medium-term and long-term (up to 50 years) errors are compared with error patterns based on so-called naïve forecasts, i.e. forecasts that assume that recently observed TFR-levels also apply for the future.

Key words: Time series; ARCH model; Stochastic population forecast; Total Fertility Rate; Empirical forecast errors; Naïve forecast; Nordic countries.

*Revised version of a paper presented at the seminar “How to deal with uncertainty in population forecasting?” Vienna, 12–14 December 2002. Comments made by seminar participants are gratefully acknowledged. Research was supported by grant nr. SERD-2000-00172 under the Fifth Framework of the European Commission.