

Jeffrey Begun
Ph.D. Candidate
University of Washington

Web: <http://students.washington.edu/jbegun>
E-mail: jbegun@u.washington.edu
Tel: (206) 910-7479

Dissertation Abstract

“A Bayesian Analysis of Model Uncertainty and Development”

Abstract: My dissertation utilizes Bayesian Model Averaging (BMA) to examine model uncertainty in cross-country datasets. When there is theoretical support for a large number of explanatory variables in an area of study, the exact nature of the “true” model is often unknown. BMA is able to test millions of different specifications in order to determine which potential regressors are most likely part of the underlying true model.

The first chapter of the dissertation (“In Search of an Environmental Kuznets Curve in Sulphur Dioxide Concentrations: A Bayesian Model Averaging Approach” – joint with Theo Eicher) examines whether an Environmental Kuznets Curve (EKC) exists in sulphur dioxide emissions, and also tests the importance of certain macroeconomic, institutional, and climatic variables in determining sulphur dioxide concentrations. The study finds only weak evidence of an inverted U-shaped relationship between income and pollution that the EKC would suggest. Once we correct for oversampling from industrialized countries even a weak EKC fails to hold, and other macroeconomic variables (such as trade), institutional variables (such as executive constraints), and climatic variables (such as precipitation variation) have the most explanatory power.

The second chapter (“Different Growth for Different Folks? Reexamining East Asian Growth Determinants through Iterative Bayesian Model Averaging (IBMA)”) also allows for model uncertainty and tests for parameter heterogeneity in several factors which have been theoretically and empirically linked to East Asian growth. Primary schooling and labor market flexibility are found to be particularly important for East Asian growth, while other growth determinants such as foreign direct investment and international trade do not appear to have a disparate effect on economic growth in the region compared to the rest of the world.

The last chapter of the dissertation (“Initial Conditions and Heterogeneity in Cross-Country Growth: An Iterative Bayesian Model Averaging (IBMA) Analysis”) tests for multiple regimes in cross-country growth due to differences in initial conditions between countries. Specifically, the study employs IBMA to allow for parameter heterogeneity in a large suite of explanatory variables due to differences in initial income and human capital. Initial income and human capital are found to be important threshold variables as only around half of the growth determinants identified as important in the global sample appear to have an important effect on growth on subsamples of countries with high initial income or human capital. Countries with high levels of both initial income and human capital also appear to follow a unique growth path.