# ECON6300/7320/8300
# Advanced Microeconometrics
# Bayesian Methods

Christiern Rose

[1] University of Queensland

Practical 9
April 2019

# Introduction

- This class will review:
  - Bayesian estimation
  - Bayesian inference
  - Bayesian diagnostics
  - Bayesian regression
- We begin with a demonstration.
- We move on to a practical based on the World Bank data from last time.

# Practical (1)

- We have data from the World Bank's 1997 Vietnam Living Standards Survey for 5,006 households with positive medical expenditures in the previous year. The data are qreg0902.dta.
- The variables are age and gender of household head, whether the household is a farm, whether it is urban, the household size, log total household expenditure and log household expenditure on medicine.
- We are interested in estimating Engel curves for medical expenditure
- The outcome of interest is log household expenditure on medicine, the covariate of interest is log total household expenditure and the remaining variables are controls.

# Practical (2)

1. Load, describe and summarise the data.
2. Keep the first 500 observations only
3. Obtain the OLS estimator of the Engel curves
4. Perform a Bayesian regression to estimate the Engel curves. Specify a prior mean of 1 for the expenditure elasticity and zero for all other elements of $\beta$, and choose the other aspects of the prior reasonably.
5. Perform and interpret diagnostics to determine how well your MCMC algorithm worked. If not, increase the size of the MCMC and/or the burn-in.
6. Repeat the analysis using a less informative prior. Explain any change(s) in your results.