

# MCMC

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## Introduction acknowledgement and thanks

This is a work that is developed from Dave Giles excellent and very helpful overview of Markov Chain Monte Carlo (MCMC) methods. The first of four fantastic posts begins [here](#).

## 1 Bayesian Methods

There is a blog post from Dave Giles that runs through the Bayesian method. The example looks at a consumption function (data as `consump.dat.txt` in the Data folder)

## 2 Markov Chain and Gibbs sampler

. Dave Giles code is in the R folder and is called `Consumption.R`. [Dave Giles blog post on Bayesian method](#).

## 3 Markov Chain

A Markov chain is a stochastic process where the current value depends only on the immediately preceeding case. It does not depend on anything before that. The Gibbs sampler. With two parameters  $\Theta_1$  and  $\Theta_2$ ,  $p(\Theta_1, \Theta_2)$  is the prior pdf and  $L(\Theta_1, \Theta_2|y) = p(y|\Theta_1, \Theta_2)$  is the likelihood function. By Bayes Theory, the posterior pdf is

$$p(\Theta_1, \Theta_2|y) \propto p(\Theta_1, \Theta_2)L(\Theta_1, \Theta_2|y) \quad (1)$$