Figure 2. Markov Regime Switching Model of Exchange Rates

Switching Mechanism
(Political Disequilibration)

State 1
Random Walk
\((\mu_1, \sigma^2_1)\)

\[ P(S_t = 1|x_{t-1}, \ldots, x_{t-k}) = \frac{\exp(x_t' \beta_1)}{1 + \exp(x_t' \beta_2)} \]

State 2
Random Walk
\((\mu_2, \sigma^2_2)\)

\[ P(S_t = 2|x_{t-1}, \ldots, x_{t-k}) = \frac{\exp(x_t' \beta_2)}{1 + \exp(x_t' \beta_1)} \]

State 1
Random Walk
\((\mu_1, \sigma^2_1)\)

\[ P(S_{t-1} = 1|x_{t-1}, \ldots, x_{t-k}) = \frac{\exp(x_{t-1}' \beta_1)}{1 + \exp(x_{t-1}' \beta_2)} \]

State 2
Random Walk
\((\mu_2, \sigma^2_2)\)

\[ P(S_{t-1} = 2|x_{t-1}, \ldots, x_{t-k}) = \frac{\exp(x_{t-1}' \beta_2)}{1 + \exp(x_{t-1}' \beta_1)} \]

Note: \(x_{t-1} = (1, x_{1,t-1}, \ldots, x_{(k-1),t-1})'\) and \(\beta_i = (\beta_{i,0}, \beta_{i,1}, \ldots, \beta_{i,(k-1)})'\), \(i = 1, 2\). When the last (k - 1) terms of the parameter vectors \(\beta_1\) and \(\beta_2\) are set to zero, the time varying transition probability model collapses to the constant transition probability model. The transition probability notation is from Diebold, Lee, and Weinbach (1994, 285).
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