# working paper

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## simple model

$$\ln(\text{ftemp}_{2012,k})$$
$$= \beta_{0,\text{state}_k,\text{code}_k,\text{type}_k}$$
$$+ \beta_{1,\text{state}_k,\text{code}_k,\text{type}_k} \times \ln(\text{ftemp}_{2007,k}) + \varepsilon_k$$

with all fixed parameters, normal prior on all the $\beta$. inverse gamma prior on variance parameter.

## Model discussed

$$
\begin{aligned}
&\ln(\text{ftemp}_{2012,k}) \\
&= \beta_{0,\text{state}_k,\text{code}_k,\text{type}_k} \\
&\quad + \beta_{1,\text{state}_k,\text{code}_k,\text{type}_k} \times \ln(\text{ftemp}_{2007,k}) + \varepsilon_k
\end{aligned}
$$

With $\beta$ mixed effects. $\beta_{i,\text{state}_k,\text{code}_k,\text{type}_k} = \gamma_{i,\text{state}_k,\text{code}_k,\text{type}_k}$

# R code

```r
library(pubBonneryLahiriTran2016)
demo(mcmc)
```