On Using Metropolis-Hastings to Analyze Democratic Support

Final Paper for Advanced Quantitative Methods

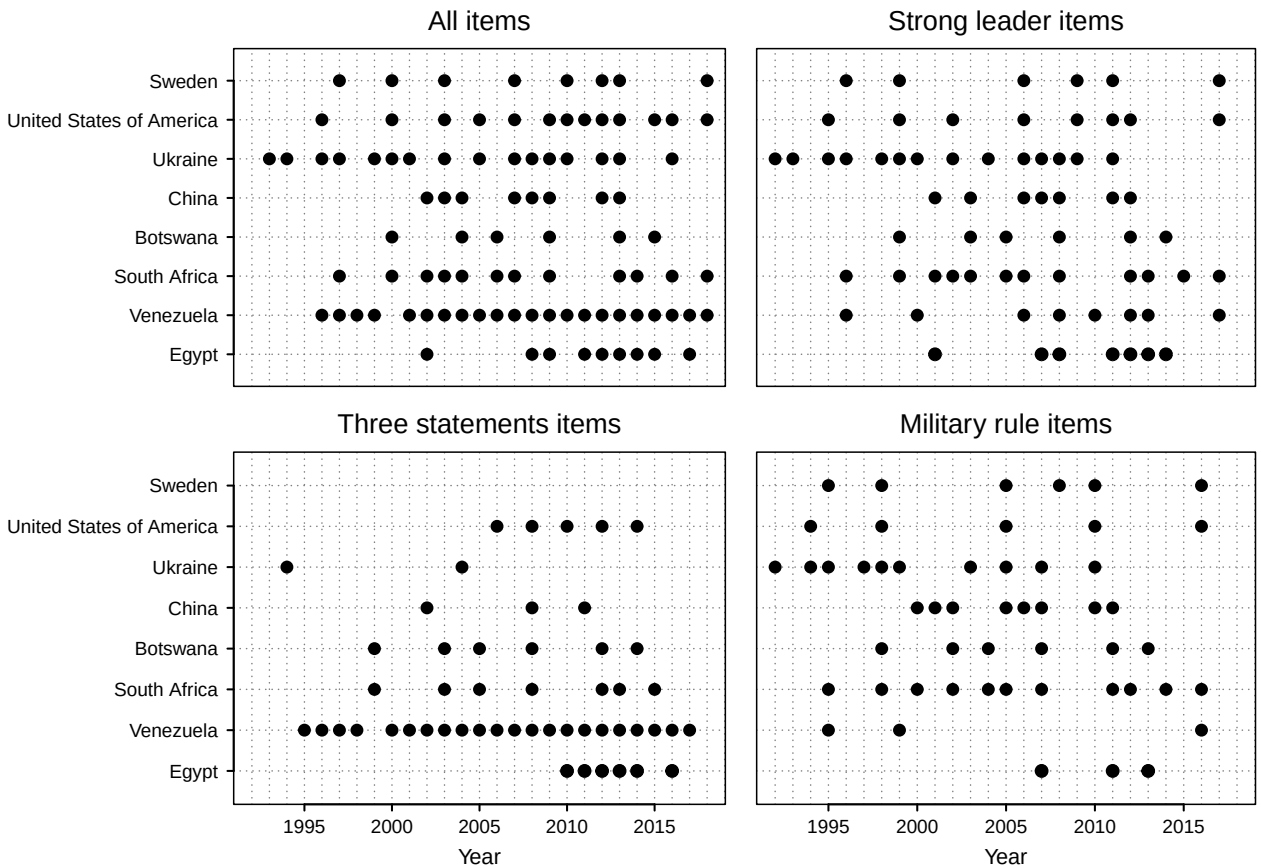
Tobias Stenzel

Chair of Quantitative Methods in the Social Sciences, Prof. Gschwend

May 31, 2022

Panel Data on Public Democratic Support y_{ikt}

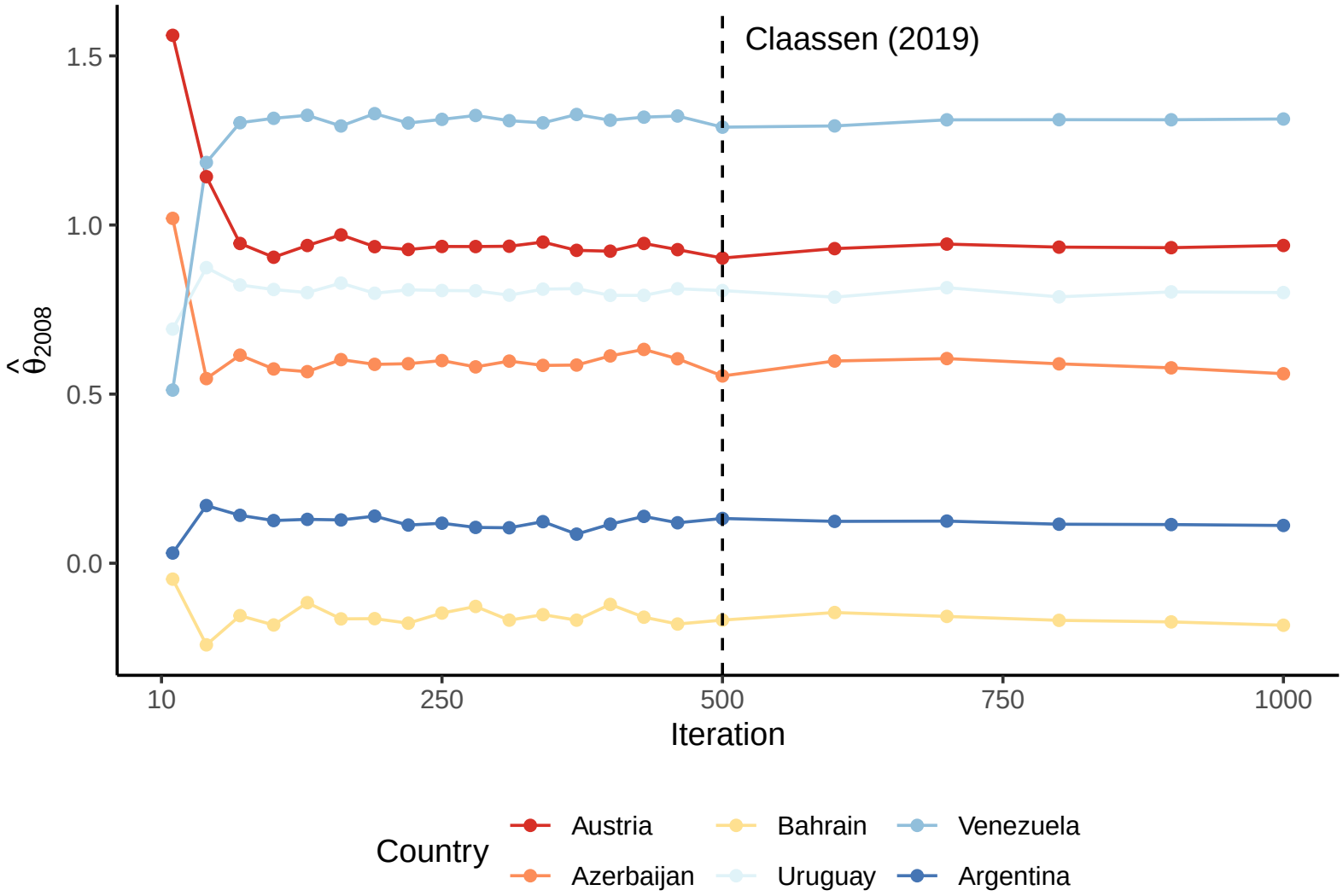
Claassen (2019) estimation, Claassen (2020b,a) DV and IV



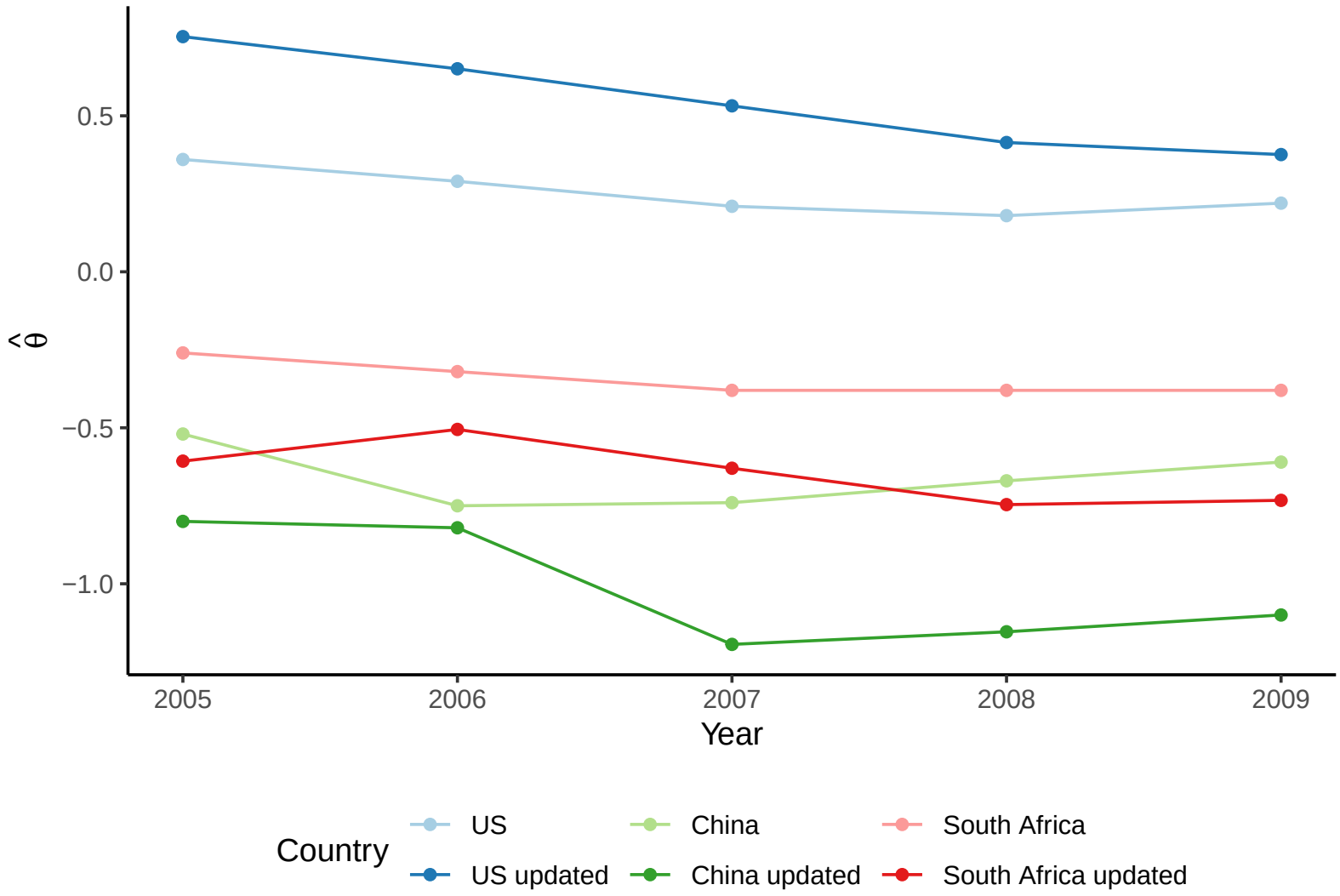
Model Estimated by MH Algorithm

$$
\begin{aligned}
\mathsf{y}_{ikt} &\sim \mathsf{Binomial}(s_{ikt}, \pi_{ikt}) \\
\pi_{ikt} &\sim \mathsf{Beta}(\alpha_{ikt}, \pi_{ikt}) \\
\alpha_{ikt} &= \phi\eta_{ikt} \\
\beta_{ikt} &= \phi(1 - \eta_{ikt}) \\
\eta_{ikt} &= \mathsf{logit}^{-1}(\lambda_k + \delta_{ik} + \theta_{it}) \\
\lambda_k &= \mathcal{N}(\mu_\lambda, \sigma^2_\lambda) \\
\delta_k &= \mathcal{N}(0, \sigma^2_\delta) \\
\theta_{it} &= \mathcal{N}(\theta_{i,t-1}, \sigma^2_\theta)
\end{aligned}
$$

Varying MH Iteration Numbers



Old vs. Updated Data (27 vs. 30 years)



References

Christopher Claassen. Estimating smooth country–year panels of public opinion. *Political Analysis*, 27(1):1–20, 2019.

Christopher Claassen. In the mood for democracy? democratic support as thermostatic opinion. *American Political Science Review*, 114(1):36–53, 2020a.

Christopher Claassen. Does public support help democracy survive? *American Journal of Political Science*, 64(1):118–134, 2020b.