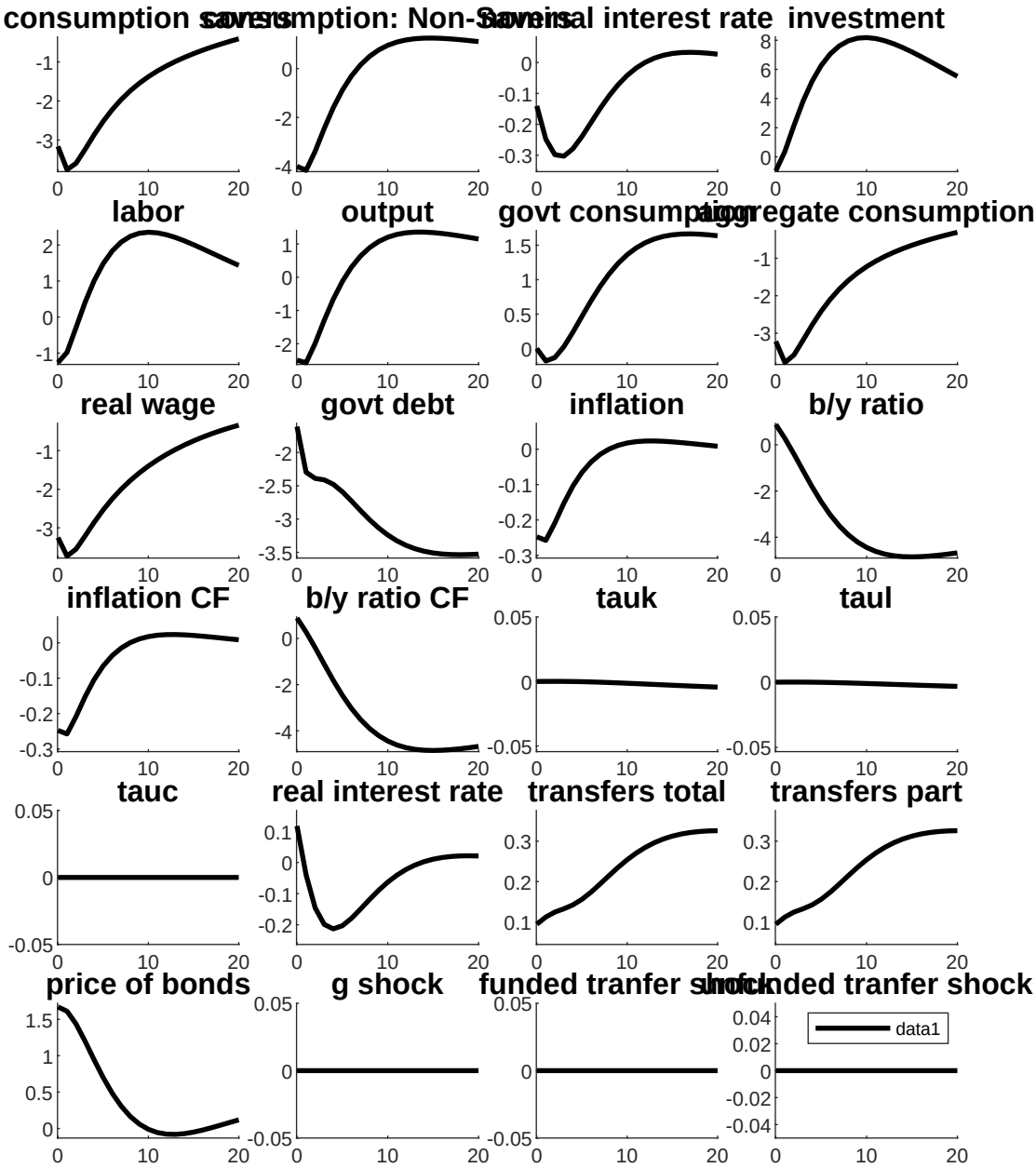technology shock IRF