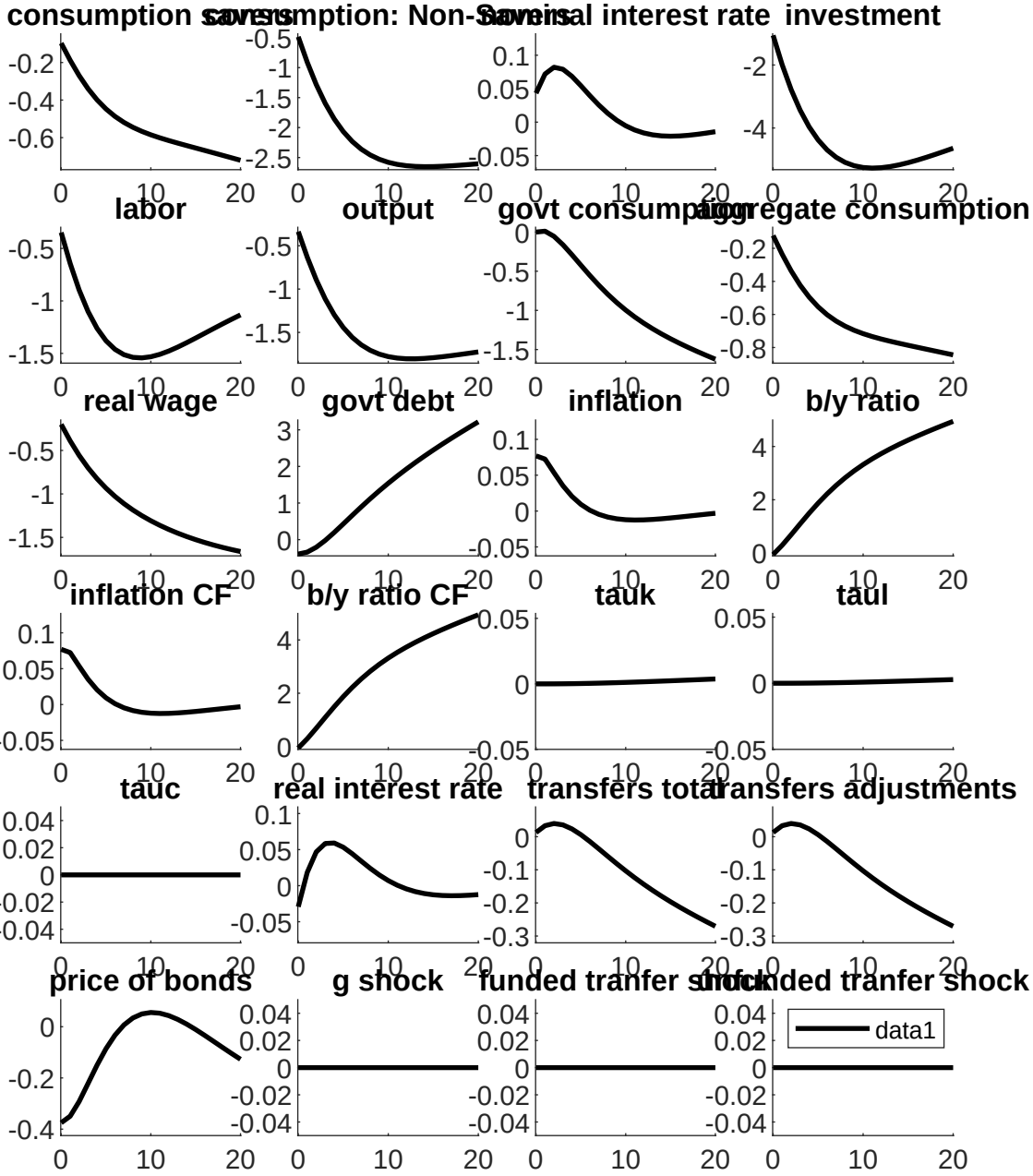shock to NKPC IRF