

Web-based supporting materials for
“RNN-Based Counterfactual Time-Series Prediction”

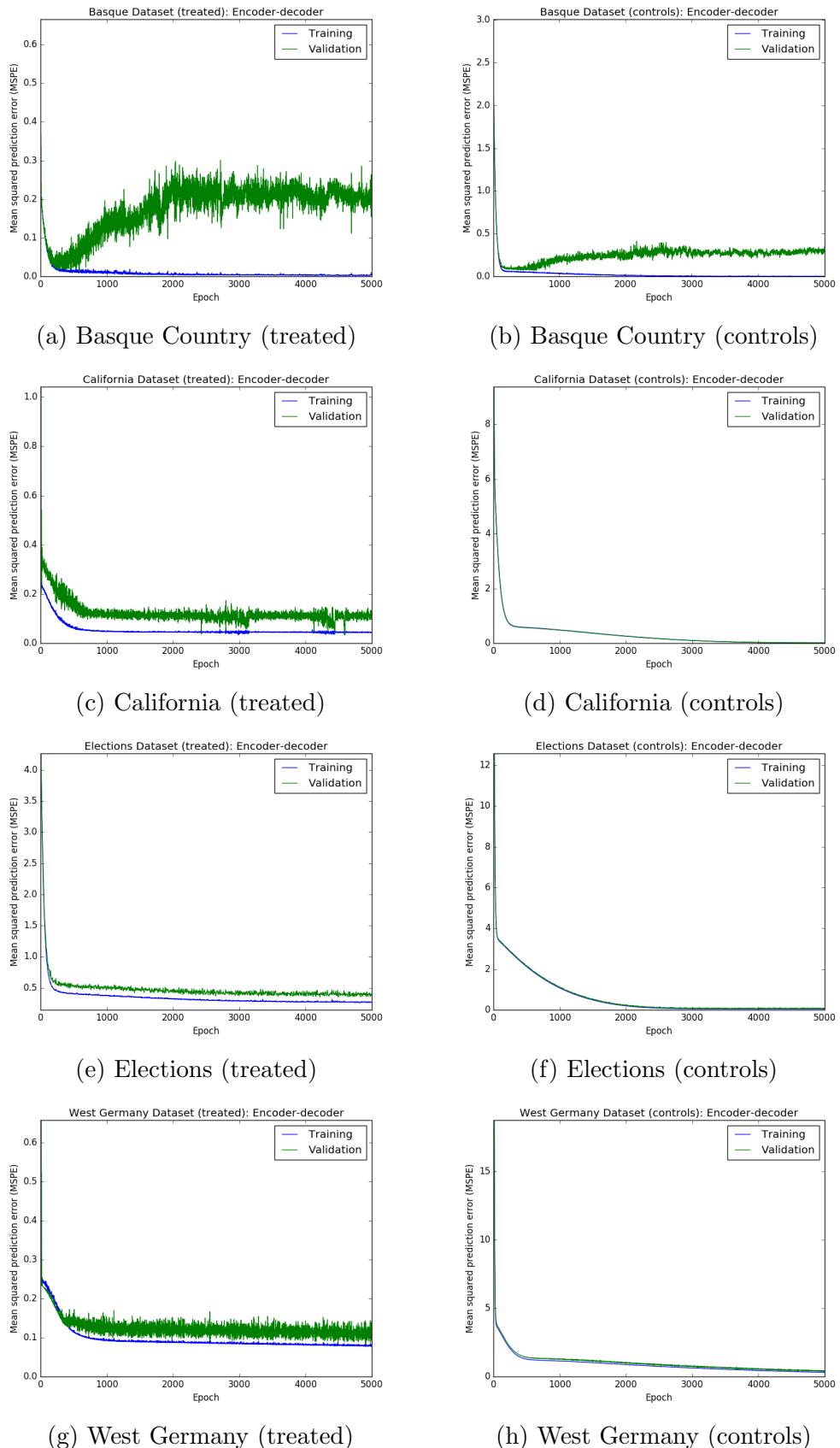


Figure 1: Evolution of encoder-decoder networks training and validation loss in terms of MSPE.

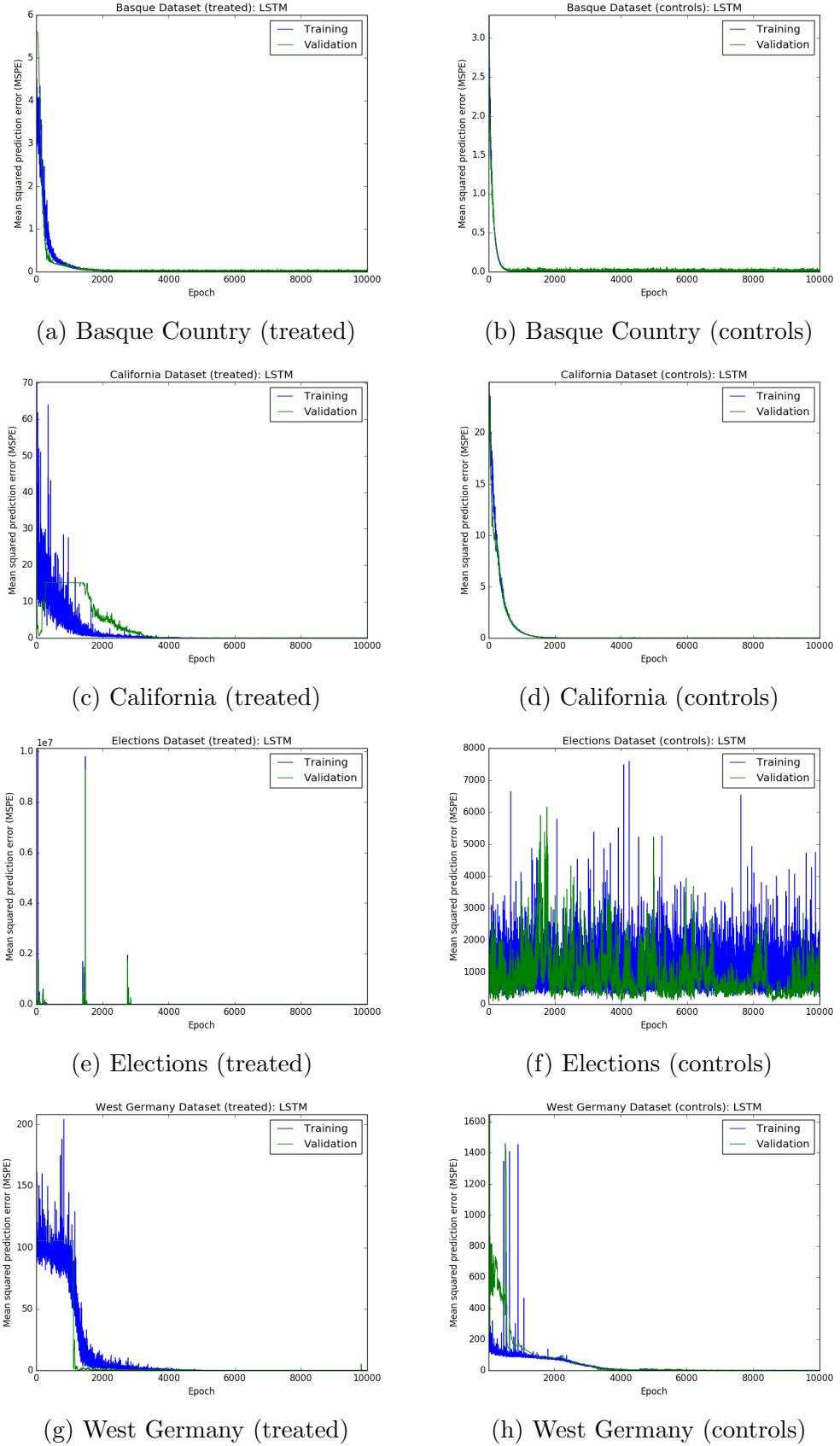
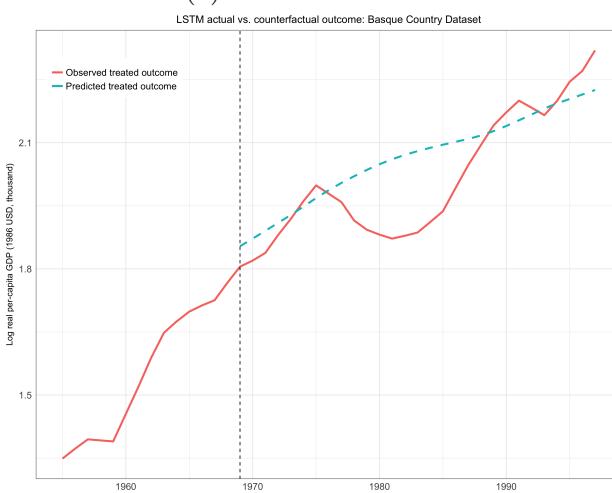
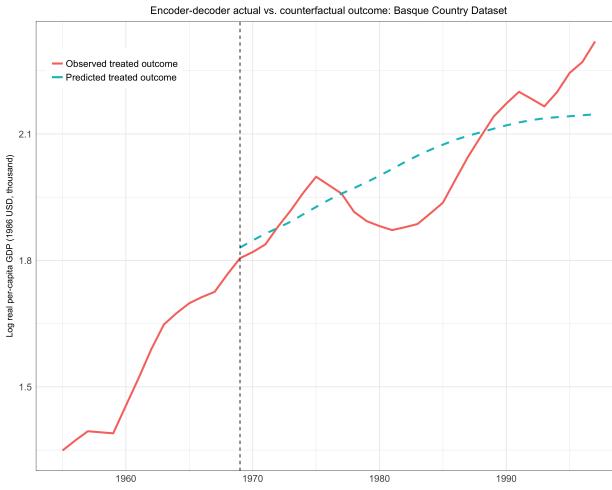
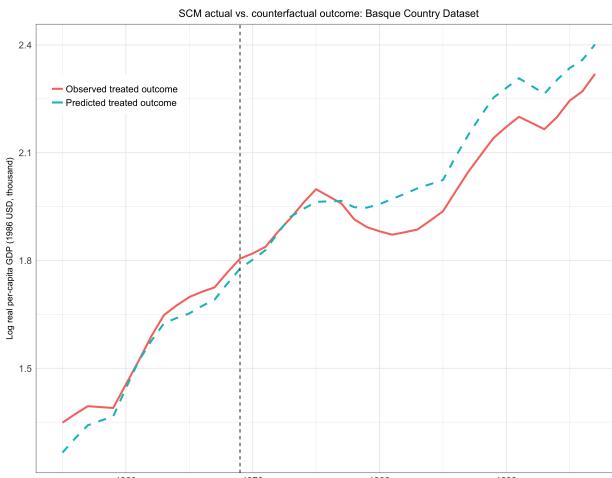


Figure 2: Evolution of baseline LSTM training and validation loss in terms of MSPE.

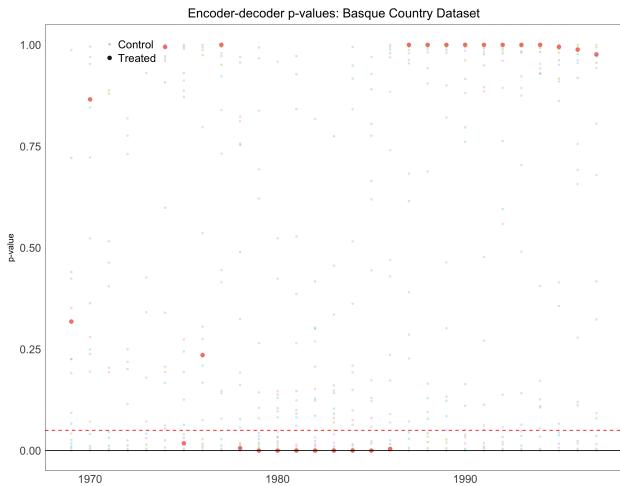


(b) LSTM (baseline)

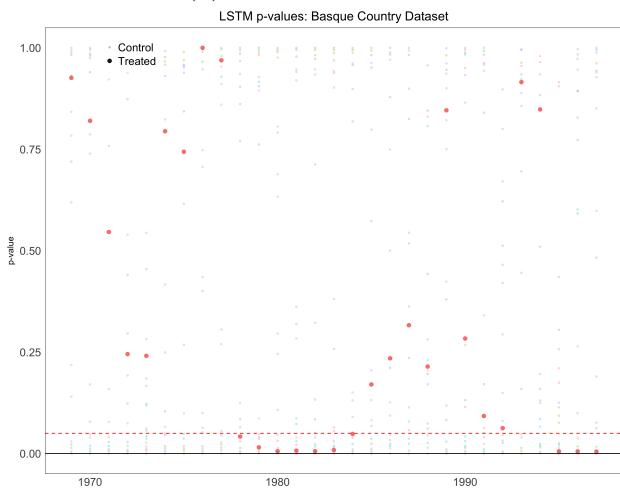


(c) SCM

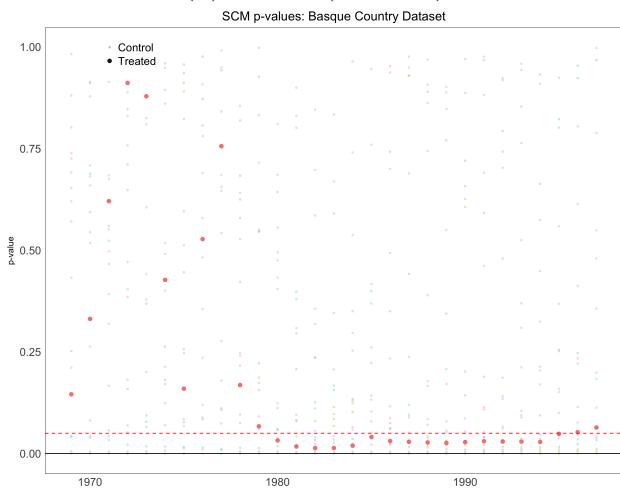
Figure 3: Observed and counterfactual predicted outcomes for treated unit in Basque Country dataset.



(a) Encoder-decoder

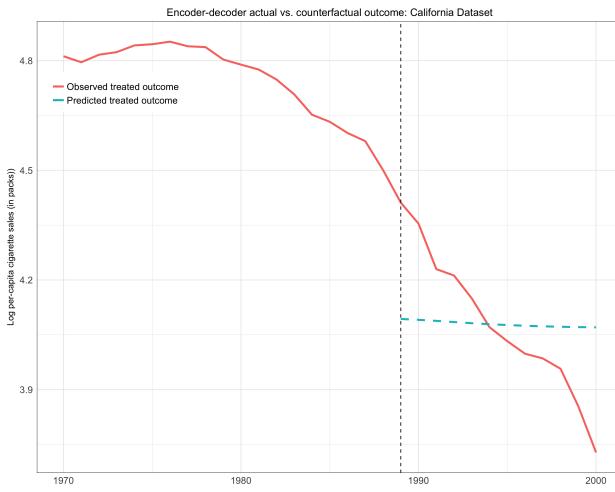


(b) LSTM (baseline)

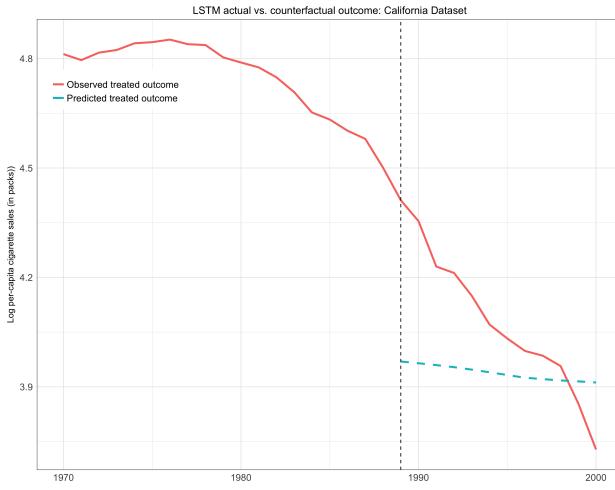


(c) SCM

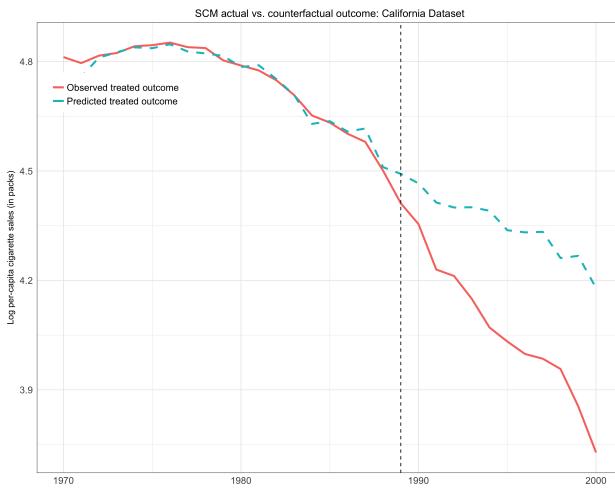
Figure 4: Per-period randomization p -values corresponding to treatment effects on treated and control units in Basque Country dataset.



(a) Encoder-decoder



(b) LSTM (baseline)



(c) SCM

Figure 5: Observed and counterfactual predicted outcomes for treated unit in California dataset.

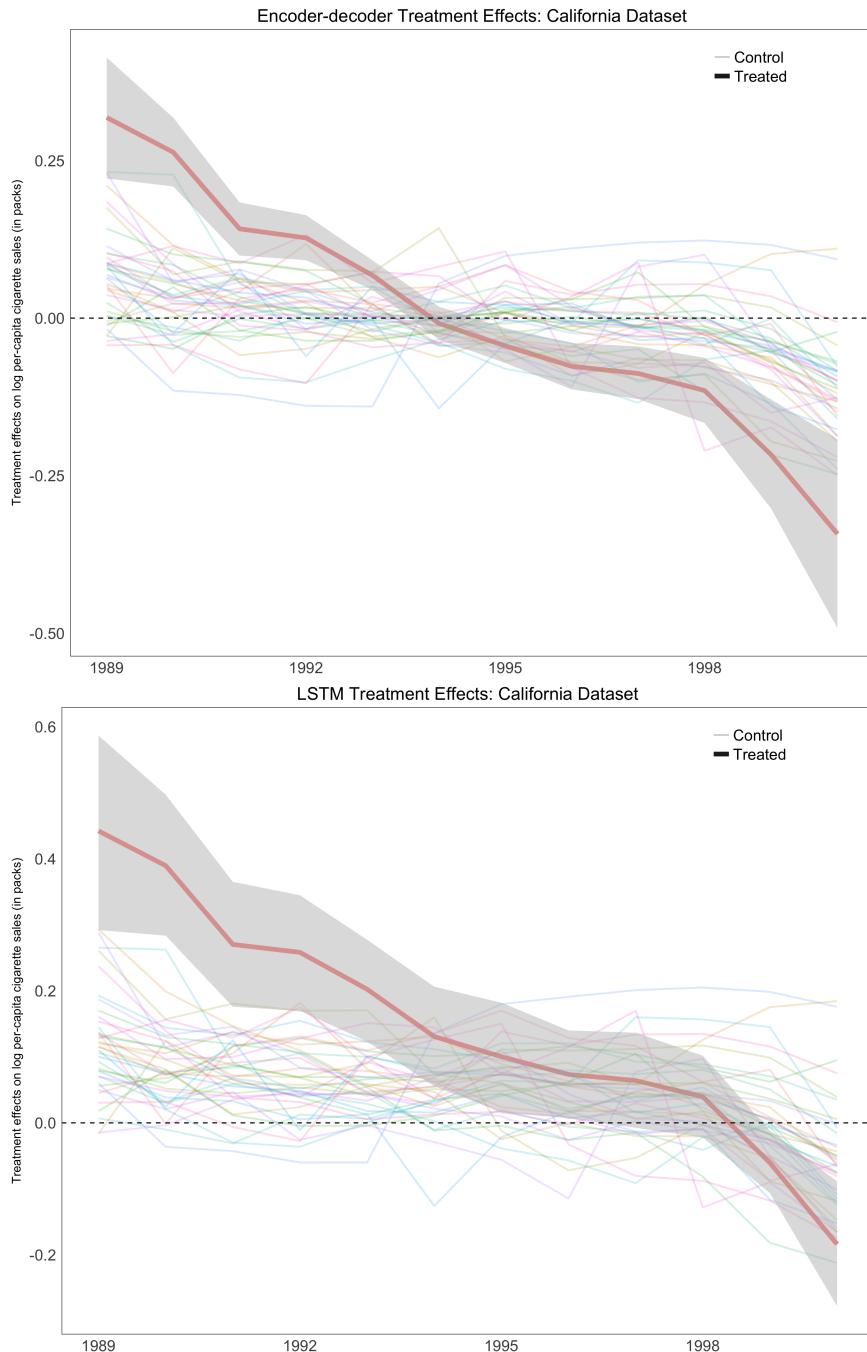


Figure 6: Encoder-decoder (top) and baseline LSTM (bottom) estimates of post-period treatment effects in California dataset. See notes to Fig. 1.

SCM Treatment Effects: California Dataset

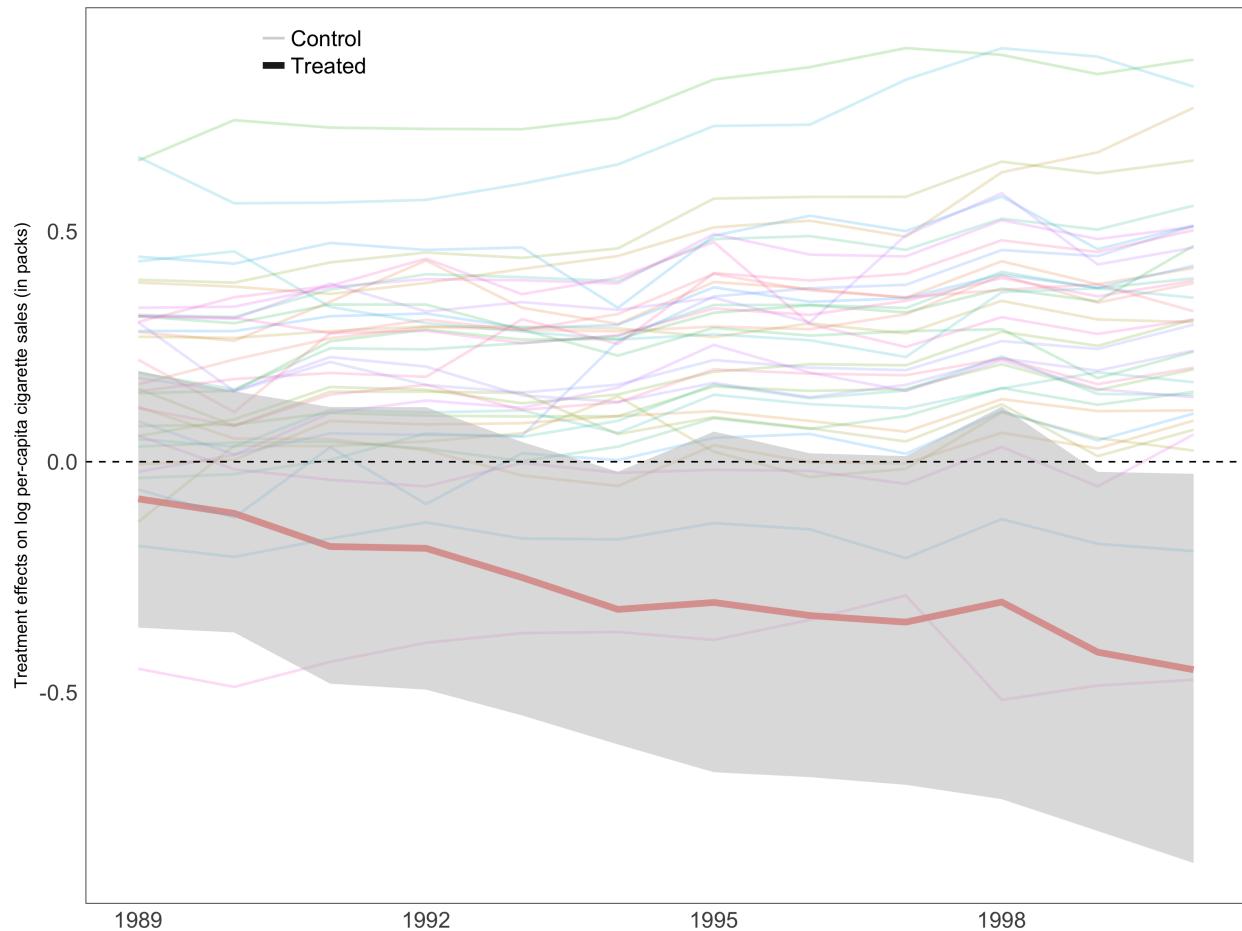
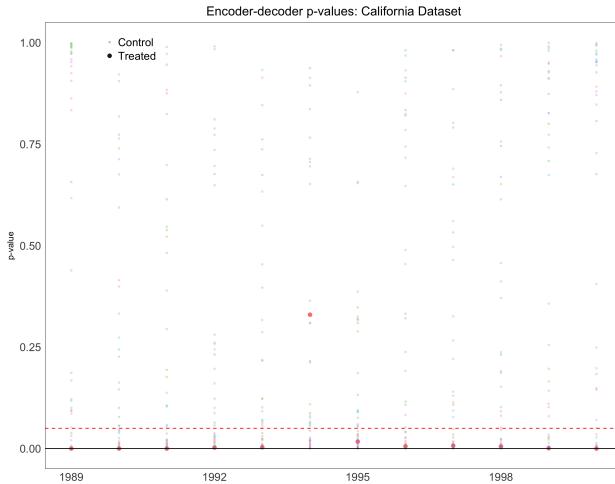
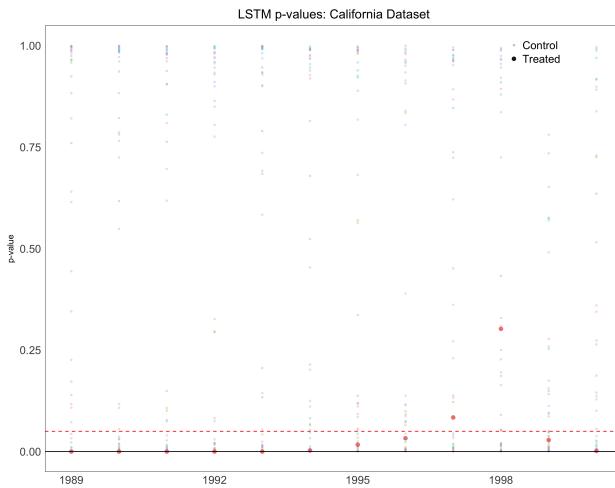


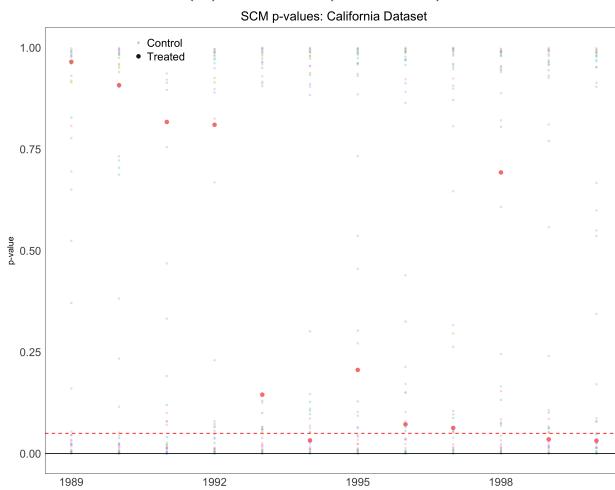
Figure 7: Synthetic control method estimates of post-period treatment effects in California dataset. See notes to Fig. 1.



(a) Encoder-decoder

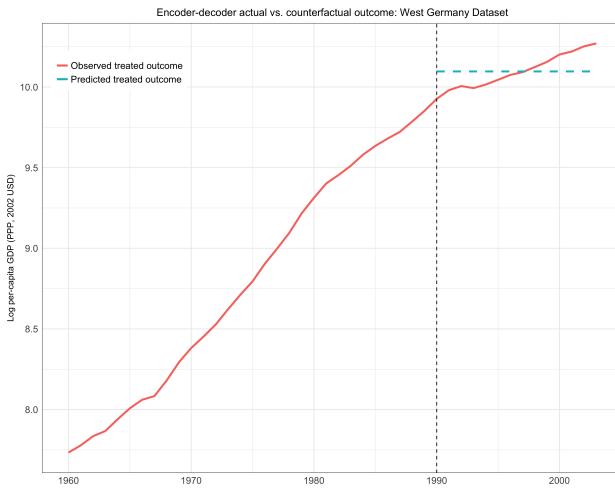


(b) LSTM (baseline)

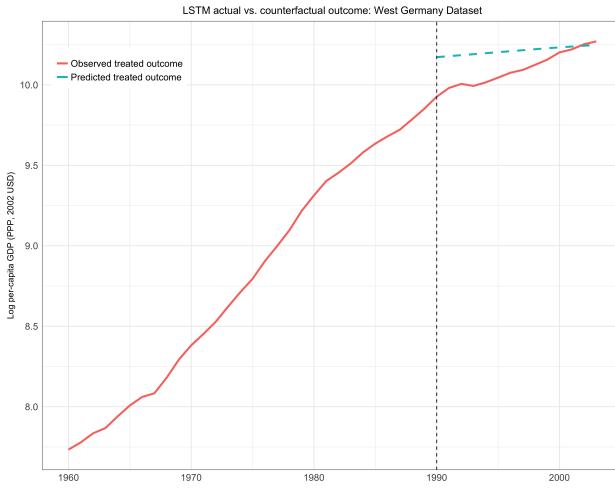


(c) SCM

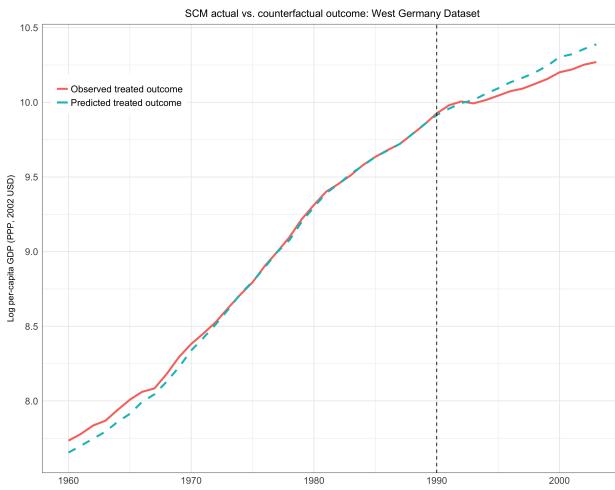
Figure 8: Per-period randomization p -values corresponding to treatment effects on treated and control units in California dataset.



(a) Encoder-decoder



(b) LSTM (baseline)



(c) SCM

Figure 9: Observed and counterfactual predicted outcomes for treated unit in West Germany dataset.

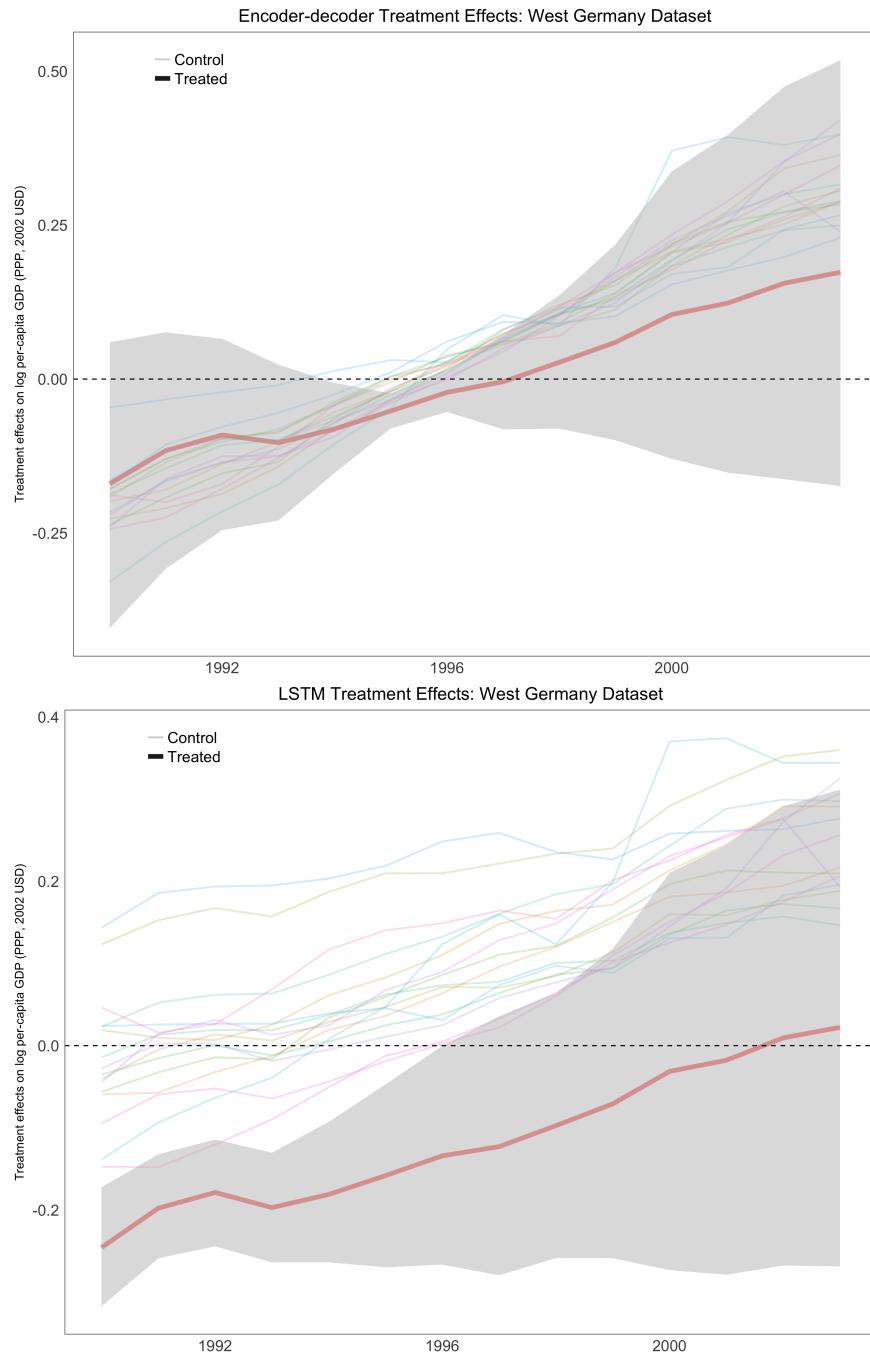


Figure 10: Encoder-decoder (top) and baseline LSTM (bottom) estimates of post-period treatment effects in West Germany dataset. See notes to Fig. 1.

SCM Treatment Effects: West Germany Dataset

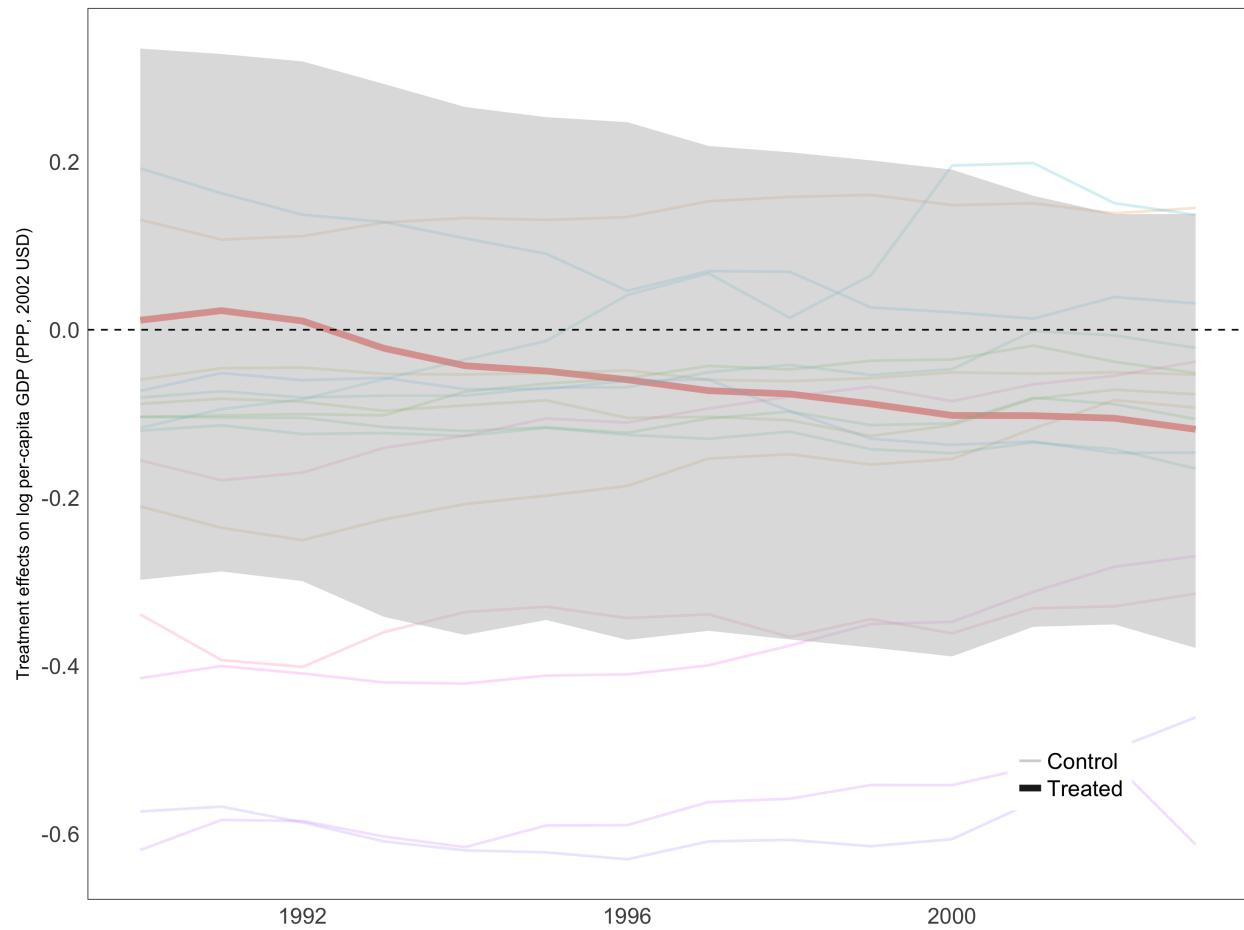
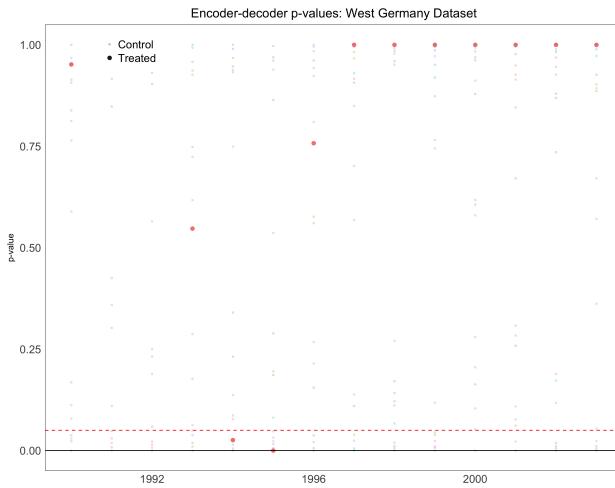
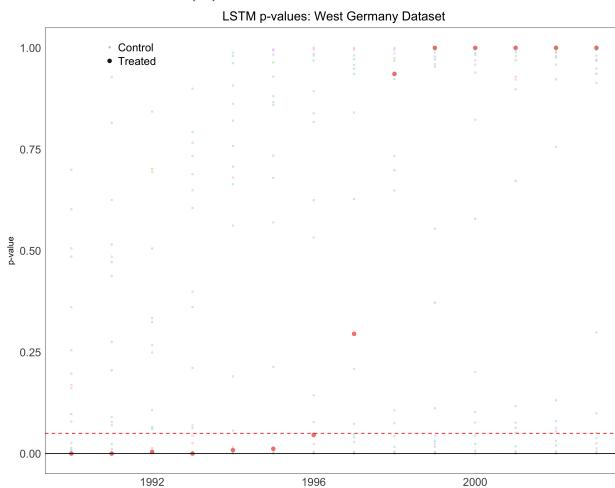


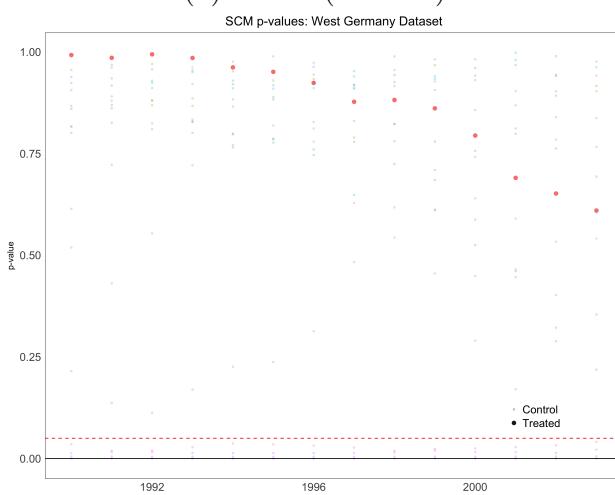
Figure 11: Synthetic control method estimates of post-period treatment effects in West Germany dataset. See notes to Fig. 1.



(a) Encoder-decoder



(b) LSTM (baseline)



(c) SCM

Figure 12: Per-period randomization p -values corresponding to treatment effects on treated and control units in West Germany dataset.