

Supporting Materials for  
“Building State Capacity through Public Land Disposal:  
An Application of Matrix Completion for  
Counterfactual Prediction”

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# 1 Exploratory data analysis

Table 1: Definitions and data sources of variables.

Theme	Variable	Coverage	Definition	Source
<b>Farms</b>	Farm size	1860	Log average farm size	Haines (2010)
	Farm value	1850,1860	Log average value of farmland and buildings per acre (\$)	Haines (2010)
	Land inequality	Ibid.	Gini coefficient based on distribution of farm sizes, adjusted for the share of propertyless farmers	Ibid.
<b>State Capacity</b>	Revenues	1783-1982	Log per-capita state government total revenue (1982\$)	Sylla et al. (1993, 1995a,b); Haines (2010) (total free pop. data from Haines (2010))
	Expenditures	Ibid.	Log per-capita state government total expenditure (1982\$)	Ibid.
	Education spending	1783-1942	Log per-capita state government education spending (1942\$)	Ibid.
<b>Homesteads</b>	Homestead entries	1869-1982	Log per-capita statewide sum of patents issued under the HSA	U.S. BLM ( <a href="https://glorerecords.blm.gov">https://glorerecords.blm.gov</a> ) (total free pop. data from Haines (2010))
<b>Railroads</b>	Railroad access	1850, 1860	Log total miles of operational railroad track per sq mi	Constructed from Atack (2013)

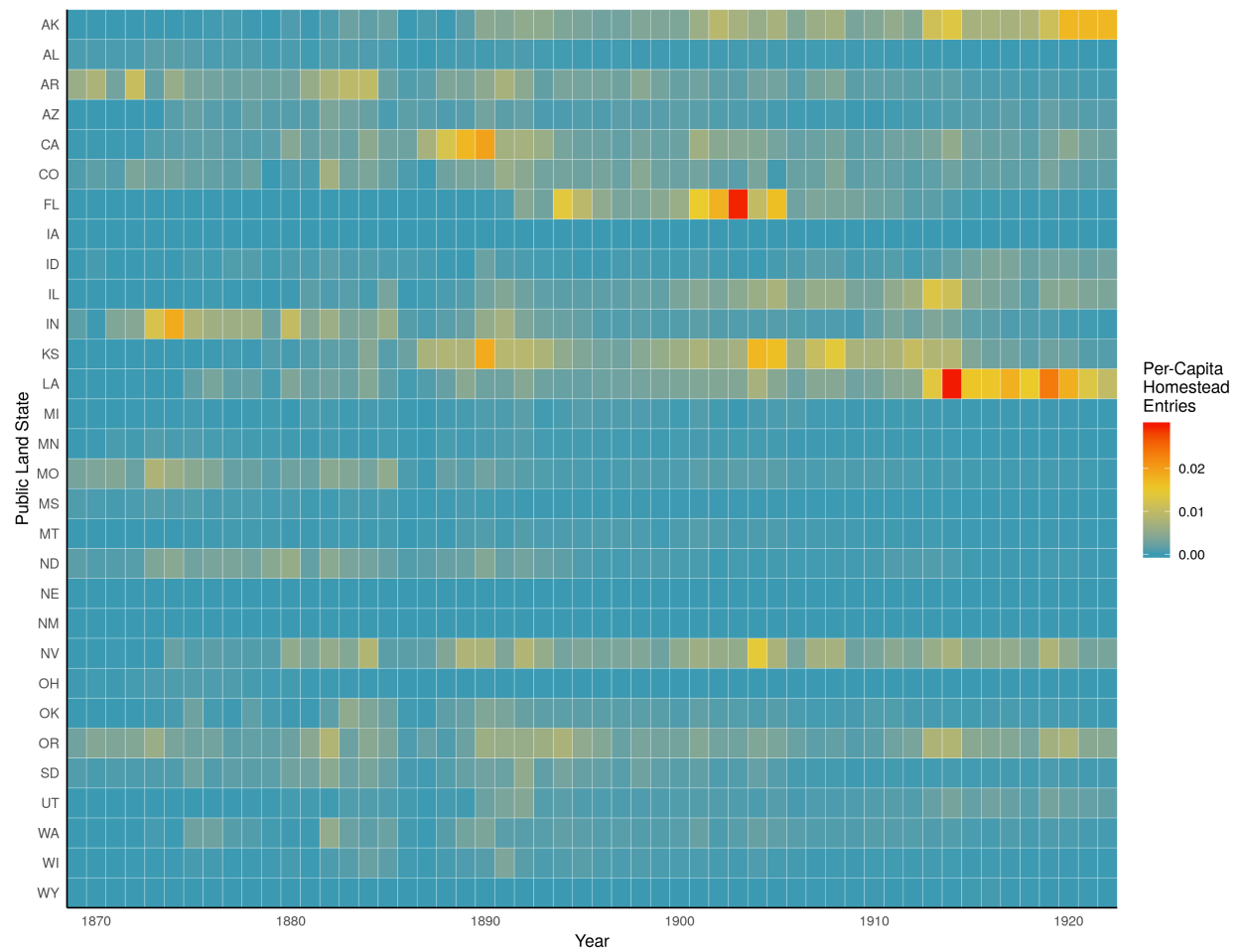
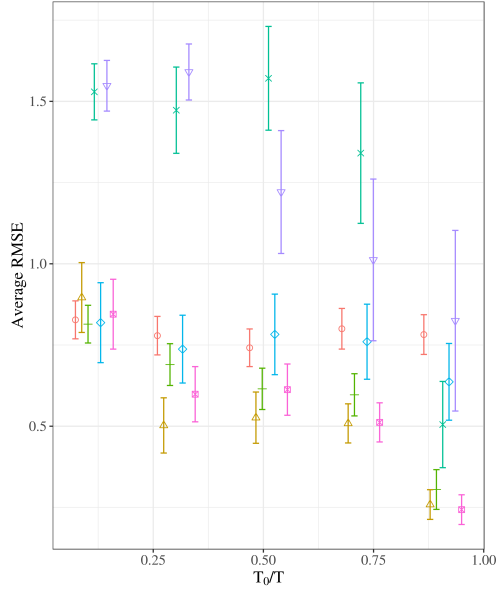
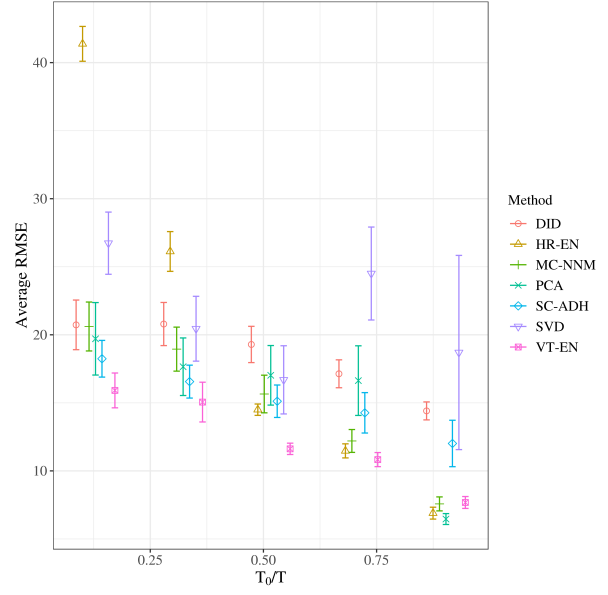


Figure 1: Per-capita statewide sum of homestead entries in state  $i$  and year  $t$ , 1869-1922.

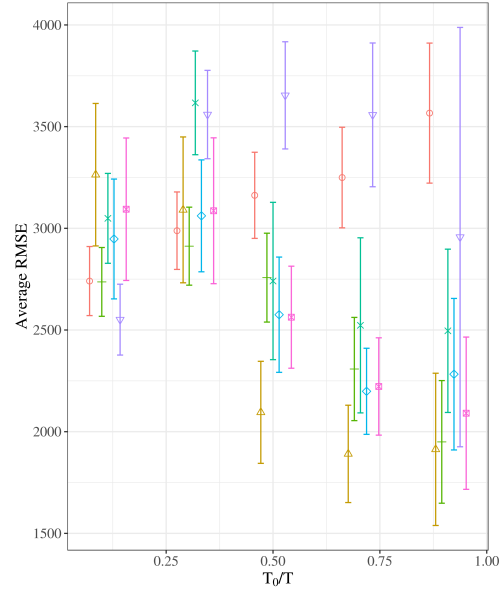
## 2 Simulations



(a) Basque Country terrorism data,  $N_t = 8$

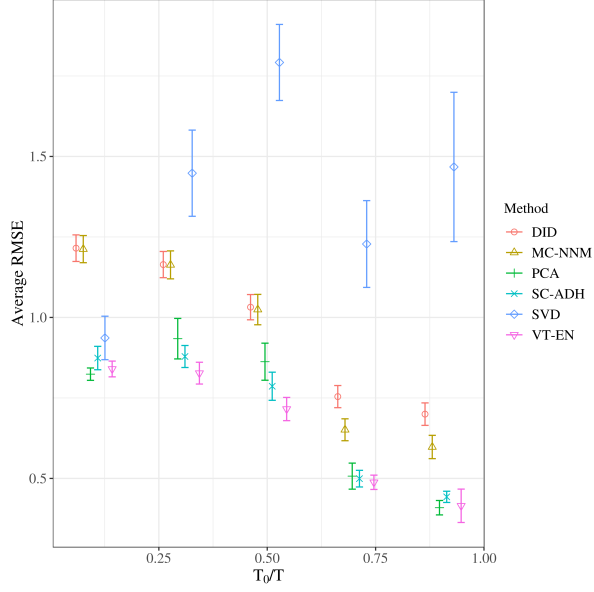


(b) California smoking ban data,  $N_t = 19$

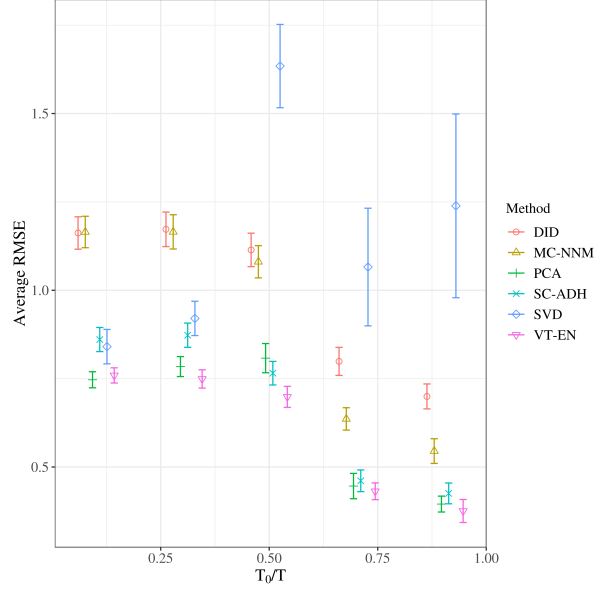


(c) West German reunification data,  $N_t = 8$

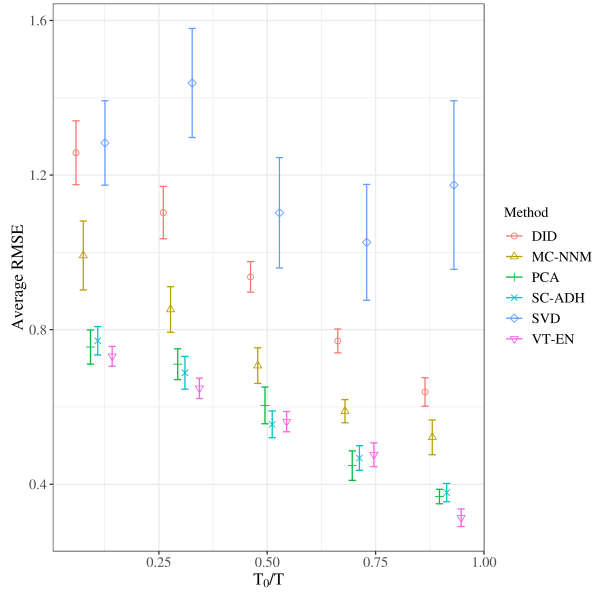
Figure 2: Placebo tests under simultaneous treatment adoption. See footnotes to Fig. 1.



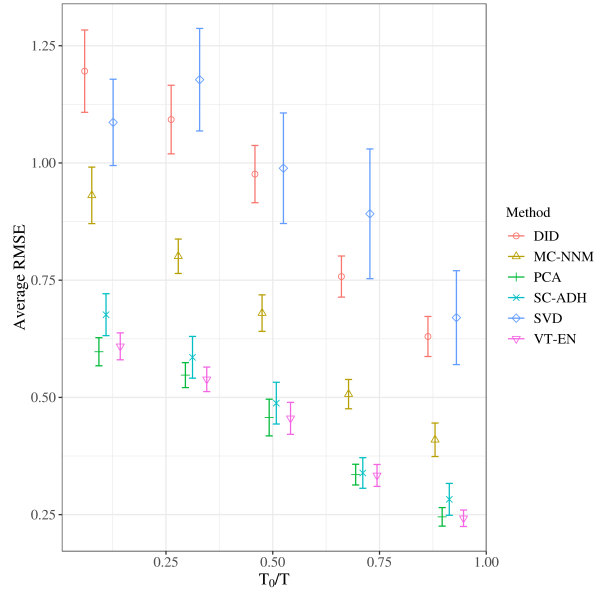
(a) Expenditures, simultaneous adoption



(b) Revenues, simultaneous adoption



(c) Expenditures, staggered adoption



(d) Revenues, staggered adoption

Figure 3: Placebo tests under simultaneous and staggered treatment adoption, with  $N_t = 9$ . See footnotes to Fig. 2.

### 3 Estimates

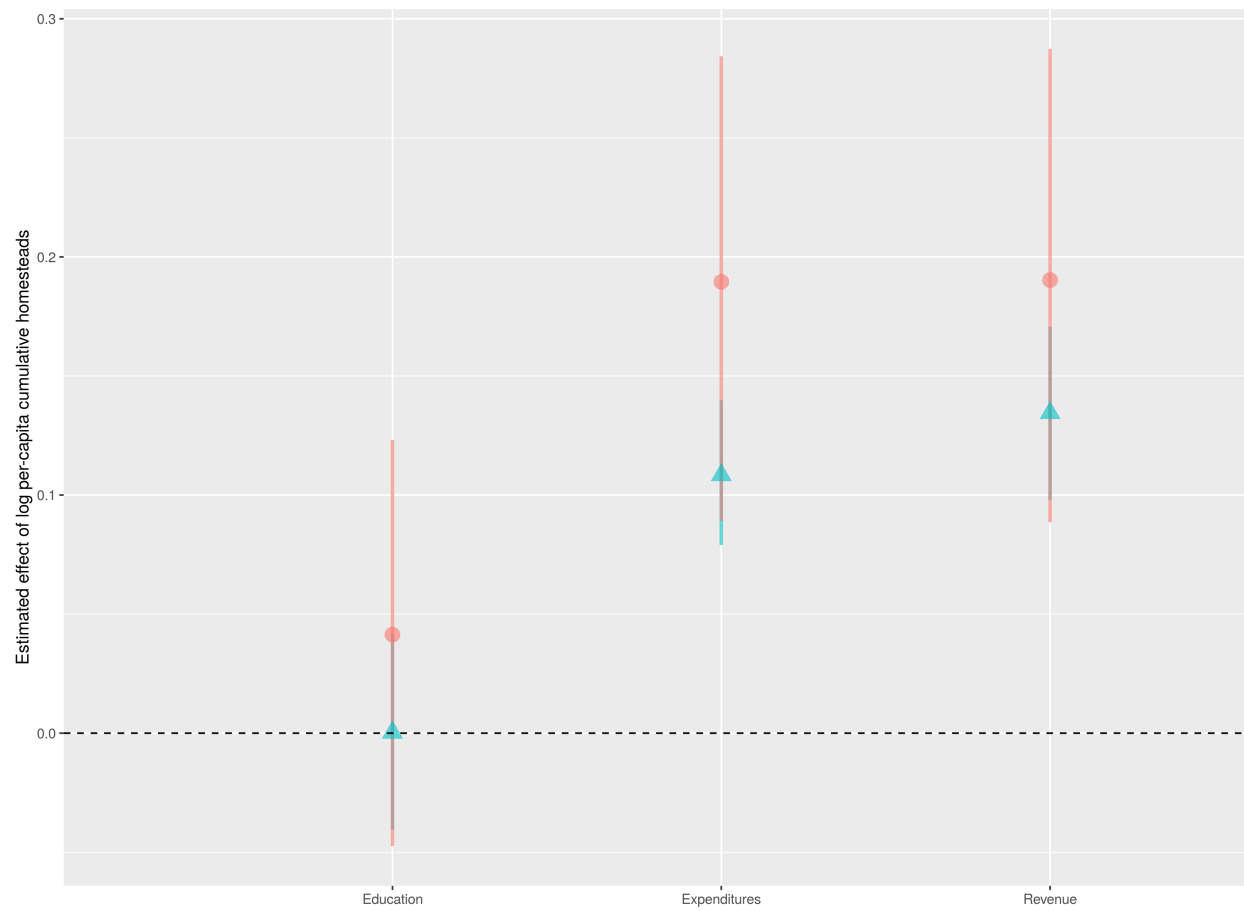


Figure 4: DD estimates of log per-capita cumulative homesteads on log per-capita state government finance, without including average farm values in the regression. See notes to Fig. 3.

## 4 Causal mechanisms

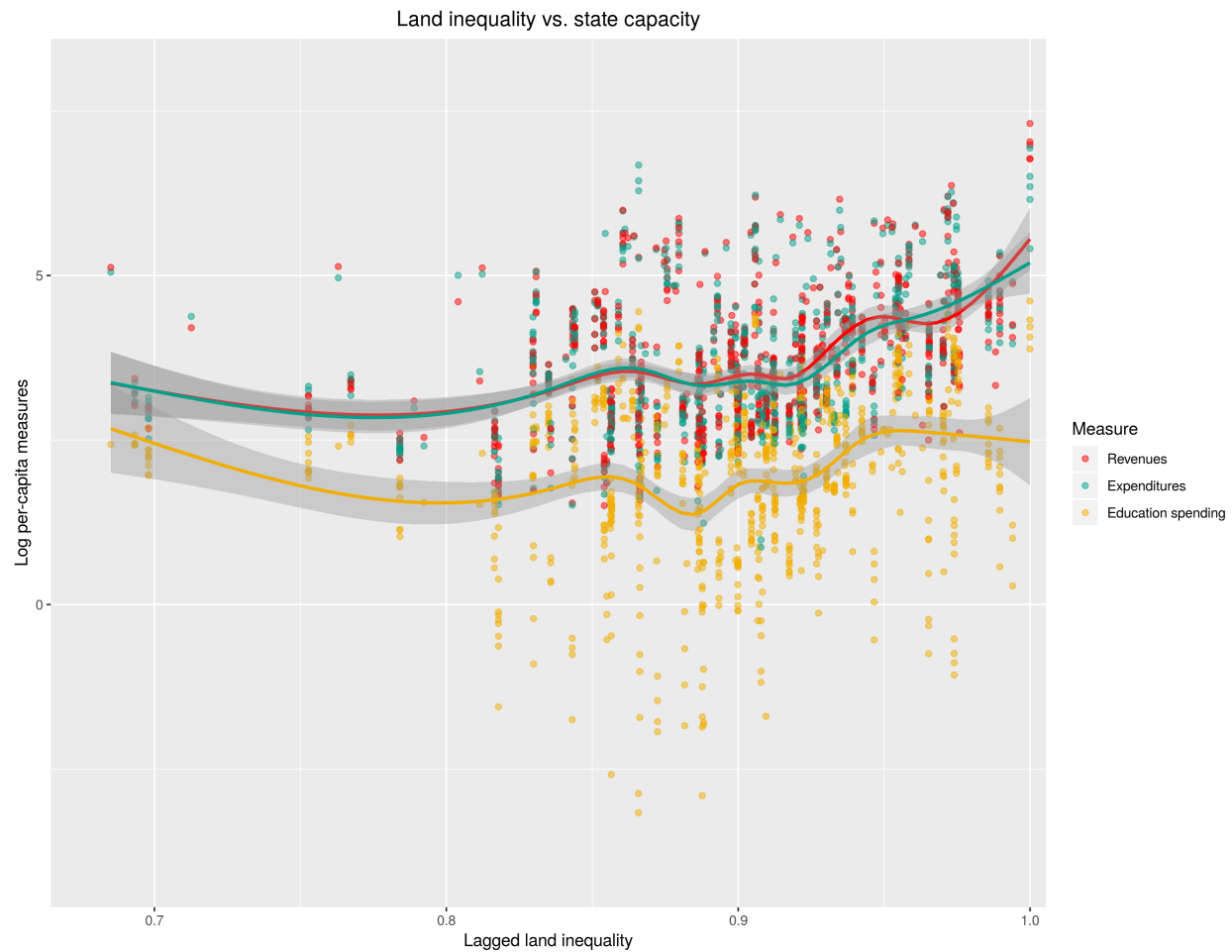


Figure 5: Land inequality vs. log per-capita revenues and expenditures at the state-level, 1860-1950. Each point is a state-year observation. Lines represent generalized additive model (GAM) fits to the data and shaded regions represent corresponding 95% confidence intervals.

Table 2: DD estimates: Impact of log per-capita cumulative homesteads (county-level).

Outcome \ Region	Region	
	South	West
Land inequality	-0.001 [-0.003, 0.0004], $N = 523$	-0.004 [-0.005, -0.002], $N = 2,002$
Land inequality (no farm values)	0.0007 [-0.0008, 0.002], $N = 590$	-0.001 [-0.002, -0.0001], $N = 2,549$
Railroad access	0.03 [0.01, 0.05], $N = 350$	0.09 [0.07, 0.1], $N = 1,053$
Railroad access (no farm values)	0.06 [0.04, 0.08], $N = 361$	0.12 [0.11, 0.13], $N = 1,251$

Notes: Values in brackets represent 95% confidence intervals constructed using 1,000 state-stratified bootstrap samples.

## References

- Atack, J. (2013). On the use of geographic information systems in economic history: The american transportation revolution revisited. *The Journal of Economic History* 73(2), 313–338.
- Haines, M. R. (2010). Historical, Demographic, Economic, and Social Data: The United States, 1790-2002. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 2010-05-21. [doi.org/10.3886/ICPSR02896.v3](https://doi.org/10.3886/ICPSR02896.v3).
- Long, J. H. (1995). Atlas of historical county boundaries. *The Journal of American History* 81(4), 1859–1863.
- Sylla, R. E., J. B. Legler, and J. Wallis (1993). Sources and Uses of Funds in State and Local Governments, 1790-1915: [United States]. Ann Arbor, MI: Inter-university Consortium for Political and Social Research, 2017-05-21. [doi.org/10.3886/ICPSR06304.v1](https://doi.org/10.3886/ICPSR06304.v1).
- Sylla, R. E., J. B. Legler, and J. Wallis (1995a). State and Local Government [United States]: Sources and Uses of Funds, Census Statistics, Twentieth Century [Through 1982]. Ann Arbor, MI: Inter-university Consortium for Political and Social Research, 2017-05-21. [doi.org/10.3886/ICPSR06304.v1](https://doi.org/10.3886/ICPSR06304.v1).
- Sylla, R. E., J. B. Legler, and J. Wallis (1995b). State and Local Government [United States]: Sources and Uses of Funds, State Financial Statistics, 1933-1937. Ann Arbor, MI: Inter-university Consortium for Political and Social Research, 2017-05-21. <http://doi.org/10.3886/ICPSR06306.v1>.
- Vollrath, D. (2013). Inequality and school funding in the rural united states, 1890. *Explorations in Economic History* 50(2), 267–284.