The political price of phasing out coal: An analysis of US Presidential Elections

Strommarkttreffen, GIZ, Berlin, 2. Aug 2019
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Agenda

1. Introduction
2. Research design & data
3. Results
4. Implications
Climate change and coal phase-out

Need for supportive policies to phase-out coal and phase-in low-carbon energy technologies (Schmidt and Sewerin 2018; Trancik 2014; Edenhofer et al. 2018)

Strong inertia and lock-in effects in the energy sector (Unruh 2000; Fouquet 2016)

Such policies/treaties are increasingly put into place:
- Paris Agreement, 2015
- Clean Power Plan in the US, 2015
- Carbon Price Floor in the UK, 2013
- Coal commission in Germany, 2018

Global emissions and coal

How to phase out..

Data: CDIAC/NOAA–ESRL/GCP/Joos et al 2013

Source: Le Quéré et al. 2018

Source: Global Carbon Project
### Ongoing political fight over coal phase-out

<table>
<thead>
<tr>
<th>Germany</th>
<th>Australia</th>
<th>United Kingdom</th>
<th>United States</th>
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<tbody>
<tr>
<td>AfD mounting pressure against coal phase-out in East Germany</td>
<td>PM Scott Morrison re-elected in “2019 climate election” followed by go-ahead for Adani mine.</td>
<td>Independence Party’s energy policy agenda based on exclusionary “coal nationalism”</td>
<td>Trump campaign on ending Obama-era “war on coal” (e.g. Clean Power Plan)</td>
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Research question

- Existing political science research focuses on the politics of phasing in energy technologies
  
  (Cooper et al. 2018; Dasgupta 2018; Aklin 2018; Stokes 2016; Bayer and Urpelainen 2016)

- Lack of research on how phasing out energy technologies feeds back into political processes, esp. voting!
  
  (David 2017; Schmidt and Sewerin 2017; Rogge and Johnstone 2017; Roberts et al. 2018; Lockwood et al. 2018)

- Only few – mostly qualitative – studies on the politics of coal phase-out.
  
  (Carley et al. 2018; Leipprand and Flachsland 2018; Rosenbloom 2018; Turnheim and Geels 2013)

No quantitative evidence of influence of coal decline on electoral outcomes

What are feedback effects of coal phase-out on electoral outcomes?
Research design

CASE

DATA

County-level data (3142 obs per year)
- Coal production and labor data (2000-2016)
- Socio-economic control variables (2000-2016)

METHOD

Difference-in-difference with matching
- Assumptions: 1) exogenous treatment 2) parallel pre-treatment trends
- Matched to most similar control counties in 2000 and 2008
Our treatment

-39,650 jobs (-43%)
Location of treated and matched counties
Validity of comparison

Matching balance

Parallel pre-treatment trends
Main result

Coal job loss
Intensity and location

Coal job loss


Strongly treated Weakly treated

Coal job loss


East West
Spillovers

![Diagram showing spillover effects at different distances (50km, 100km, 150km) and time points (T04, T08, T12, T16). The graph plots spillover values with error bars for two categories: km0 and km50, km100, km150.]
Implications and open questions

- Effect empirically established → coal phase-outs are not easy to implement for policymakers.
- Effect size is substantial → coal jobs are costly.
  - Effect extends beyond affected workers → 6x higher difference in voting decision than jobs lost.
  - Effect extends beyond affected counties → spillover effects up to 50km in 2016 election.

- What are the mechanisms?
- How context specific is the effect?
- What are successful policy responses? Findings suggest they must be tailored…
Thank you very much!

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