Making Jobs out of the Energy Transition

Wald, Khan, and Cohen

Economics of Decarbonizing the Built Environment

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A Specific Question

- What is the impact of energy efficiency spending on **employment**?
  - Permanent vs. Temporary
  - Spatial Heterogeneity
- Outcome measure is direct employment
  - Ex ante estimates: 4 to 9 jobs per million euros
  - Main Results: 1.8 direct jobs per million euros
- Main challenge: credible counterfactual employment in affected sectors
  - Synthetic Counterfactual Method
  - Disaggregated data; addresses interpolation bias

General Comments

- Excellent data on employment
  - Fine temporal resolution (monthly)
  - Good sectoral resolution (730 + 2)
  - Spatial resolution (13 regions)
  - Permanent vs. Temporary
- Generalizable
  - While the incentive scheme may be unique, the process is broadly applicable
  - Installing insulation and replacing a boiler is pretty universal
- Transparent method

Larger context

- Political economy and the double bottom line
  - Blue-green coalition in US
  - Externality? What's an externality?
  - Direct job accounting is important given Fowlie et al (2018)

$\Rightarrow$ Not a great make-work program, but worth weighing political economy benefits alongside reduction in damages, bill savings, etc.

Engage the economic question

- Beyond effectiveness, might policies be efficient?
- **Supply chain re-structuring** mentioned (Popp et al. 2022)
  - Driving down future costs
  - + learn-by-doing?
  - Some evidence from permanant employment

$\Rightarrow$ Explore supply chain further beyond permanent vs. fixed-term employment

- E.g. number of distributors of heat pumps
- Costs not observed, but is there evidence of shift in costs?
  - Spillovers to non-EEO applications
- Leverage spatial heterogeneity
  - Did areas with relatively more low-income households to insulate or more appropriate for heat pumps see larger drops in costs, more distributors, etc.?
  - Correlational, but helpful with "suggestive evidence"

Labor markets in equilibrium

- Workers come from some industry or slack (in short run)
    - Good effort made to exclude sectors from donor pool
- Think of SCM as factor loading model (ADH 2010 in *JASA*)
    - Factor loading will make energy renovation sector match with other sectors affected by macro economic trends + labor supply
    - But treatment changes *relative* prices, so will draw *from* those same industries
    - SUTVA

$\Rightarrow$ robustness around manual labor sectors (e.g. drop fishing)

- And show weights W

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