Quantified Barriers to a Just Transition for US Fossil Fuel Workers

Petralia

Junghyun Lim (UNC Chapel Hill)
Michaël Aklin (EPFL)
Morgan Frank (Pitt)

July 21, 2023

- Climate mitigation: net-zero by 2050 Fankhauser and Tol 2005, Burke et al. 2009, Hsiang et al. 2013, Burke et al. 2015
- (1st-best) Pigouvian solutions: politically unfeasible at effective levels Calel and Dechezleprêtre 2016, Bayer and Aklin 2020, Känzig 2023
- (2nd-best) fossil fuel phase-outs: unpopular and difficult given # of workers Egli et al. 2022
- Can govs facilitate phase-outs?

Context

- Growth of (green) industrial+place-based policies
- Just transition policies
- Examples: IRA (~$900b), Just Transition Fund (EUR55b), etc. (Echoes TAA)
- Theoretical skepticism...
- but some empirical success Kline and Moretti 2014, Juhász 2018, Lane 2022, Liu 2019

Today

- Are green jobs realistic new jobs for FF workers in US?
  - If yes: potential for faster transition
  - If no: local poverty traps, polarization
- Labor market frictions Mortensen and Pissarides 1999
- Skill frictions
  - Do FF workers have the right skillset for green jobs?
- Geographical frictions
  - Are FF workers mobile?
  - Are FF workers co-located where green jobs (will) exist?

Figure 1: Obama campaign, 2008

From the White House to statehouses, U.S. leaders promised that green jobs could not only replace those threatened in the nation's oilfields and coal mines, but guarantee safer and more stable employment.

Figure 2: Bloomberg News

Figure 3: Reuters

- Do FF workers have the right skills? for green jobs?
  - Yes
- Are FF workers mobile?
  - Not a lot
- Are FF workers co-located where green jobs (will) exist?
  - No
- Implications for policy design

Data and setup

Data

- Focus on core FF workers, local labor market
- Data on skills from O*NET (750 occupations)
- Data on workers flows across industry and MSA from J2J (NAICs 2, quarterly since 2010)
- Data on green occupations by Dierdorff et al.
- Data on job (present + projections) by BLS

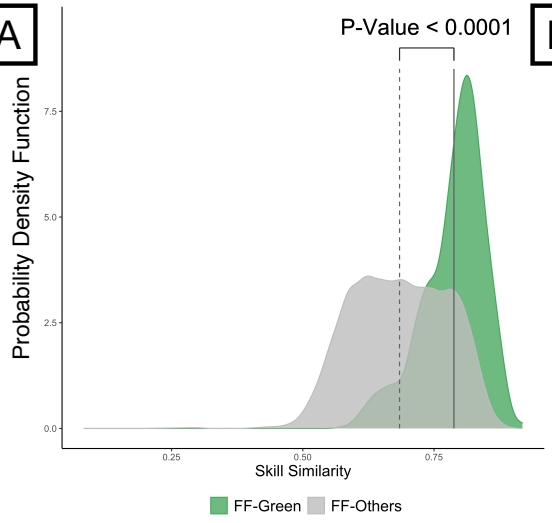
Results

Skills and geography

- Q1: do FF have similar skills to those of green jobs?
  - Skill similarity of pairs of all occupations
- Q2: how sensitive are FF workers to skill and geographic distance?
  - Flow of workers$_{i,j,k,l}$ = Poisson(skill diff, geo distance, FE)

Skills and geography

A



B

	Dependent variable: Transition $_{f,m,i',m'}$				
	(1)	(2)	(3)	(4)	(5)
Skill Similarity$_{i,i'}$		0.59***		0.84***	0.41***
Distance$_{m,m'}$			−1.13***	−1.18***	−2.07***
Employment$_{f,m}$	0.94***	0.97***	1.01***	1.00***	1.04***
Employment$_{i',m'}$	0.85***	0.90***	0.98***	0.97***	1.04***
Stay (Industry)					1.11***
Stay (Location)					−3.43***
Constant	1.16***	0.95***	0.23***	−0.04***	−0.34***
Pseudo R^2	0.16	0.21	0.72	0.81	0.84
Observations	10,352,319	10,352,319	10,352,319	10,352,319	10,352,319

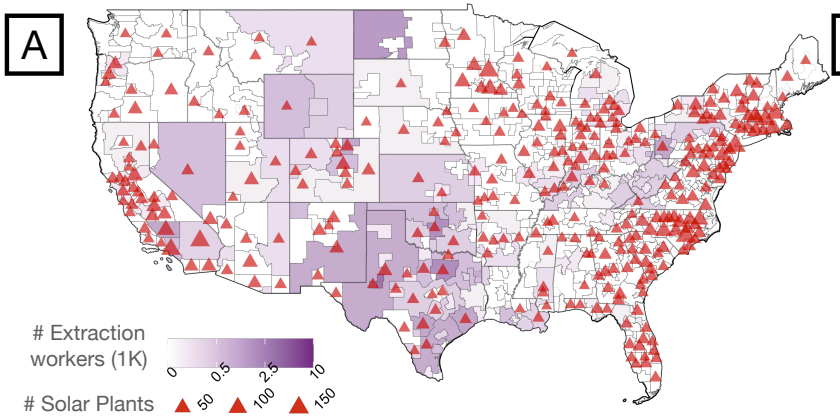
Good: FF have similar skills to those needed for green jobs!

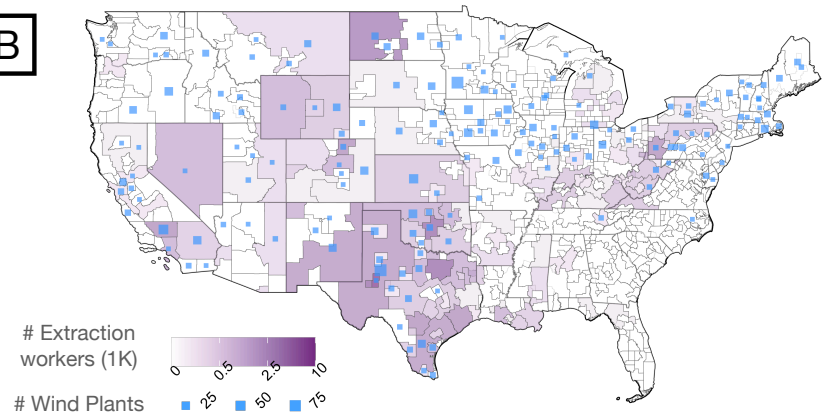
Bad: FF workers are very sensitive to distance...

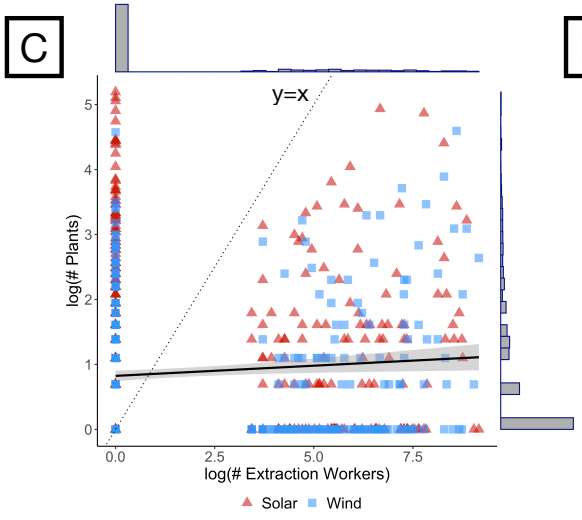
Geography

- Q3: will FF workers obtain green jobs?
  - Current co-location
  - Simulation of mobility (across sector+space) given estimates above
  - Can share of FF worker be increased with targeted investments?

Geography





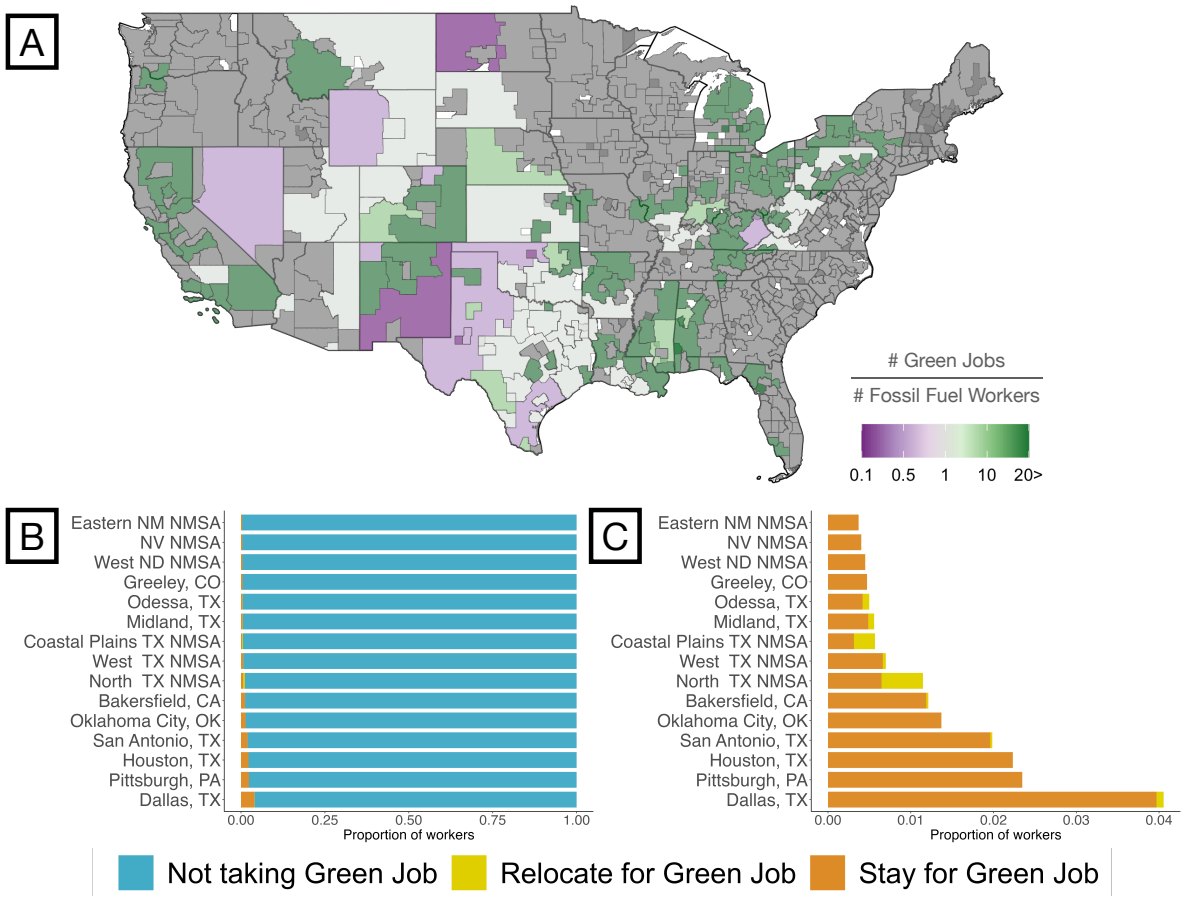


D

	Dependent variable:					
	All Plants		Solar Plants		Wind Plants	
	(1)	(2)	(3)	(4)	(5)	(6)
log(Extraction Workers)	−0.01		−0.06***		0.18***	
	(0.004)		(0.01)		(0.01)	
log(FF Workers)		−0.02***		−0.12***		0.19***
		(0.01)		(0.01)		(0.01)
log(Labor Force)	0.51***	0.52***	0.70***	0.80***	−0.005	−0.06**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.03)	(0.03)
Pseudo R^2	0.26	0.26	0.33	0.35	0.09	0.06
Observations	510	510	510	510	510	510

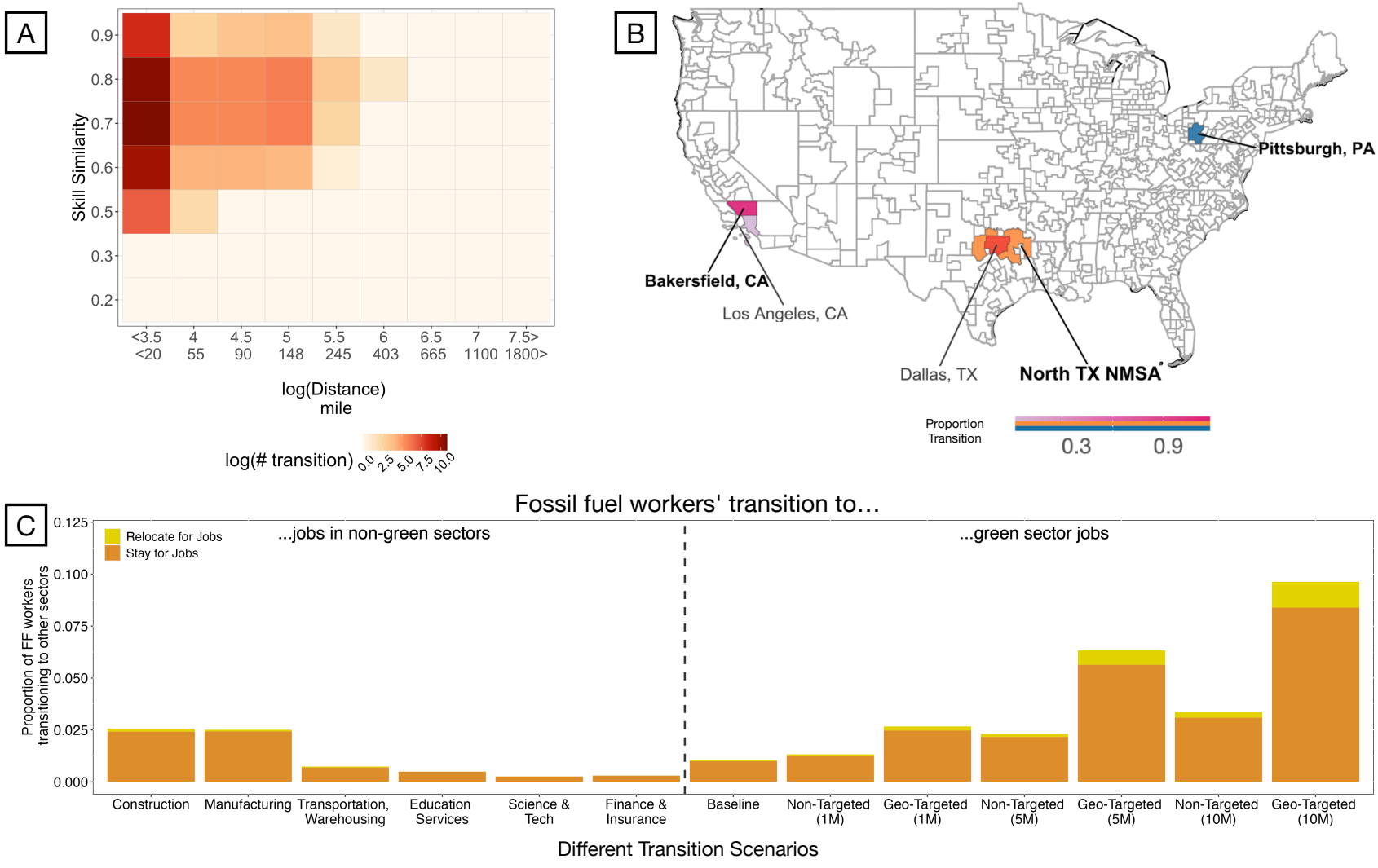
Green jobs are not co-located with FF regions

Simulation without geographic targeting



Implication: FF workers won't get these green jobs

Simulation with geographic targeting



It's more effective to invest less but target vulnerable regions than vice versa

Implications

- In the absence of policy intervention: unlikely fossil-to-green job transition
  - Skills ✓, geography ×
  - High chance of local poverty traps, increased polarization
- Policy implications. . . IRA, battery belt, etc.
- What do workers want?
- What are the consequences of reallocation of m of workers?

Questions?

Thank you!

michael.aklin@epfl.ch | https://pasu.epfl.ch

PS: I'll be hiring in 2024 (PhD+postdoc)