The Dark and Green Side of Labour Markets

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Motivation

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Fact 1: Carbon pricing may **destroy** jobs in some polluting sectors and occupations

Fact 2: But create new jobs in different "**Green**" sectors and occupations

Key concept:
Reallocation Costs from brown to green jobs/sectors

Aggregated effects small, but creation of **new opportunities** for growth **not ensured**

Reallocation costs depends on **skill distance** between origin and destination occupations

The Dark-side: Is there a skill biased effect of climate policies?

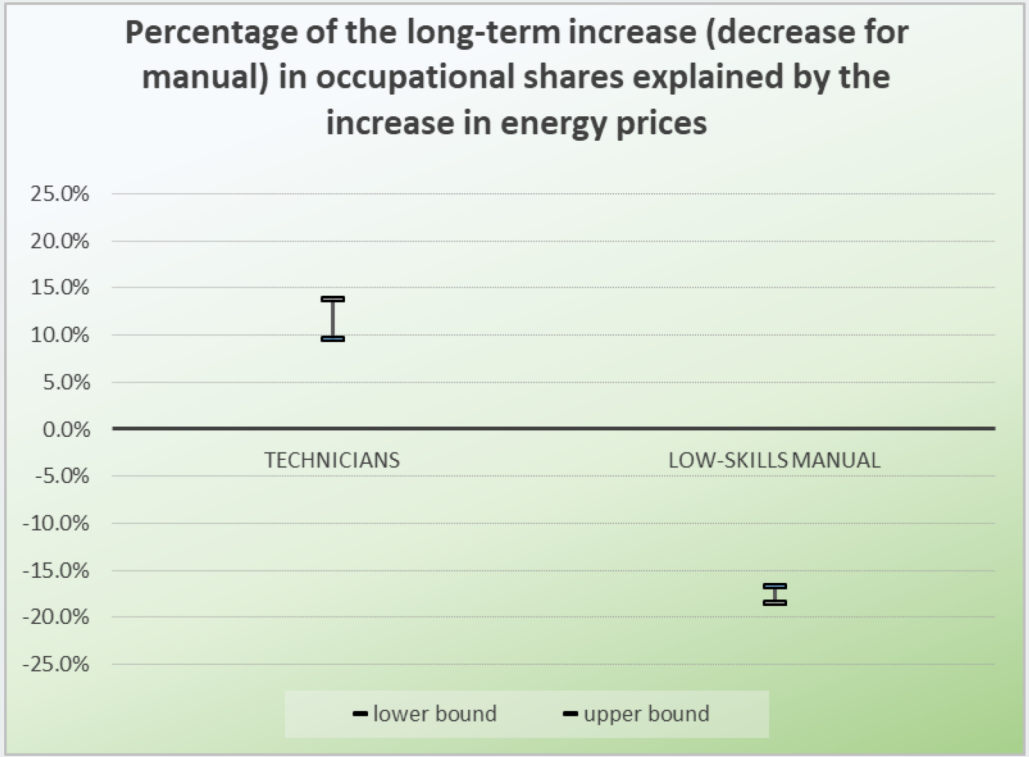
Current climate policies **not stringent**, i.e. EU-ETS → use **historical changes** in **energy prices** to proxy what **would happen** with more stringent climate policies

- **Establishment-level** results for France: controlling for unobservable firm-level characteristics and grasping heterogeneous effects, 2000-2015 (Marin and Vona, 2017 R&R)

- **Sector-level** results: EU countries and industrial sectors, 1995-2011 (Marin and Vona, 2019 JEEM)

- In both cases, we retrieve a **causal effect** of energy prices by isolating the exogenous component of energy price shocks and distinguish between **short** and **long-term** effect

Dark side: Is there a skill-biased effect of climate policies? French establishment-level evidence



Long-term changes in energy price explain:

i. Large historical increase in prices (+56%) **reduced employment by 6.5%**

ii. Effects concentrated in **trade-exposed** and **energy intensive industries**

iii. Within-firm skill-biased effects: **technicians ↑, manual low-skilled↓** (but statistically insignificant p-value=0.157), no effect on managers and engineers, positive insignificant effect on manual high-skilled

iv. **Reallocation** of labour **within-firm** and **across-firms** within sector (see Dussaux, 2020) mitigates the negative employment effect

NB: *bounds do not reflect precision, but are computed making different assumptions in the quantification*

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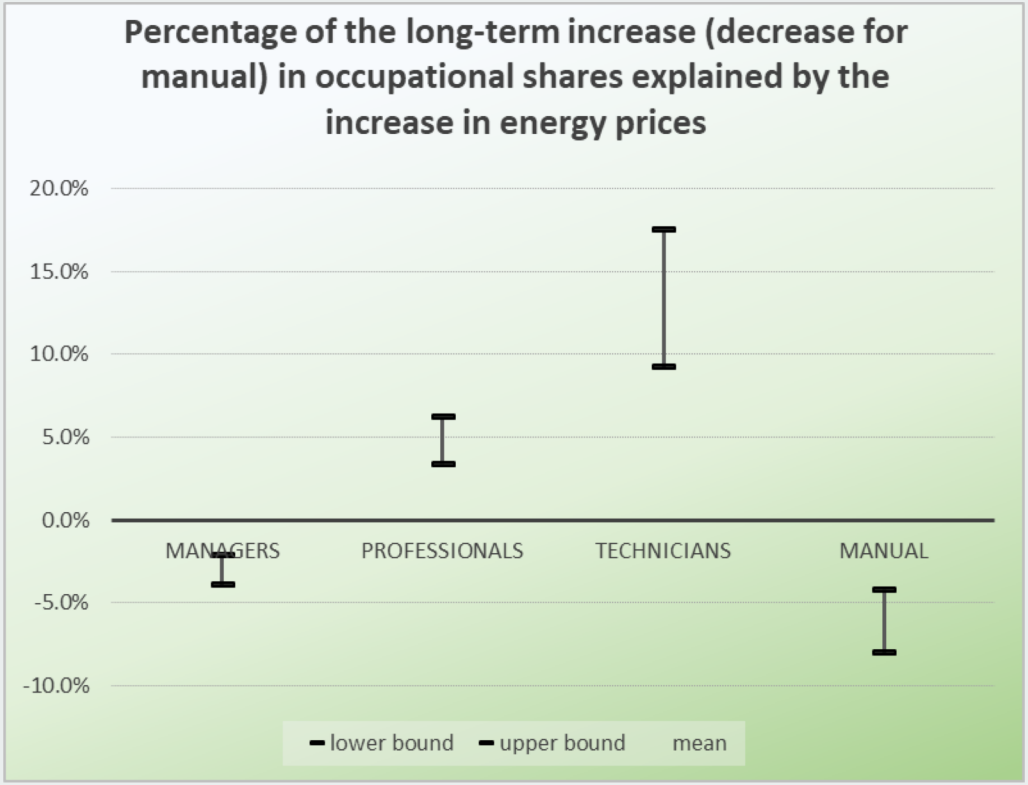
Dark side: Is there a skill-biased effect of climate policies? EU evidence



Long-term changes in energy price explain:

i. Large historical increase in prices (+75%) **reduced employment by** btw -0.9% and -1.6%, but not statistically significant

ii. **Negative employment effects** becomes **significant** when green manufacturing excluded

iii. Only btw 4.2% and 8.4% of the decline in the **share** of **manual workers**

iv. A 13.3% increase in the share of **technical workers** (and a 4.8% of professionals which include both lawyers and engineers)

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Green side: reallocation and job creation at a larger scale

Green jobs creation:

i. **Green manufacturing sectors ≠ brown manufacturing sectors** → reallocation across sectors (Bontadini and Vona, 2020)
ii. **Beyond manufacturing**: green employment concentrated also in engineering and architecture services and construction jobs (Vona et al., 2018)
iii. **Multiplier effects**: green job "multipliers" (2-4) >> multiplier of oil and gas extraction industries (0/8-1.5) (Vona et al., 2019; Marchand, 2013)

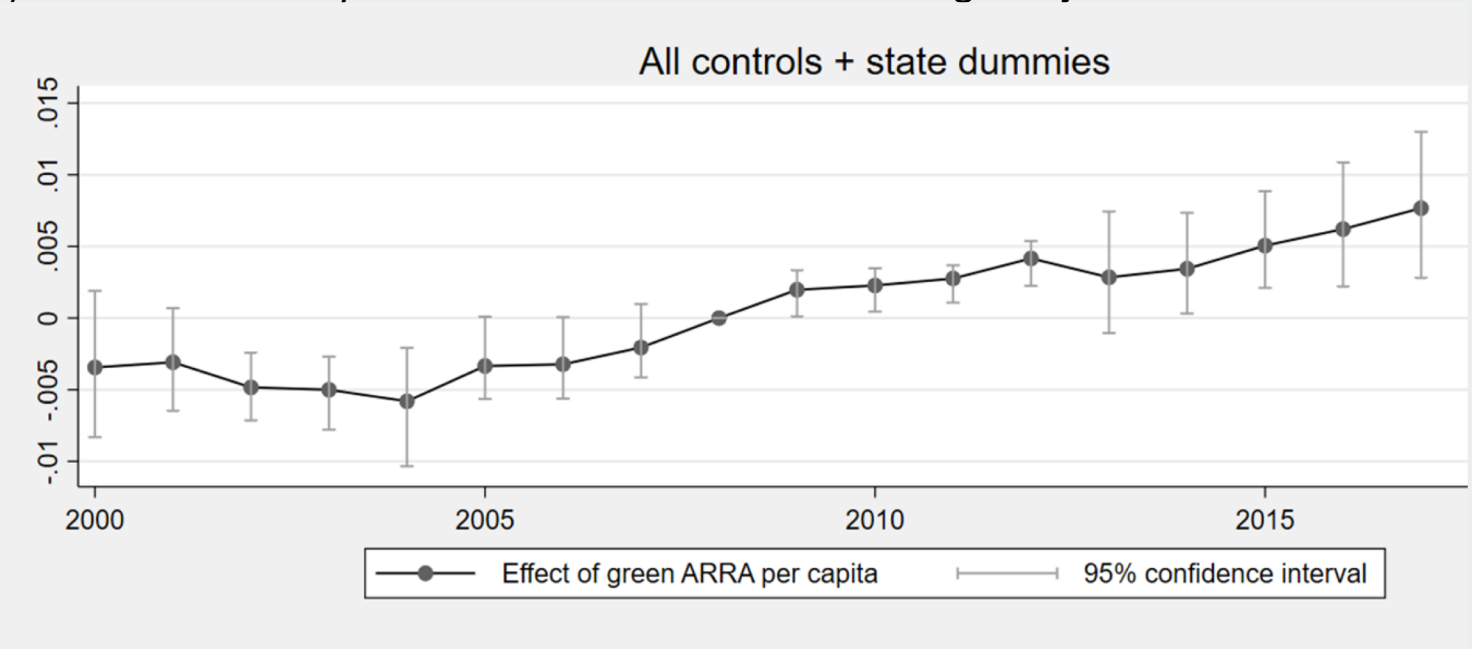
Two policy relevant questions:

Which role for **green fiscal stimulus** in favouring **green** and **non-green job creation**?

How easy to **re-employ** workers **displaced** by **climate policies** into the **green economy**?

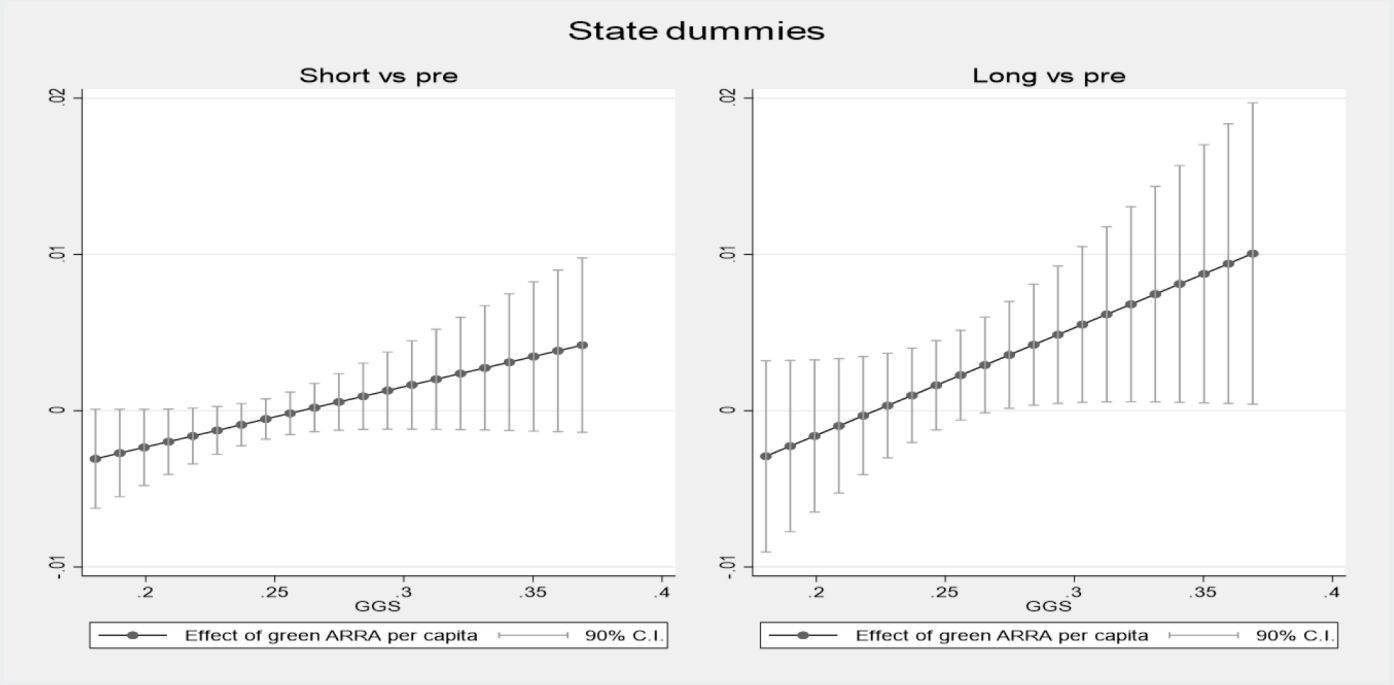
Green side: reallocation and job creation at a larger scale

- Evaluation of the US **American Recovery and Reinvestment Act** (ARRA) stimulus package (Popp et al., 2020)
- 17% of grants for the **green economy**: cleanup of polluted sites, energy efficiency retrofits, development of renewable energy resources
- Differently from other components of the ARRA package, effects emerge especially **in the long-run** (1 job x 100k) and benefit mostly **manual labor** in construction and green jobs



Green side: reallocation and job creation at a larger scale

- Having workers with the **skills** necessary to do green tasks is important
- Green ARRA **creates more jobs** in regions with **more** pre-existing **green general skills** (engineering, technical, monitoring skills; Vona et al., 2018 JAERE)
- Consistent with labor research, **reallocation costs lower** if **skill distance lower**



Ways ahead: combining the green and dark side

- **Good news**: manual workers displaced by carbon pricing policies can be successfully reemployed in green jobs
  - ➢ more research needed, but in on-going work we show that green-brown skill distances are small and require 3-4 months of retraining
  - ➢ Key difference with ICT technologies: back to technical education (see also Vona et al., 2018) → Is France well prepared vis-à-vis Germany?

- **Bad news**: wage increases did not follow, so policies targeting inequality very important for political acceptability
  - ➢ if preferences for environmental quality are lower in the hierarchical scale, reducing income inequality may increase political acceptability

- ARRA program **not combined** with **carbon pricing policies** →
  - risky extrapolation?
  - theoretical analyses needed
  - jointly estimate environmental and economic costs/benefits

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Thank you!

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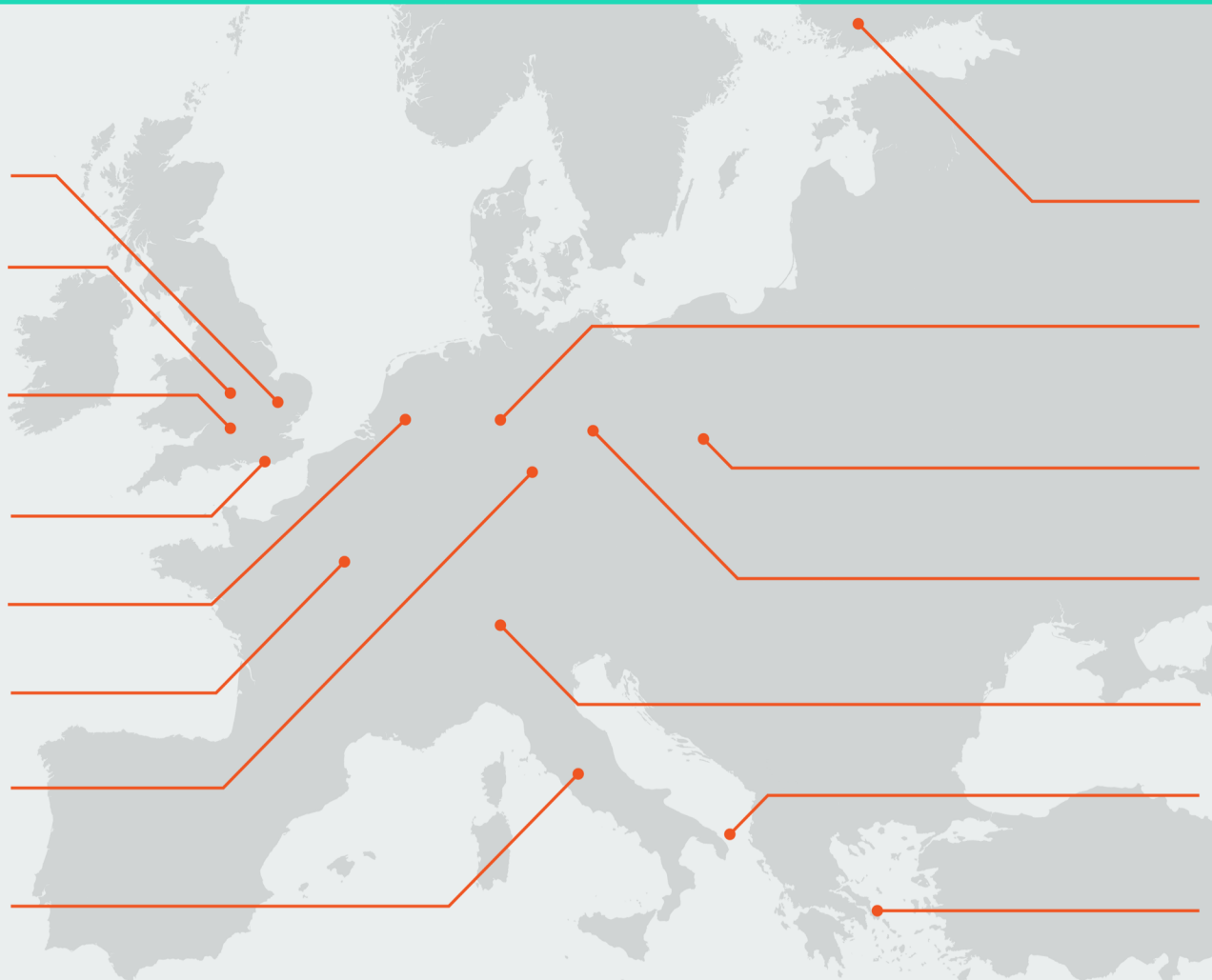

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