Discussion of

The impact of air pollution on labour productivity in France

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Very neat JMP paper with clear contribution

- Super interesting topic
  - Highly relevant, active frontier: wildfires, airbone event (COVID)
  - Climate literature increasingly looking at "co-benefits"
- Great data (pollution data + firm-level data)
- Important policy findings/implications
  - 10% increase in fine PM → 1.5% decrease in labor productivity
  - European threshold is not stringent enough
  - Combatting air pollution "pays for itself"
- Comments:
  - Push the data a bit further
    - French admin data is rich, granular climate data increasingly available
  - Tighten some of the channels

Paper Overview: Main Mechanism

Emissions
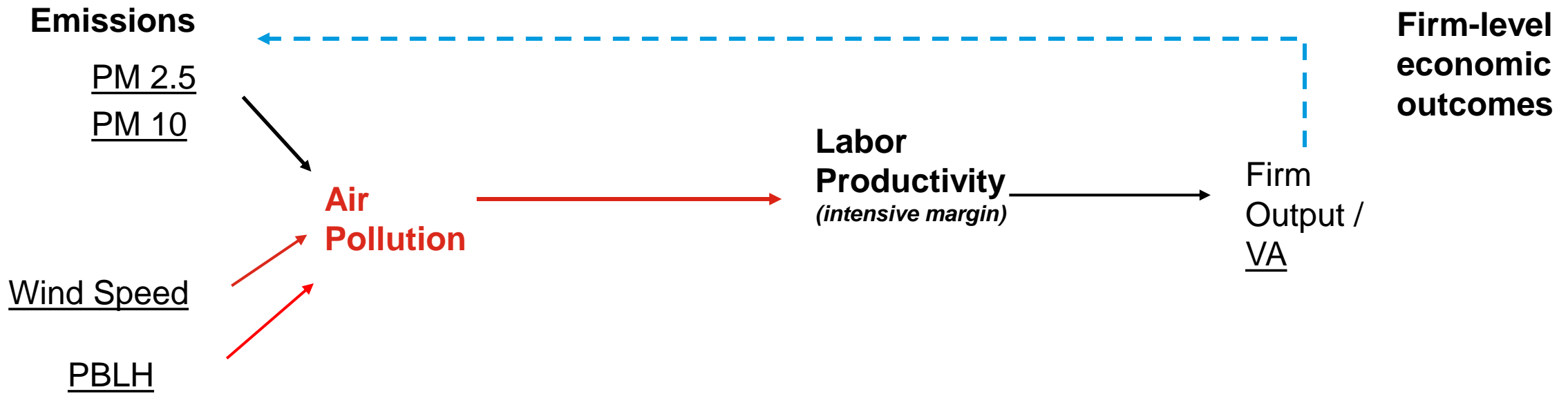
<u>PM 2.5</u>

<u>PM 10</u>
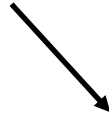
Air Pollution

Labor Productivity
(intensive margin)

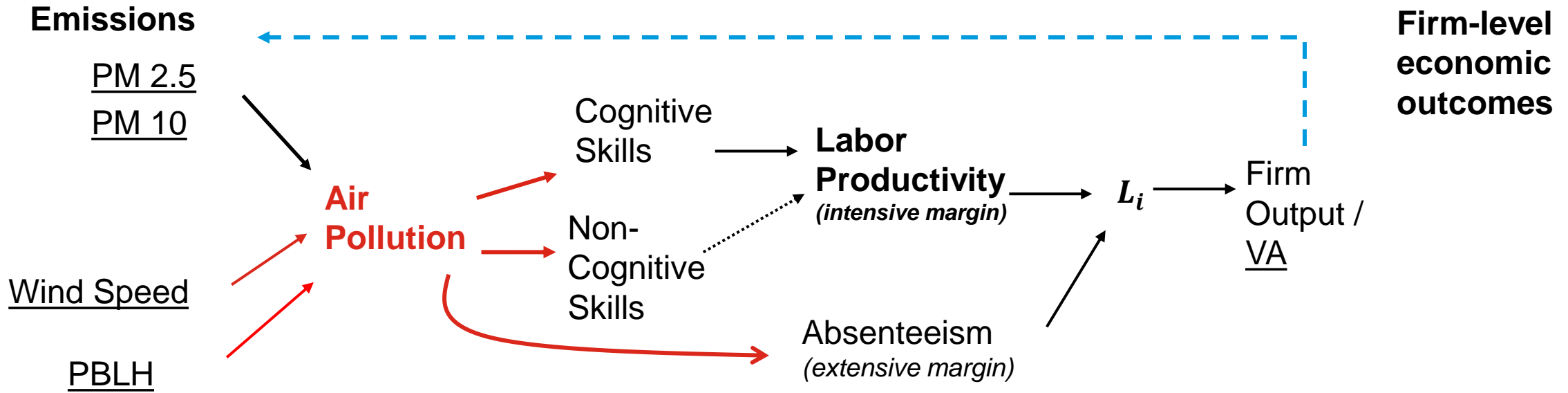Firm Output / <u>VA</u>

Firm-level economic outcomes

Paper Overview: Endogeneity

Emissions

PM 2.5

PM 10

Wind Speed

PBLH

Air Pollution

Labor Productivity
(intensive margin)

Firm Output / VA

Firm-level economic outcomes

Paper Overview: Heterogeneity

Emissions

PM 2.5

PM 10

Wind Speed

PBLH

Air Pollution

Cognitive Skills

Non-Cognitive Skills

Labor Productivity *(intensive margin)*

Absenteeism *(extensive margin)*

L_i

Firm Output / VA

Firm-level economic outcomes

Paper Overview: Other Channels?

Emissions

PM 2.5

PM 10

Wind Speed

PBLH

Traffic Congestion

Air Pollution

Cognitive Skills

Non-Cognitive Skills

Labor Productivity *(intensive margin)*

Absenteeism *(extensive margin)*

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K_i

Demand

Firm Output / VA

Firm Sales

Firm-level economic outcomes

(1)

(2)
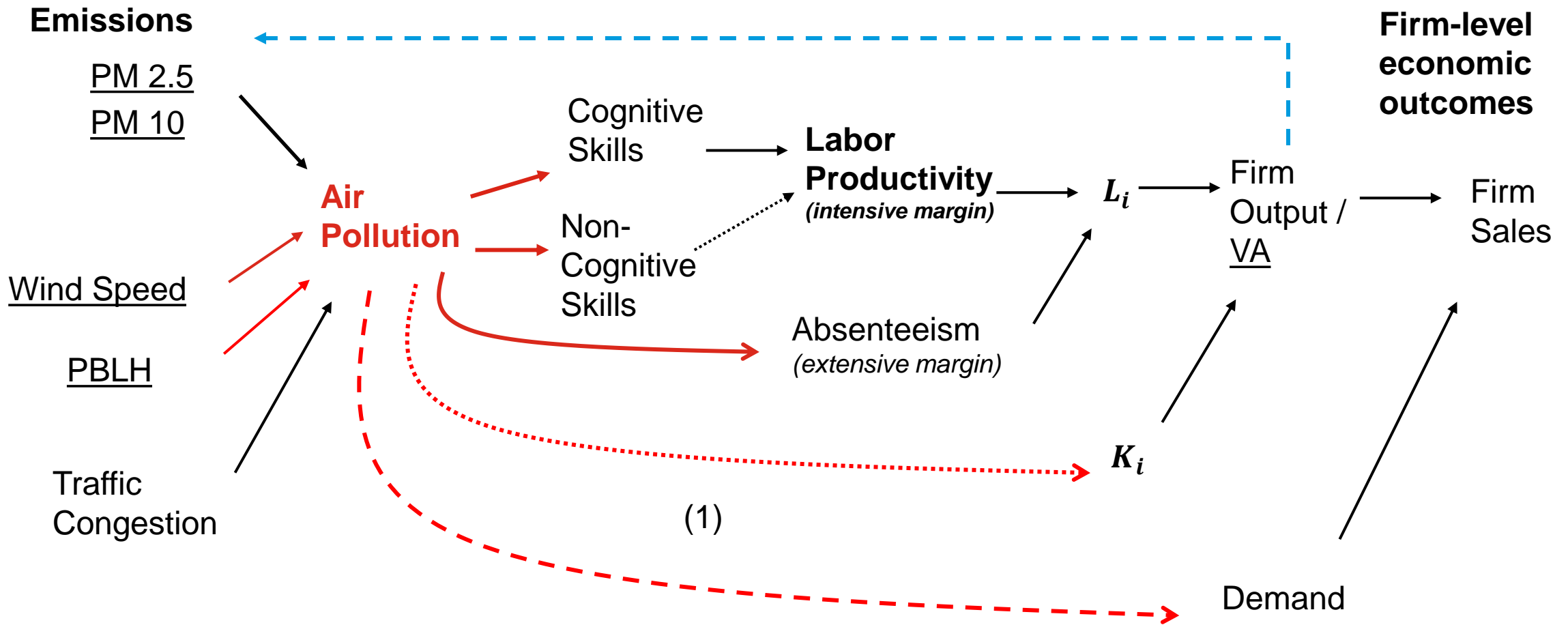
(1) "no impact of air pollution on capital investment

(2): "As France has a relatively low average pollution level, few consumption decisions are sensitive to pollution events."

Pushing the data a bit further

- Dropping multi-establishment firms can create a huge drop of power
  - Silver lining: may minimize the endogeneity issue (smaller firms)
  - Fix 1: include two-establishment firms: check company structure (with LiFi), what if 1 plant with 1 holding company?
  - Fix 2: apportionment: allocate sales based on headcount?
- Labor data
  - Why not use the DADS to get hours worked?
  - Data on job turnover (EMMO), or workplace injuries?
- Pollution data frequency
  - Some of the variables are daily/weekly, any way to get overall dataset more frequent that annual?
- Demand channel:
  - Heterogeneity in how firms are affected: e.g. retail foot-traffic / contact-facing activities
    - Leverage studies on COVID's impact on firm activity (Use measure/ranking of activities most impacted by covid?)

Additional comments

- Explain Planetary Boundary Layer Height better
  - "*PBLH is the area where most vertical exchange of heat, water vapour, and pollution between the earth's surface and the atmosphere takes place*"p.14
  - How is it measured exactly (unit?)? How does it vary over time? Can it be affected by bad weather (storm)?
  - A nice figure could help visualize what is going on!
- Not obvious why cognitive skills more impacted.
  - E.g. precision manufacturing
- Can we understand the source and diffusion of PM better?
  - Specific polluting plants (French Rust belt), or cars (esp. diesel)
- Will Electric Vehicles save the day?