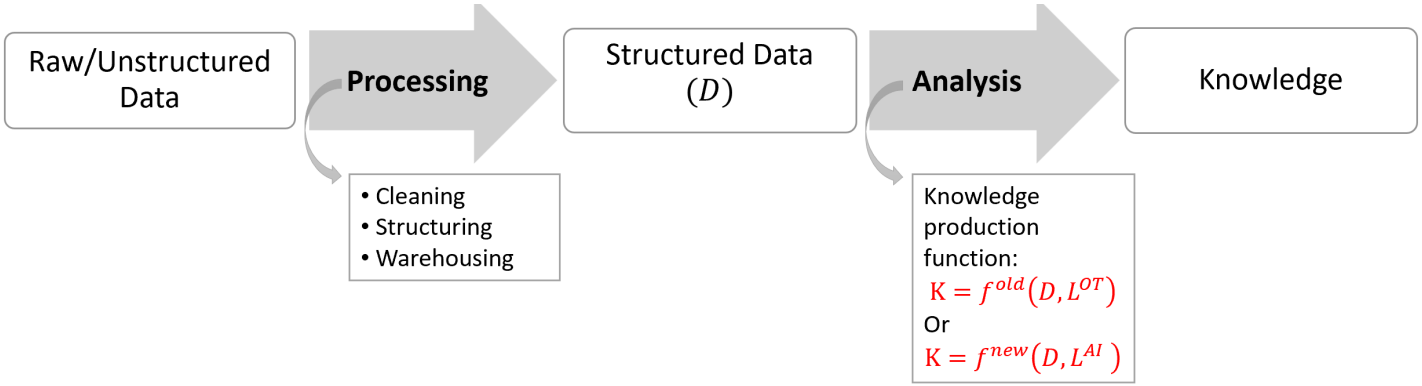
"AI IS THE INDUSTRIALIZATION OF KNOWLEDGE PRODUCTION."

- Is this claim accurate? Let's measure it like industrialization and see. (Abis and Veldkamp, RFS 2024)
- Key feature of industrialization:
  It changed the relative intensity of labor and capital (data).
  - Is AI doing the same?
  - How much is AI changing the labor intensity of knowledge production?
  - This matters for employment / labor income share / firm size and competition...
- Challenge:
  We are in the early stages of adoption.
- Objective:
  Quantify the impact of big data technologies on an early adopting industry.
  - Investment Management is a good lab: early adopter, a knowledge industry.

This Paper

- A Model for Measurement:
  - The objective is to quantify the parameters that regulate knowledge production for the old and new technologies.

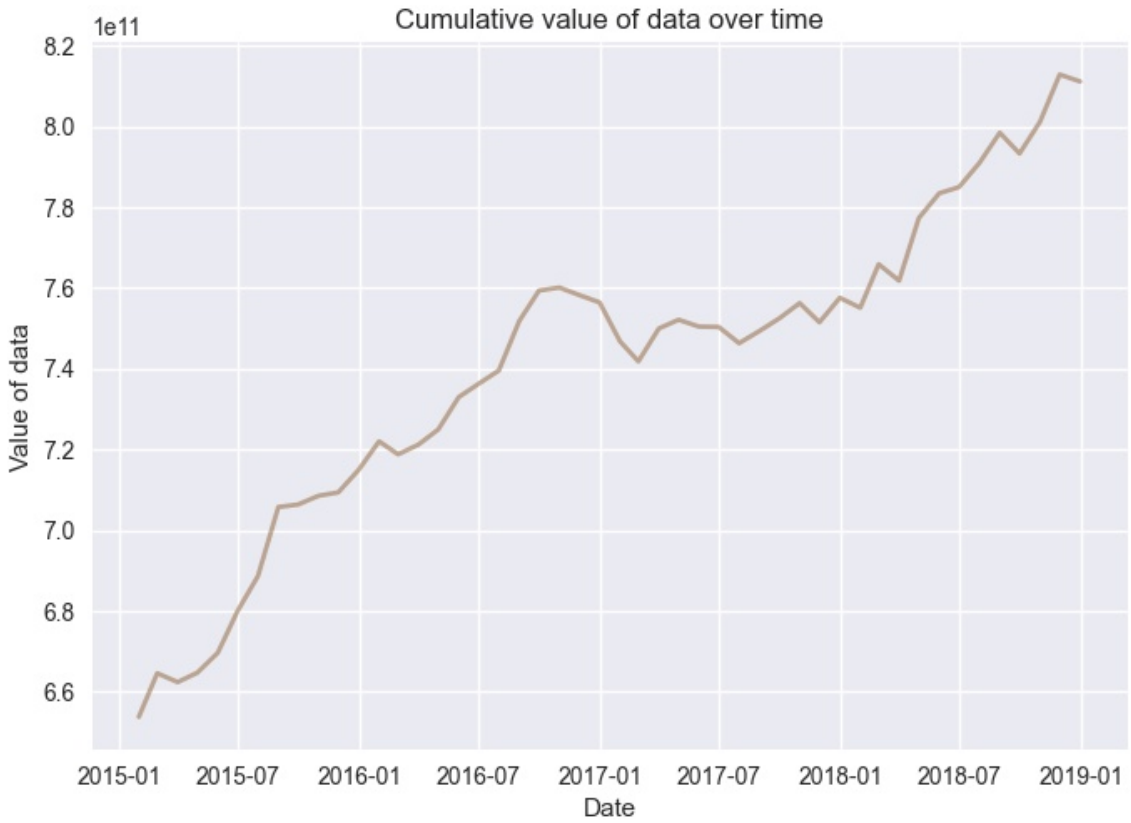


- Measurement:
  - Measure how many Data Management and Analysis workers (old and new tech) each firm hired (job postings).
  - Identify how much workers of each type are paid (crowdsourced salary data).
  - Structurally estimate the two knowledge production functions.
  - Use the model to value firms' data.

Main Results: Greater Productivity of Data

- AI has significantly raised the productivity of analyzing larger data sets.
  - Labor share fell from 18% to 13%.
- Technological change is substantial.
  - Industrial revolution: capital exponent estimated to have risen of $0.05 - 0.20$. We estimate an increase of 0.05 in the data exponent.

AI Boosted the Value of Data



Data value rose 23% in 4 years. Why? 3 causes (roughly equal parts)

1. More productive at using data (AI)
2. More data acquisition
3. More analysis workers make each data point more valuable