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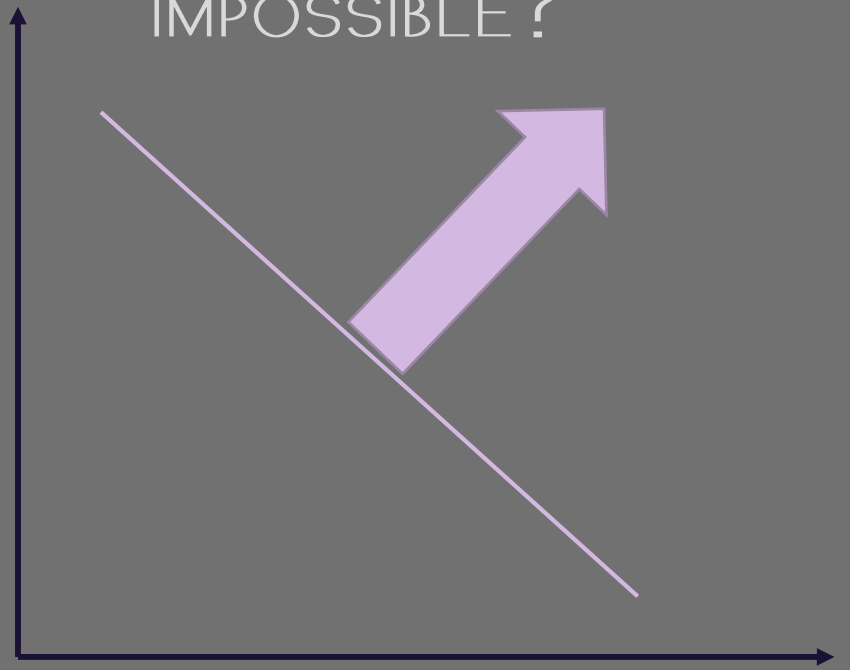
Discussion: Possible Extentions

- CompNet setting is extremely powerful
- Based on High-quality firm-level data
- Micro-aggregated database that accounts for firm heterogeneity
- Network between statistical offices, central banks, policy institutions, research institutions/departments → Implement new methods, address new policy relevant issues, forum for exchange

Trade-off when discussing extensions

Implement interesting things

Orthogonal positioning impossible?



Code speed

Basic Code and data structure

- dimensions: country, macro-sector, macro-sector x size class, 2-digit sector, nuts2
- parametric variables (vars from prod. fun. est.)
- non-parametric variables (gen ls = wagebill/va)
- distribution for all vars in unconditional_file, joint-distributions across different vars
- more: decompositions/trans-matrix/dispersion files

Size weighted averages to capture macro aggregates

Implemented Extensions

- compnet heavily focusses on firm heterogeneity
- average from firm distribution ≠ aggregate: $\frac{1}{N}\sum\frac{w_i L_i}{VA_i} \neq \frac{\sum w_i L_i}{\sum VA_i}$
- often we can still recover such macro-equivalents in the current data
- yet not possible in case of aggregate output market power and other more complex variables
- → we implemented size-weighting and calculation of many raw-data totals to capture such macro-equivalents and allow users more flexibility
- implementation of size weighting through extending decomposition files (most efficient way in terms of running time and extends OP and Foster et al. decompositions to many other variables: LS, market power……)

Aggregate product market power ($j - level$)

How to define? Firm level: $\frac{\partial Y_{it}}{\partial M_{it}} \frac{M_{it}}{Y_{it}} * \frac{P_{it}^{Y} Y_{it}}{P_{it}^{M} M_{it}} = \mu_{it}$

cost-weight

Firm vs. aggregate technology

$$\mu_{jt} \equiv \frac{\partial Y_{jt}}{\partial M_{jt}} \frac{M_{jt}}{Y_{jt}} * \frac{\sum P_{it}^{Y} Y_{it}}{\sum P_{it}^{M} M_{it}} = \sum \left(\frac{P_{it}^{M} M_{it}}{\sum P_{it}^{M} M_{it}} * \underbrace{\frac{\partial Y_{it}}{\partial M_{it}} \frac{M_{it}}{Y_{it}} * \frac{P_{it}^{Y} Y_{it}}{P_{it}^{M} M_{it}}}_{\mu_{it}} \right)$$

Aggregate product market power ($j - level$)

Alternative sales or output weight:

$$\mu_{jt} \equiv \sum \left(\frac{P_{it}^{Y} Y_{it}}{\sum P_{it}^{Y} Y_{it}} * \mu_{it} \right)$$

⟶ Relates to (revenue) labor share and CPI

$$\mu_{jt} = \underbrace{\bar{\mu}_{jt}}_{\text{within}} + \underbrace{cov_{jt}\left(\frac{P_{it}^{Y} Y_{it}}{\sum P_{it}^{Y} Y_{it}}, \mu_{it}\right)}_{\text{Between}}$$

Implemented Extensions

Production function estimation – OLS to account for current issues

current approach

production:

$$Y_{it}(.) = Y_{it}(L_{it}, M_{it}, K_{it}, \omega_{it})$$

cobb-douglas example for $Y_{it}(.)$:

$$y_{it} = \beta^{l} l_{it} + \beta^{m} m_{it} + \beta^{k} k_{it} + \omega_{it} + \varepsilon_{it}$$

L_{it} *and* M_{it} *are flexible inputs;* ω_{it} *unobserved*

problem: firms set labor and intermediates after knowing ω_{it}

solution:

Assume: $\omega_{it} = \omega_{it-1} + \xi_{it}$ ⟵ productivity shock

Assume invertability of intermediate input demand function:

$m_{it} = h(k_{it}, \omega_{it})$ ⟶ $\omega_{it} = g(k_{it}, m_{it})$

↑ approx. with 3rd order polynomial

instrument first lag

plug in:

$$y_{it} = \beta^l l_{it} + \beta^m m_{it} + \beta^k k_{it} + h(k_{it-1}, m_{it-1}) + \xi_{it} + \varepsilon_{it}$$

instrument second lag

stata:

```
ivreg2 y k i.year $control_function (l m = l1_l l2_m), /*
*/ gmm2s cluster (id)
```

for each industry.

issues. 2nd lag demanding. vulnerable to outlier/measurement issues

Added: implemented OLS in addition to the IV-approach (on top we rewrote estimation to increase speed)

stata:

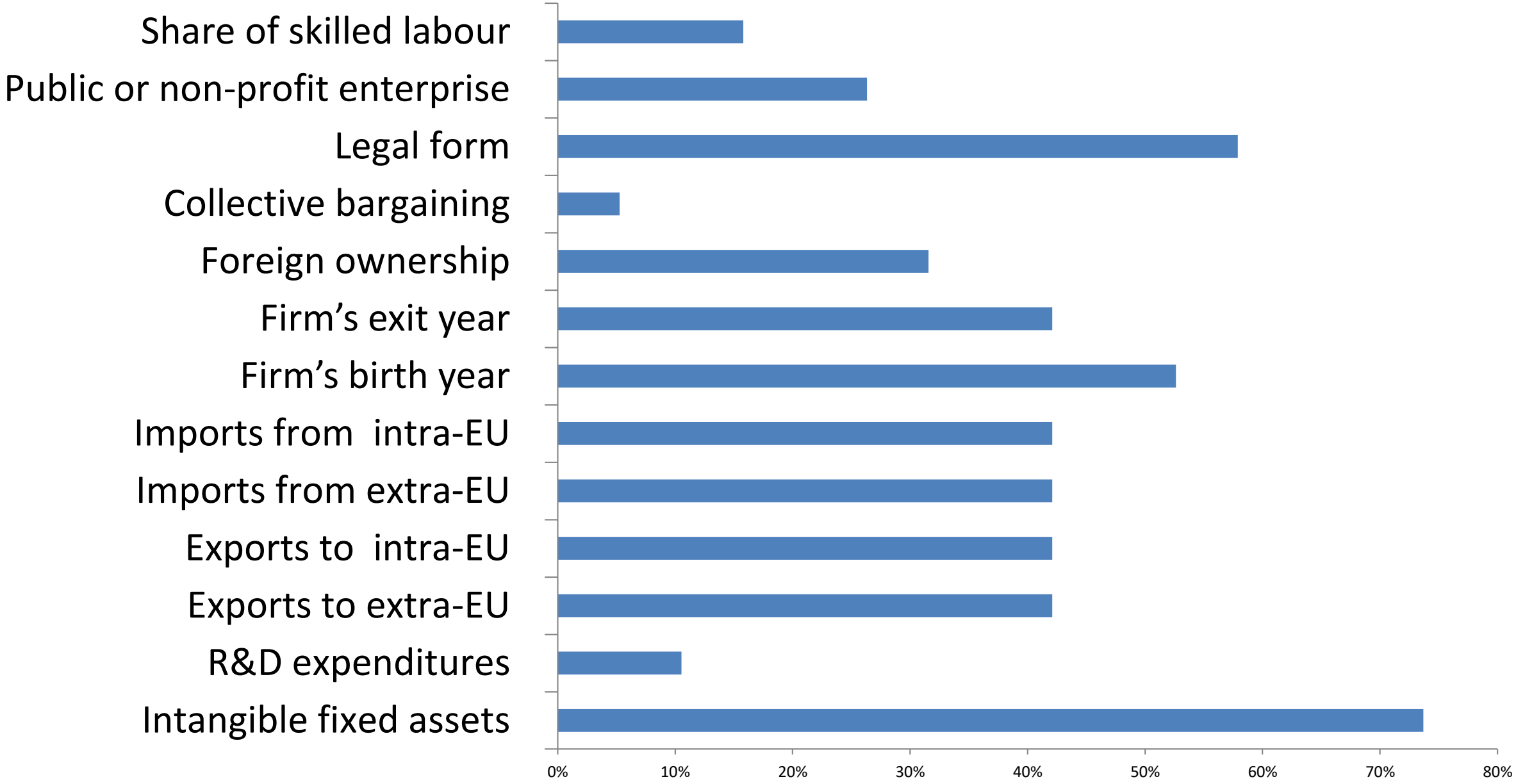
```
reg y k l m i.year, cluster(id)
```

for each industry.

New variables, new joint distributions

Planned/to be discussed Extensions

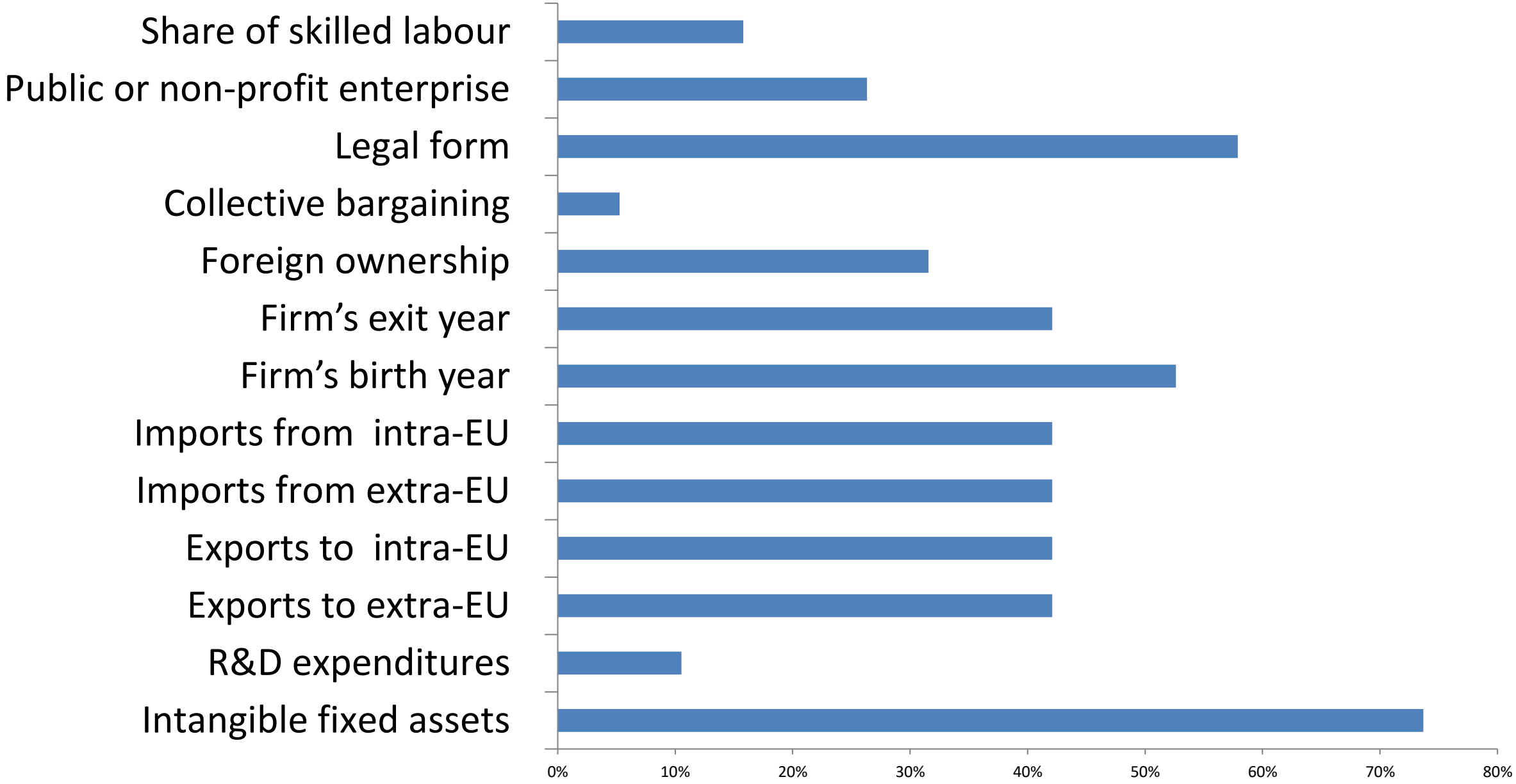
New 7th Vintage Variables



some plans for the next vintage(s)

- Entry- / Exit-Dummy for sub-sample(?), Age-groups
- Legal form (?)
- Intangible assets -> productivity slowdown (????). Perhaps, augment production function estimation and add it as individual production factor (rather more distant future)
- Intra vs. extra EU exports and imports?
- Not that much coverage: ownership, R&D expenditures, public vs. non-profit firm -> worth implementing?

New 7th Vintage Variables



questions:

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  Longest time period possible? How far can we go back? Interesting even if NACE cannot be perfectly reclassified -> literature on secular trends

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  Energy expenditures /emissions available? -> upcoming theme

Q&A, Discussion