Discussion of "Dynamics, Productivity & Innovation in the Dutch Economy"† by Adema et al. (2025)

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* Views expressed are those of the authors and do not necessarily reflect the position of De Nederlandsche Bank.

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Much to like in this study

Very rich integration of micro-data

- General Business Register (ABR), Business demographics (BDK), Productivity dataset, International trade in goods (IHG), multinationals (MNE), all employee jobs in the Netherlands (SPOLISBUS), Hours and money spent on R&D (WBSO).

Clear narrative linking

- Falling business dynamism
- Rising productivity dispersion
- Increasing concentration of innovation

Empirical toolbox

- Shift–share analysis
- Dynamic Olley–Pakes Decomposition
- Job ladder and worker–firm flow analysis

Very timely & situates Dutch trends in international literature

- It succeeds in combining labor-market flows, firm demographics, productivity and innovation into one integrated narrative, which is quite rare in national productivity diagnostics.

Main takeaways

Innovation in NL is increasingly concentrated in a small set of frontier incumbents

- **Incumbents** drive almost all innovation growth; **entrants/exits** contribute little
- **Innovation intensity** is rising slightly, but young firms' share is falling

Productivity growth mirrors innovation concentration: strong frontier, weak diffusion

- **Incumbents** also drive most of productivity growth
- The **productivity gap** between high productivity (frontier) and low-productivity (laggards) firms is widening
- Leaders and laggards are more and more **entrenched**.
- Since 2014 market shares are reallocated to low productive firms **negative reallocation**

Declining reallocation of employees

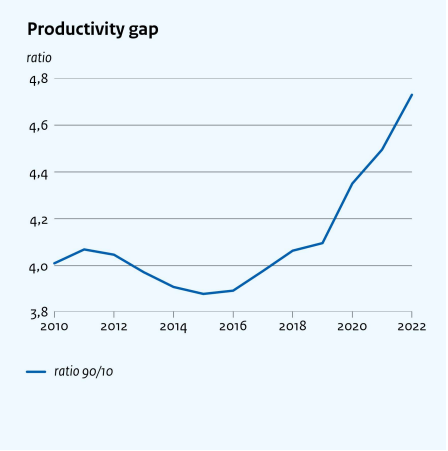
- Some evidence for a "**productivity ladder**": employees move from less to more productive firms.
- No **"innovation ladder"**: workers **do not move** from non-innovative to innovative firms
- Low-productivity firms gain employment share despite low performance.

Comments

- **Comment 1. Should we worry about the Dutch productivity gap?**
- **Comment 2. Definitions, data quality and shifting time windows**

Comment 1: Should we worry about the Dutch productivity gap?

Figure 2.16 Dispersion between high and low productive firms is large and increasing



Note: This figure shows ratios between the 90th and 10th percentiles.

Large and increasing gap

- The **gap** between the most and the least productive firms in NL is **large** and **increasing**

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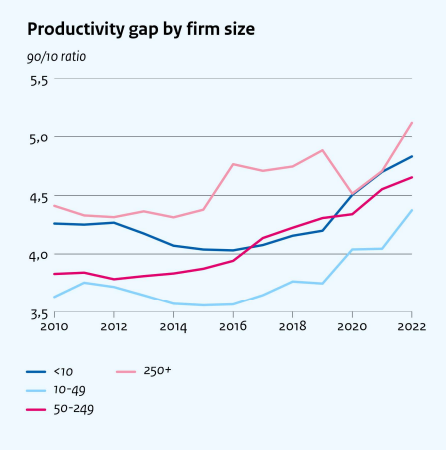
Figure 2.18 The top-bottom gap of labour productivity per size class



Note: Figure shows ratios between the 90th and 10th productivity percentiles. Lines show different size groups of firms by persons employed.

Large and increasing gap

- The **gap** between the most and the least productive firms in NL is **large** and **increasing**
- Across **firm sizes**

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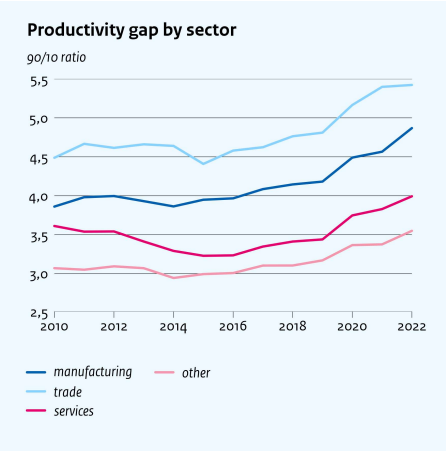
Figure 2.19 The top-bottom gap of labour productivity per sector



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Large and increasing gap

- The **gap** between the most and the least productive firms in NL is **large** and **increasing**
- Across **firm sizes**
- Across **sectors**

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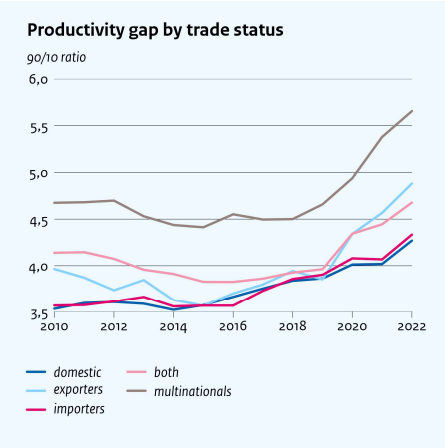
Figure 2.20 International firms are more productive and dispersion is increasing for all groups



Note: Figure shows the median labour productivity for firm by internationalization status.

High and increasing gap

- The **gap** between the most and the least productive firms in NL is **large** and **increasing**
- Across **firm sizes**
- Across **sectors**
- Across **export orientation**

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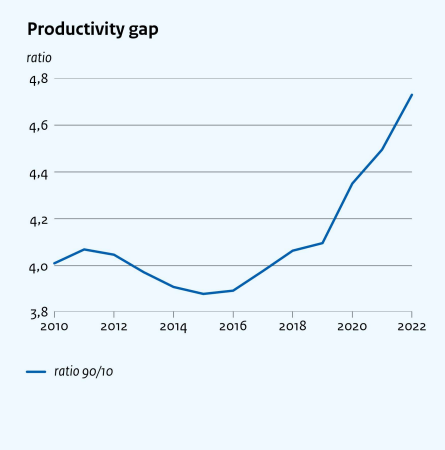
Figure 2.16 Dispersion between high and low productive firms is large and increasing



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Large and increasing gap?

- **Normal business cycle dynamics** before COVID; recession in 2012-2013 (debt crisis) decreasing gap, upturn increasing gap.
- **Broad diffusion** Could it be some common factors are driving the increase during COVID?

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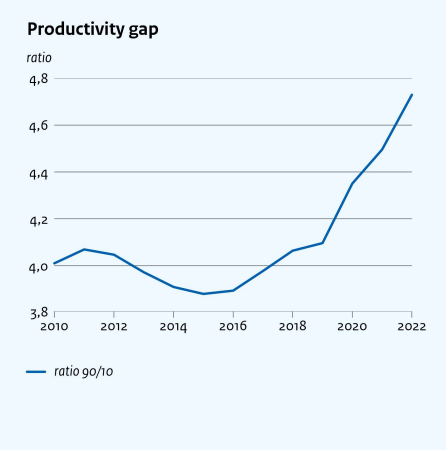

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Large and increasing gap?

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Are there some other underlying trend?

- **Labor hoarding during COVID** Firms retained workers during COVID, lowering LP, especially at p10 $\rightarrow$ widening gap $\rightarrow$ no TFP difference
- **"Stacking" of weak firms:** Survival support (NOW, TVL) kept low-productivity firms alive in 2020–2021. These firms remain in p10 $\rightarrow$ widening gap $\rightarrow$ no TFP difference
- **Implication:** Part of the measured frontier–laggard gap may reflect **temporary misallocation** rather than a **structural slowdown** in technology diffusion.

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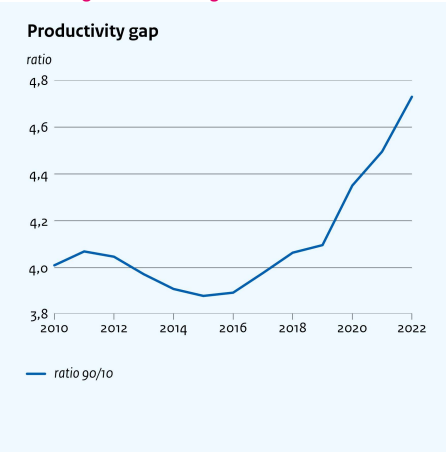

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Supporting evidence for labor hoarding/stacking in Adema et al. (2025

- **Exit rate** "remarkably low during COVID." (Fig. 3.1),
- Low-productivity firms in bottom quintile had **higher survival** and **lower exit** (Fig. 4.8),
- **Market shares** shifted toward lower productivity firms (negative reallocation). (Fig. 4.7)

Might still be cause for concern if ...

- Diff. high versus low productivity firms is **large**
- Increase during COVID is **large in international perspective**
- Increase during COVID is **permanent**

Cross-check outcomes

- International **comparison**
- **Alternative measure** for misallocation

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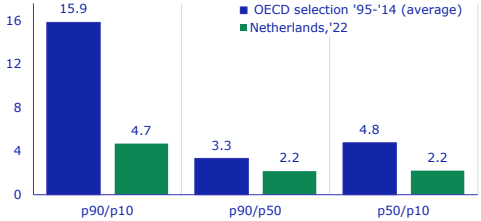
Dispersion between high & low productive firms

A. Netherlands versus average OECD countries*



B. Dispersion high & low productive Dutch firms '10, '19 and '22

	'10	'19	'22
p90/p10	4.0	4.1	4.7
p90/p50	2.0	2.0	2.2
p50/p10	2.0	2.0	2.2

* Average of AUS, BEL, CAN, CHE, DNK, FIN, FRA, HUN, IRL, ITA, NOR, PRT, SWE

Sources: Berlingieri (2025), CPB (2025), own calculations.

International comparison

- Dutch gap versus selection of comparable OECD countries (Berlingieri et al., 2025)
- **Dutch frontier-laggerd gap is remarkably small**: Dutch p90/p10 less than $\frac{1}{3}$ of sel. of OECD countries
- **Across the board** Frontier followers (p90/p50) and followers-laggards (p50/p10) are about $\frac{2}{3}$ and $\frac{1}{2}$, respectively
- **Sample OECD** for most countries > 1 **employee**, Adema et al. (2025) > 2 **employees**. Might explain some of the difference, but not all.

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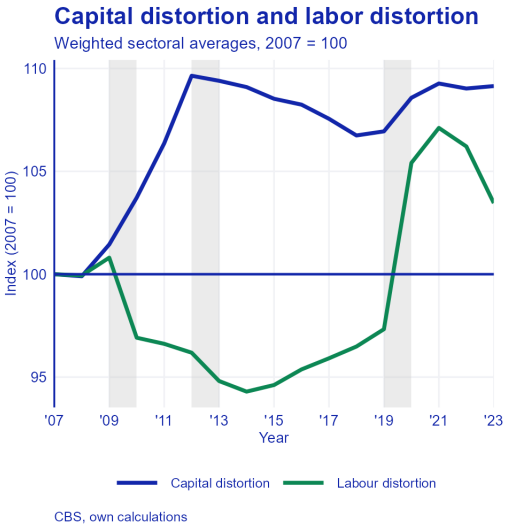

Cross-check with alternative misallocation measure

- **Main idea**: firms can differ in TFP, but dispersion in marginal products of **capital (MPRK)** and **labor (MRPL)** signal misallocation (Hsieh and Klenow, 2009)
- Data: micro-data ABR, SPOLISBUS, NFO, granular **NACE 3-digit level**, mimic Adema et al. 2025), $>$ 2 employees, extra year (2023)
- **Preliminary (!) update** of misallocation measurement 2007–2023, (update of Bun and De Winter, 2022)

Remarkable resemblance to the productivity gap

- **Capital distortion**: increase during financial crisis $\rightarrow$ stabilization over business cycle
- **Labor distortion**: declined after financial crisis $\rightarrow$ increased strongly during COVID $\rightarrow$ decline in 2023

Issue for discussion:

- How much of the increase in the **productivity gap** is **transitory** (policy, labor hoarding, 'stacking') or **structural**?

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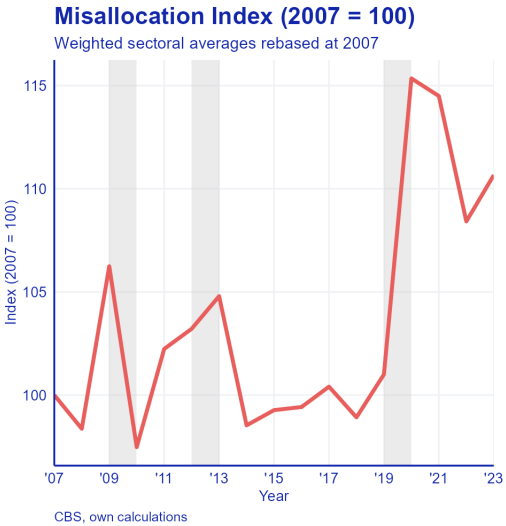

The cost of misallocation

- **Misallocation** is derived as TFP-level against TFP when there are nog capital or labor distortions. (**corner solution**).
- **Misallocation increased by about 10%-point** since 2007 (+/- 0.6% annually).

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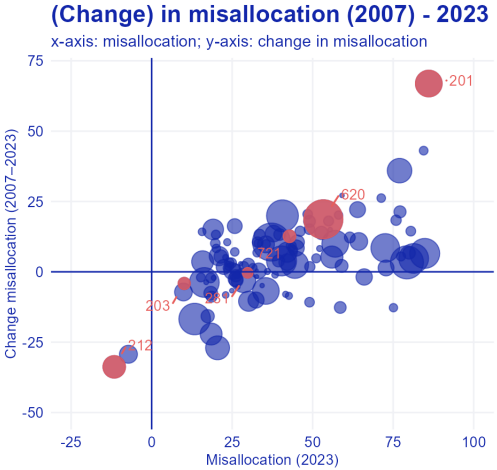

Granular insight into where misallocation is increasing

- Scatterplot shows large **sectoral** differences in (increase of) misallocation
- **Increase**: Chemical industry (NACE 201), IT service activities (NACE 620) and Scientific R&D (NACE 721)
- **Decrease/no change**: Pharma (NACE 212) or hardly changed: Manufacture of paints (NACE 203), Manufacture of engines (NACE 281),

Comment 2: Definitions, data quality and shifting time windows

Entire Firm Population (ABR) Used for **entry, exit, business dynamism**.

Firms in the Market Sector: Used for **productivity, innovation, worker flows, labor productivity, TFP, dispersion frontier-laggards**. Only corporations with > 2 FTE.

Worker Data (SPOLISBUS): All employees with dominant job per quarter (2007–2024). Used for **job ladder, poaching, mobility, worker flow**.

Innovation Data (WBSO): Only firms claiming WBSO (10,000 firms; 20% of workers). Used for **innovation concentration, innovation ladder**.

Shifting time periods across analyses: Entry/exit trends cover 2007–2023 (ABR), Productivity dispersion and DOP analysis rely on 2010–2022, Innovation (WBSO) patterns from 2007–2022,

Indicative example: The exit rate of firms with 1 employee did not decline in the period 2007–2013, (Fig. 3.8), but only firms > 2 FTEs in frontier-laggards (Fig. 4.3) and decomposition of productivity growth (Fig. 4.7)

Comment 2: Definitions, data quality and shifting time windows (example)

"Worker productivity ladder works, innovation ladder does not": Suggests a complex relationship between productivity and innovation within the labor market.

Different data scales: **Productivity**: all firms & versus users **Innovation**: WBSO (10 thousand firms, 20% workers). Statistical power is much lower.

Different definitions: **Productivity**: productivity quintiles market economy versus **Innovation**: binary indicator. Might not capture true intensity.

Different labor market mechanisms:: **Productivity**: all types of workers can move to higher-productivity firms. **Innovation**: jobs require specialized skills. Mobility of R&D workers might be too small to generate a visible difference.

Much innovation is non-R&D, intangible and organizational: NL is **top tier for for digitization** an **innovation leader** in European scoreboards.

Alternative innovation sources: Patents and CIS (community innovation survey) could enrich analysi. Latter for non-WBSO innovations.

Issue for discussion:
Do measurement problems break the innovation ladder? What do cross-checks indicate?

Final remarks

There is much to like about the CPB study: Very rich integration of micro-data, Clear narrative linking all different empirical outcomes, impressive amount of empirical results.

Evidence not fully conclusive: Evidence for increasing productivity gap and broken innovation ladder could be cross-checked.

Some elements missing: Markups, profit margins, labor shares, financial frictions, the role of intangible capital, market concentration.

Which policy intervention?: Might be hard to design. **structural** increase in productivity gap: focus on knowledge diffusion; **temporary** increase: do nothing.

Towards a unified framework: Embed empirical findings for dynamics, productivity & innovation in NL in a **unified model** based on current SOTA models (Aghion et al., 2023; Akcigit and Ates, 2021, 2023; Berlingieri et al., 2025)

Thanks for your attention

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