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Reviving Growth in a Time of Workforce Ageing

The Role of Job Mobility

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The views expressed here are those of the authors and do not represent the views of any of their affiliations.

Background and motivation

New OECD LinKEED workstream on productivity

- Analytical framework for country reviews to contribute to discussions on the role of policies and institutions for inclusive growth
- Employment Outlook 2025: ***Chapter with evidence on the importance of job mobility in efficiency-enhancing reallocation and aggregate growth and the role of demographic change*** (most of today's talk)
- Academic paper (work-in-progress): Academic version of this project leaded by Eliana Viviano (Bank of Italy) and Patrick Bennett (UoLiverpool)

Three stylized facts about productivity, dynamism, and demographics

1. Aggregate (productivity) growth has weakened and become less broadly shared — Growth
2. Slowdown in job reallocation in many advanced economies — Reallocation
3. The average age of the workforce has increased — Ageing

Can job mobility help revive growth, and how does ageing constrain this potential?

This project in a nutshell

Job mobility can foster (inclusive) growth, but aging may reduce that potential

- Job mobility facilitates growth-enhancing job reallocation and hence can boost aggregate growth
- Job mobility supports broad sharing of productivity gains as contributes to reduce the wage-setting power of firms
- Opportunities for job mobility may differ across workers with potentially implications for growth potential and inequality

Determine the importance of job mobility in growth-enhancing reallocation

- Does growth-enhancing reallocation take place through voluntary or involuntary job mobility?
- What is the contribution of job reallocation (and its mobility components) to aggregate wage and productivity growth?
- *How do these patterns relate to workforce ageing?*

Productivity-enhancing mobility in an ageing world

- Job-to-job mobility contributes about 0.9 pp annually to wage & productivity growth across OECD countries
- Between 2000 and 2020, ageing slows wage growth by ~0.13 points and productivity growth by ~0.10 points per year
- Mid-career/older workers are less likely to move to higher-paying/higher-productivity firms, weakening growth-enhancing reallocation

National LinkEED Data

Country-specific Linked Employer-Employee Data

Data from the LinkEED 2.0 network

- Infrastructure for the use of linked employer-employee data for cross-country research and policy analysis
- Distributed microdata approach based on standardized statistical code
- This project: 17 countries

Annual employment biographies

- Harmonized annual worker-firm matches
- Private-sector non-agricultural dependent employment
- Different types of mobility (job-to-job, employment)

Main outcomes of interest (firm quality)

- All countries: Average firm-level wages
- Selected countries: Labour productivity (value-added or sales per worker)

Country	Dataset(s)	Source	Sample	Period
Austria	AMS-BMASK Arbeitsmarktdatenbank	Social security administration	Universe	2000-2019
Belgium	Sample from data warehouse - Kruispuntbank Sociale Zekerheid	Social security data	10% random sample of workers	2002-2019
Canada	Canadian Employer-Employee Dynamics Database	Tax administration	Universe	2001-2019
Denmark	IDA and other data from Statistics Denmark	Tax administration	Universe	2000-2019
Estonia	Data from the Tax and Customs Board Register	Tax administration	Universe	2003-2019
Finland	FOLK from Statistics Finland, Employer Payroll Report from Tax Admin.	Tax administration	Universe	2000-2019
France	Panel DADS	Social security administration	8.5 % random sample of workers	2002-2019
Germany	Integrierte Erwerbsbiographien (IEB)	Social security administration	10% random sample of workers	2000-2019
Hungary	ADMIN–I - Panel of administrative data (OEP, ONYF, NAV, NMH, OH)	Social security administration	50% random sample of workers	2003-2017
Italy	INPS-INVIND Panel	Social security administration	8.6% random sample of firms	2002-2019
Lithuania	SoDra microdata	Social Security administration	25% random sample of soc.-sec. pop.	2000 - 2019
Netherlands	CBS Microdata from Statistics Netherlands	Tax administration	Universe	2006-2019
New Zealand	IDI and LBD	Tax administration	Universe	2000-2019
Norway	Aa-registeret, LTO	Tax administration	Universe	2008-2019
Portugal	Quadros de Pessoal	Mandatory employer survey	Universe	2002-2019
Spain	Muestra (MCVL-CDF)	Social security and tax administration	4% random sample of workers	2006-2019
Sweden	LISA, FEK, JOBB	Social security administration	Universe	2002-2018

Growth-enhancing reallocation

Job mobility and growth-enhancing reallocation

Growth-enhancing job reallocation

- Change in the structure of employment from lower quality to higher quality firms
- Quantify the responsiveness of employment growth to firm-quality following Decker et al. (2020)

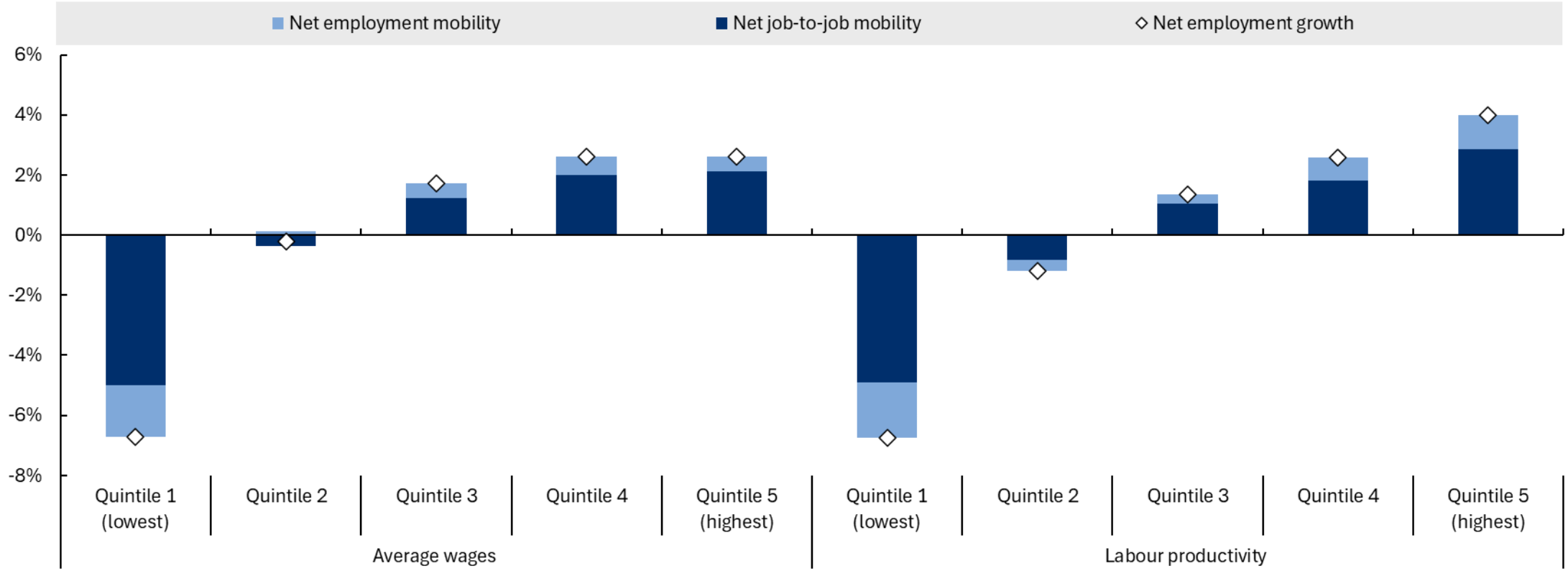
Employment-weighted firm-level regression

$$\Delta E_{jt} = \beta_0 + \boldsymbol{\beta_1}\pi_{jt-1} + \beta_2 E_{jt-1} + \delta_{st} + \varepsilon_{jt}$$

- ΔE_{jt}: DHS employment growth in firm j between time t and t-1 (incumbent firms only)
- π_{jt-1}: *Lagged firm quality (moving average of log productivity or avg. firm-level wages)*
  - *Quintiles or Average*
- E_{jt-1}: Lagged employment in firm j
- δ_{st}: Simple year fixed-effects or industry-by-year fixed effects (for within-industry results)

Reallocation takes place through job-to-job mobility

Average annual net employment growth among incumbent firms by quintile of the firm-distribution of wages and productivity, relative to average employment growth



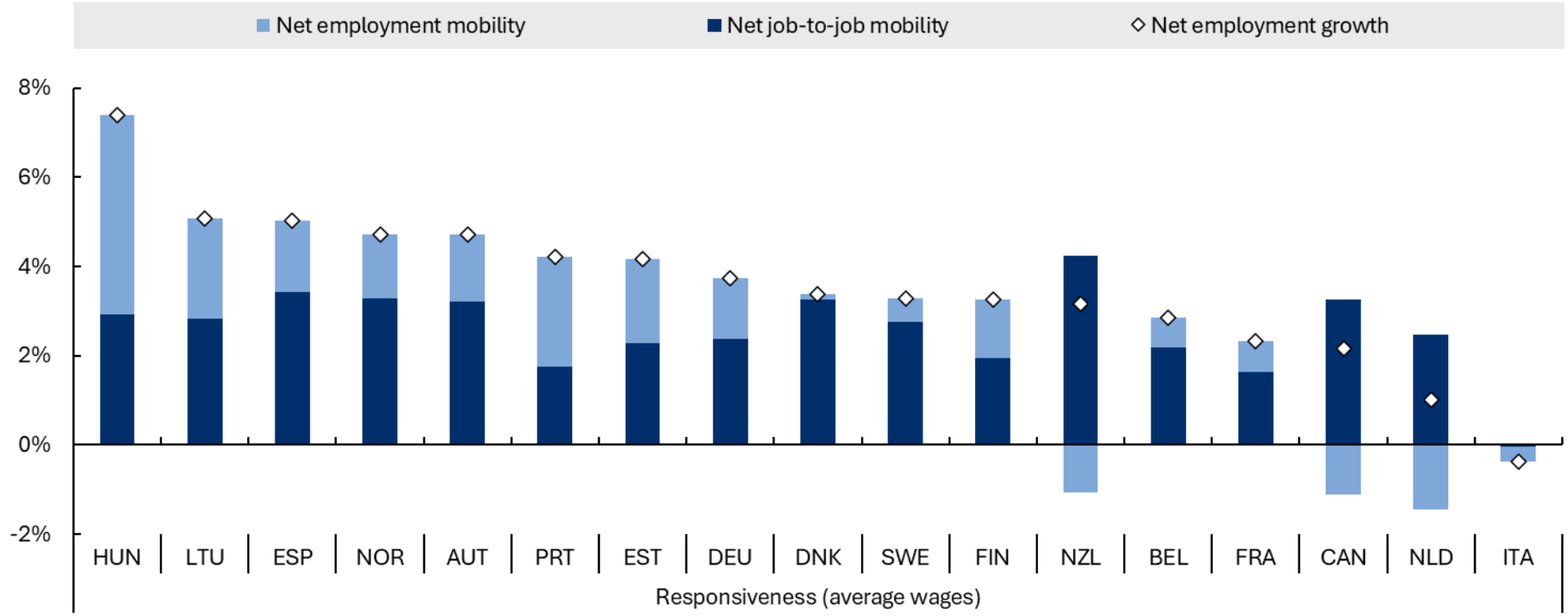
Source: National linked employer employee data

Within-industry

Between-industry

Responsiveness to wages differs across countries, but the contribution of job-to-job mobility is the main force

Growth-enhancing reallocation among incumbent firms as measured by the employment-weighted impact of firm-quality on net employment growth across firms, percentage points (p.p.)



Source: National linked employer employee data

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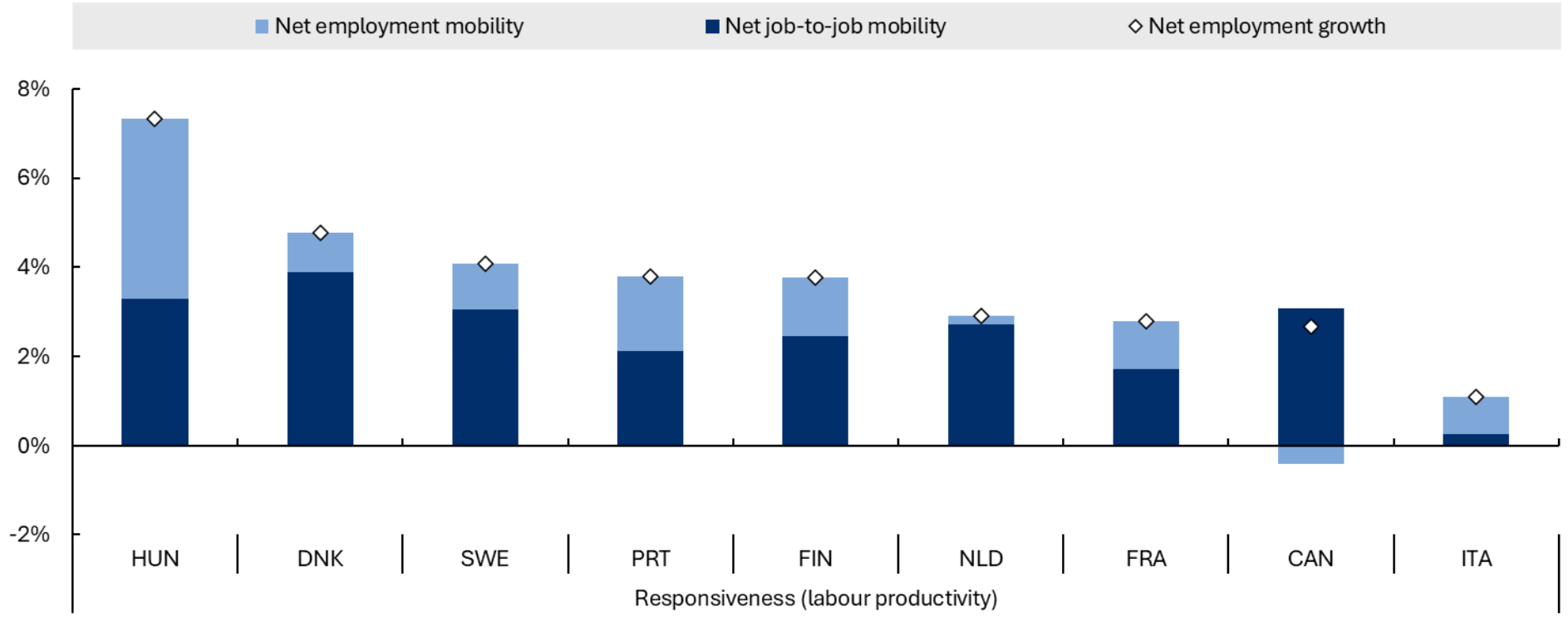


Source: National linked employer employee data

Reallocation and aggregate growth

Aggregate growth decomposition

- Change from firm-level approach to worker-level to measure the contribution of mobility to aggregate wage and productivity growth
  - Not restricted to workers in incumbent firms and therefore also includes workers in entering firms
  - Additionally, we compute supplemental "beta values" to quantify the part of the cross-country variation that can be explained by the different components (Fujita and Ramey, 2009)

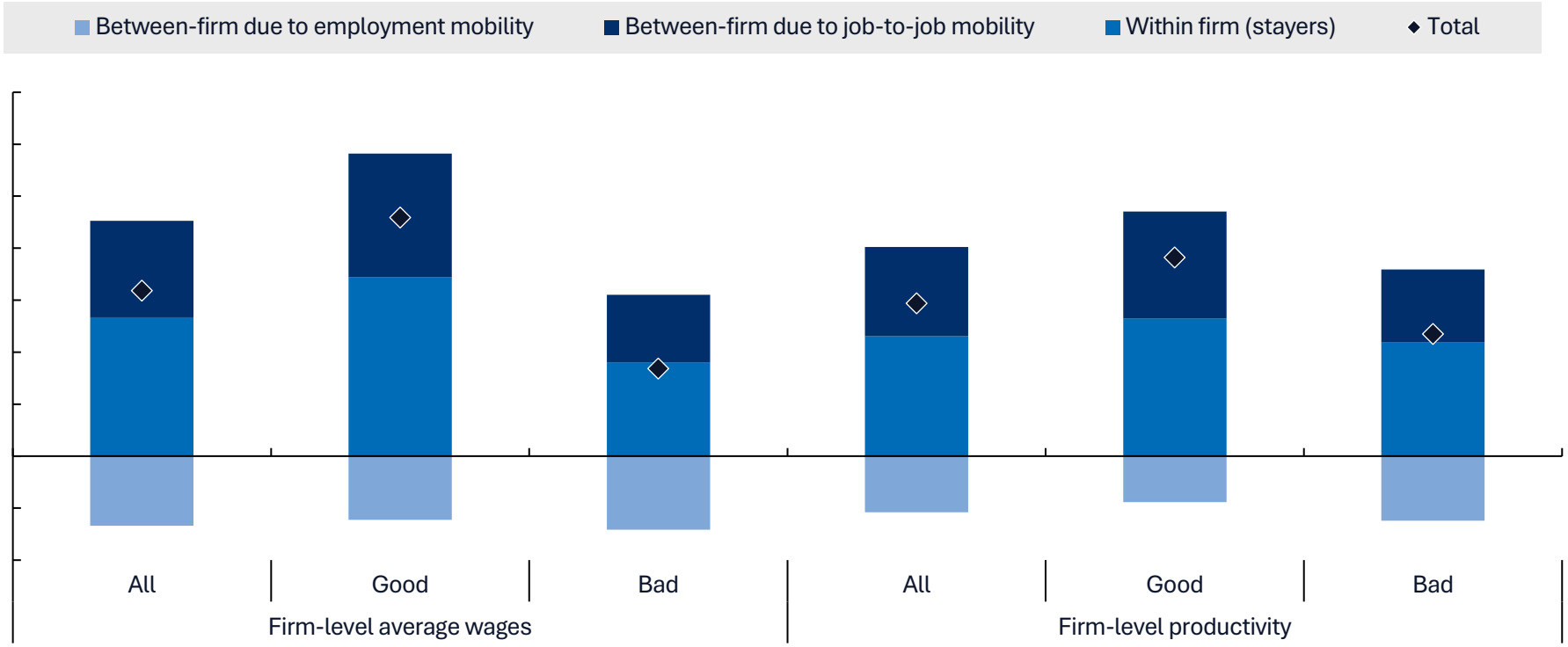
- Following Hahn, Hyatt & Janicki (2021) aggregate wage or productivity growth (ΔY_t) can be decompose as

$$\Delta Y_t = \underbrace{\frac{\left(\frac{R_t}{E_t} + \frac{R_t}{E_{t-1}}\right)\sum_i r_{it}\Delta y_{it}}{2R_t}}_{\text{Stayers}} + \underbrace{\frac{\left(\frac{J_t}{J_t} + \frac{J_t}{J_{t-1}}\right)\sum_i j_{it}\Delta y_{it}}{2J_t}}_{\text{Job-to-job movers}} + \underbrace{\frac{\frac{H_{N_t}}{E_t}\sum_i h_{N_{it}}(y_{i,t-1} - \tilde{y}_t)}{H_{N_t}}}_{\text{Entrants from nonemployment}} - \underbrace{\frac{\frac{S_{N_t}}{E_{t-1}}\sum_i s_{N_{it}}(y_{i,t-1} - \tilde{y}_t)}{S_{N_t}}}_{\text{Exits to nonemployment}}$$

  - $r_{it}, j_{it}, h_{N_{it}}, s_{N_{it}}$ represent mobility state (stayer, job-to-job mover, hire from non-employment, separation to non-employment, respectively) of worker *i* in year *t*
  - $R_t, J_t, H_{N_t}, S_{N_t}$ stand for the total number of workers in each state
  - $E_t = R_t + J_t + H_{N_t}$ and $E_{t-1} = R_t + J_t + S_{N_t}$ are employment in two consecutive years
  - $\tilde{y}_t$ reference level for workers transiting in and out of non-employment = weighted average of outcomes for stayers and job-to-job movers

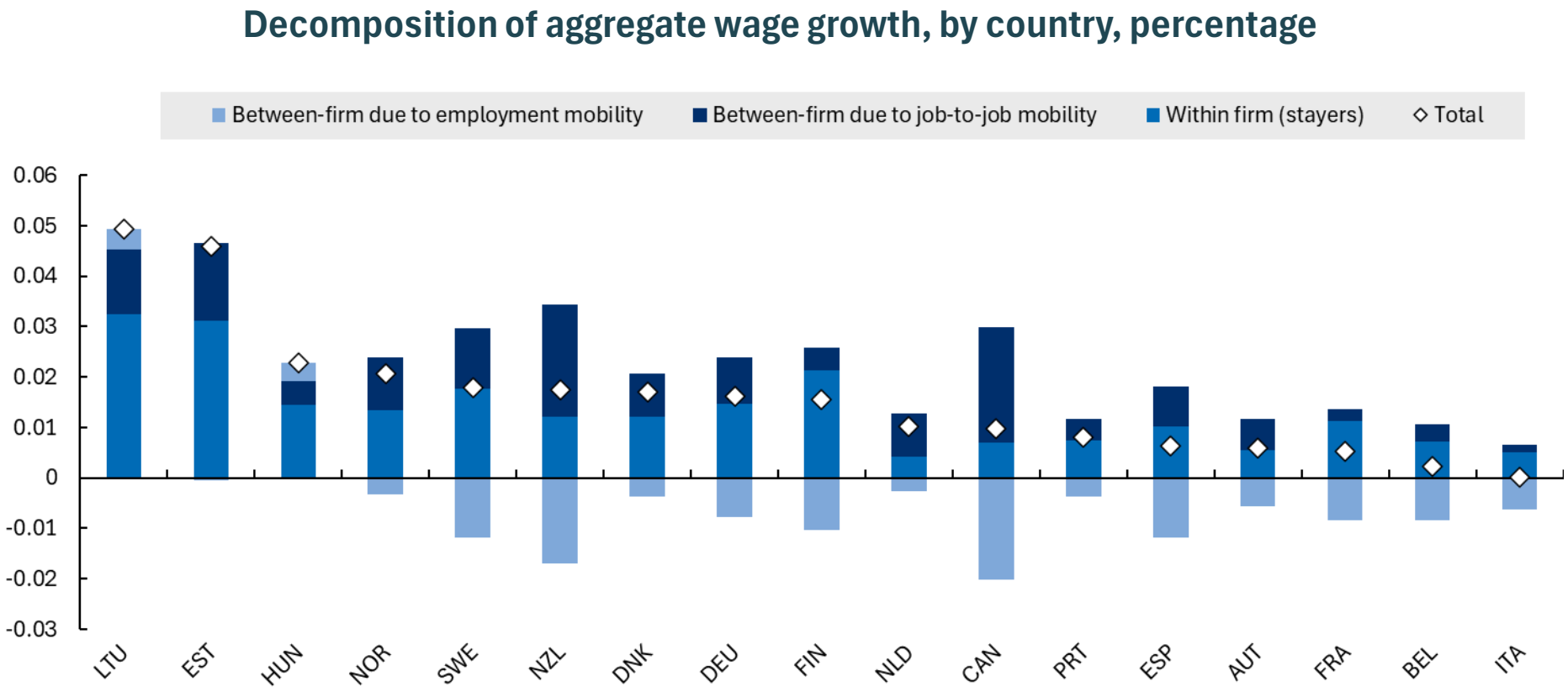
Job-to-job mobility accounts for a large part of aggregate wage and productivity growth

Decomposition of aggregate wage and productivity growth, all years, good/bad years, first/last year, percentage



Source: National linked employer employee data

Job-to-job mobility accounts for a large part of aggregate wage growth



Source: National linked employer employee data

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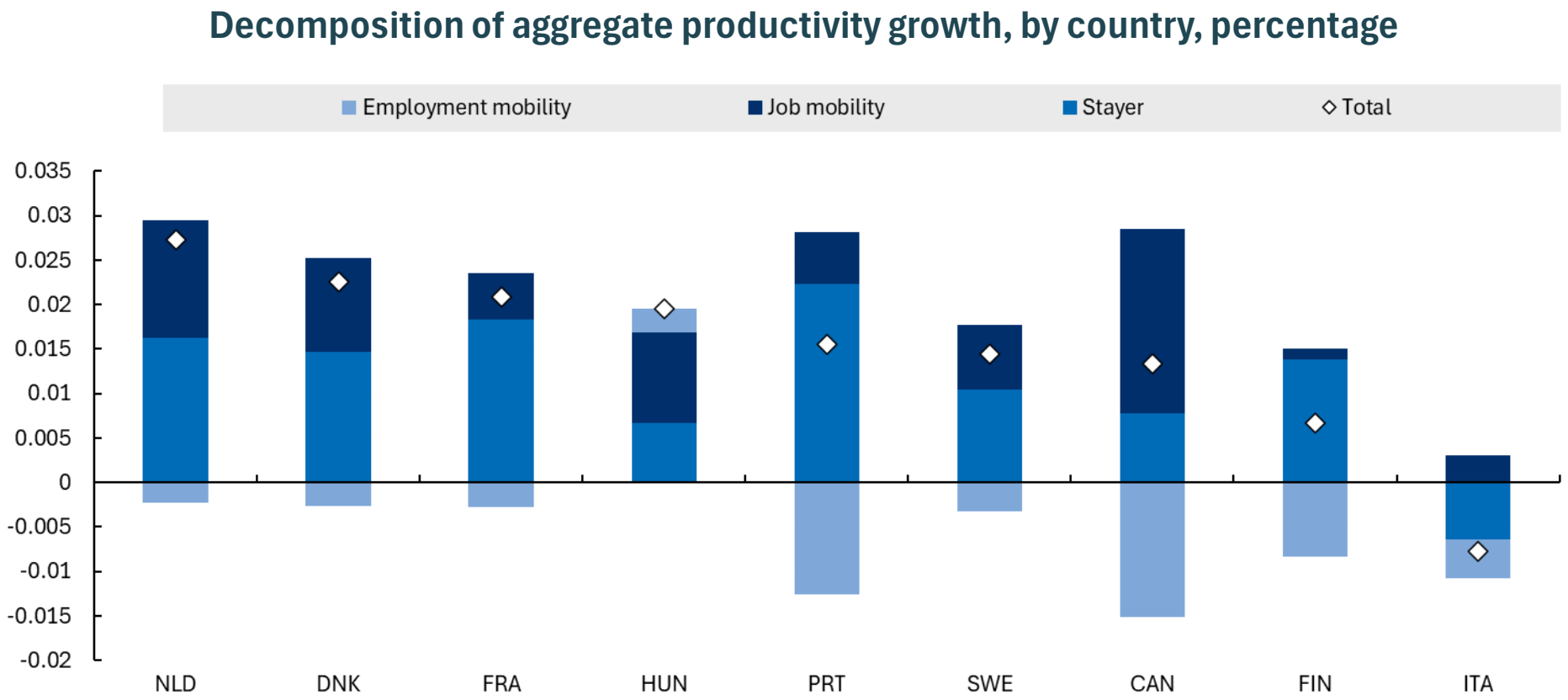
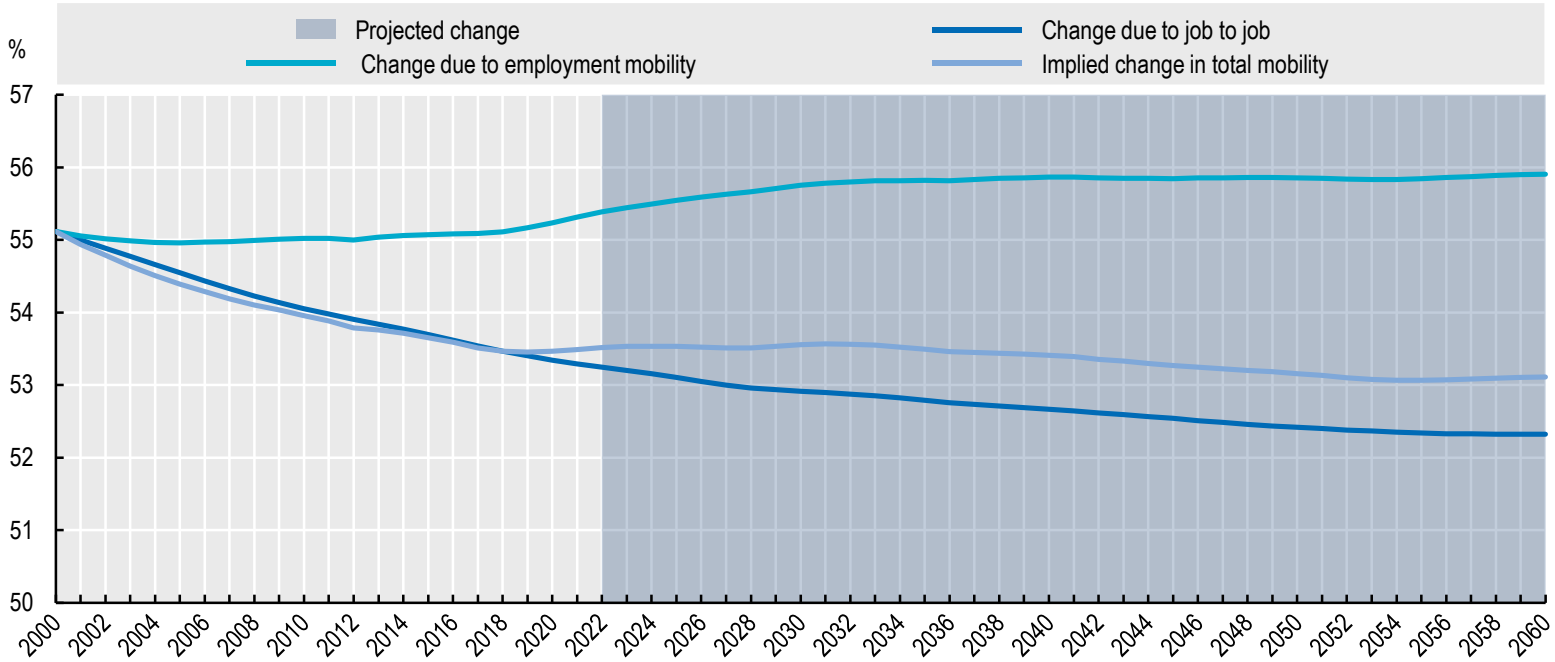


Source: National linked employer employee data

Workforce ageing, job mobility, and growth

Workforce ageing weighs down on worker mobility

Implied evolution of gross worker mobility and its components between 2000 and 2060 due to actual and projected changes in the age structure of the workforce (projected since 2022)

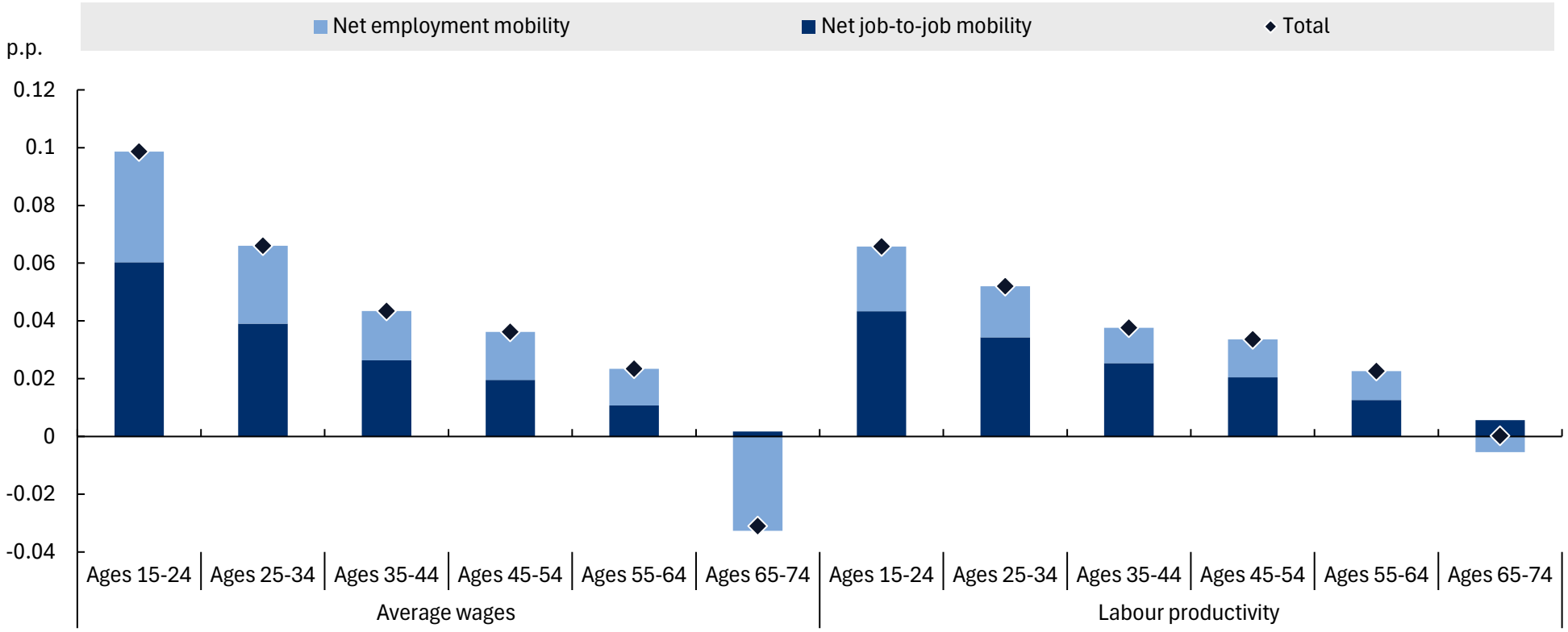


Source: National linked employer employee data for linked employer-employee data; Labour force participation based on Fluchtmann, Keese and Adema (2024); Population based on United Nations (2024).

Mobility concepts

Growth-enhancing job reallocation considerably declines across age groups

Growth-enhancing reallocation among incumbent firms as measured by the employment-weighted impact of firm-quality on net employment growth across firms, by age group, percentage points (p.p.)



Source: National linked employer employee data

What does this mean for wage and productivity growth?

Shift-share decomposition

- Extended shift-share decomposition to measure the contribution of workforce ageing to differences in between-firm wage and productivity growth between early 2000s and late 2010s (countries with sufficiently long series)
- Direct effect of ageing accounted for through share component, measuring effect of changing age composition of employment
- Indirect effect of ageing accounted for through differential shift component, abstracting from average changes in dynamisms and capturing differential trends across age groups

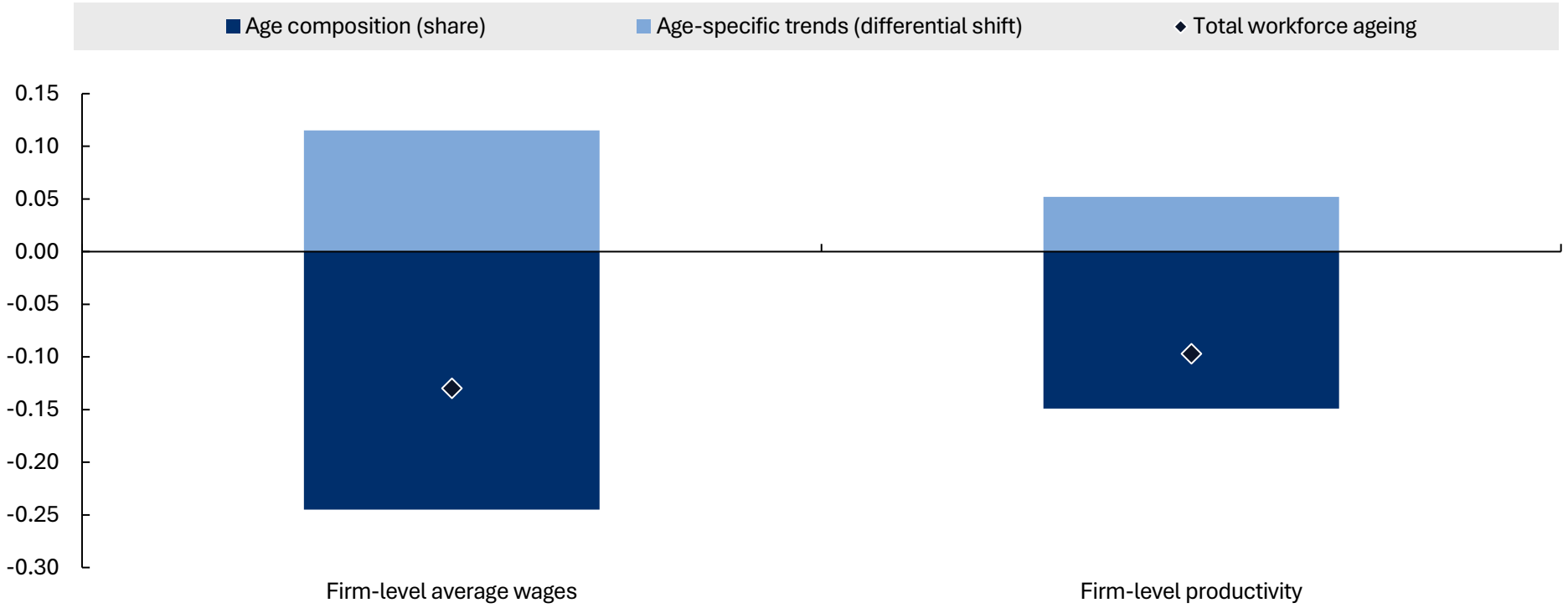
$$\Delta y_t = \underbrace{\sum_a \bar{y}_a \, \Delta s_{t,a}}_{Share} + \underbrace{\sum_a \bar{s}_a \, \Delta y_{t,a}}_{Shift} = \underbrace{\sum_a \bar{y}_a \, \Delta s_{t,a}}_{Share} + \underbrace{\sum_a \bar{s}_a \, (\Delta y_{t,a} - \Delta \bar{y}_t)}_{Diff.shift} + \Delta \bar{y}_t$$

- Sum of share and differential shift give the role of ageing for past wage and productivity growth

Trends by age

Ageing weakens aggregate wage and productivity growth

Difference in between-firm wage and productivity growth rates based on a shift-share decomposition on the evolution of age-composition of employment and age-specific trends in between-firm wage and productivity growth rates, early 2000s to late 2010s*, percentage points



Source: National linked employer employee data

Conclusions and policy implications

Employment Outlook: Main messages

Growth-enhancing job reallocation is to a large part driven by job-to-job mobility

- Job-to-job mobility contributes 0.9 percentage points annually to wage and productivity growth, but is to a large part offset by employment mobility
- Contribution of job-to-job mobility driven by a strong “job ladder” up the firm quality distribution

Job ladder as mechanism for inclusive growth

- Role of job ladder for individual wage growth much larger than for aggregate growth
- Job ladder matters beyond growth-enhancing job reallocation, crucial integration of workers in the labour market and their subsequent advancement in their careers

Population ageing matters for aggregate growth

- Younger workers more mobile and more likely to transition to higher-quality firms through the “job ladder”
- Workforce ageing has slowed aggregate wage and productivity growth by 0.13 and 0.10 pp between 2000 and 2020
- Future population changes projected to have milder effect on growth

Policies supporting mobility at all ages

Ensure sufficient flexibility for firms while promoting job mobility for workers

- Maintain balanced employment protection that doesn't discourage hiring
- Job retention schemes for temporary downturns, not permanent shocks

Unnecessary barriers to efficiency-enhancing job reallocation need to be removed

- Scrutinize excessive professional licensing and consider alternatives (e.g. voluntary certification)
- Limit non-compete clauses to certain workers (e.g. high-wage employees) or impose compensation and notification requirements

Complement wage-setting institutions with policies that enhance mobility and foster innovation in low-productivity firms

- Policies limiting wage dispersion should be paired with measures enhancing voluntary mobility and driving innovation in low-productivity firms
- Provide comprehensive activation policies and career guidance services (also for those stuck in low-quality jobs)

Support measures for mid-career and older worker mobility

- Provide targeted interventions for displaced (older) workers including early support and wage insurance
- Expand job-search assistance and address skill obsolescence for continued career progression

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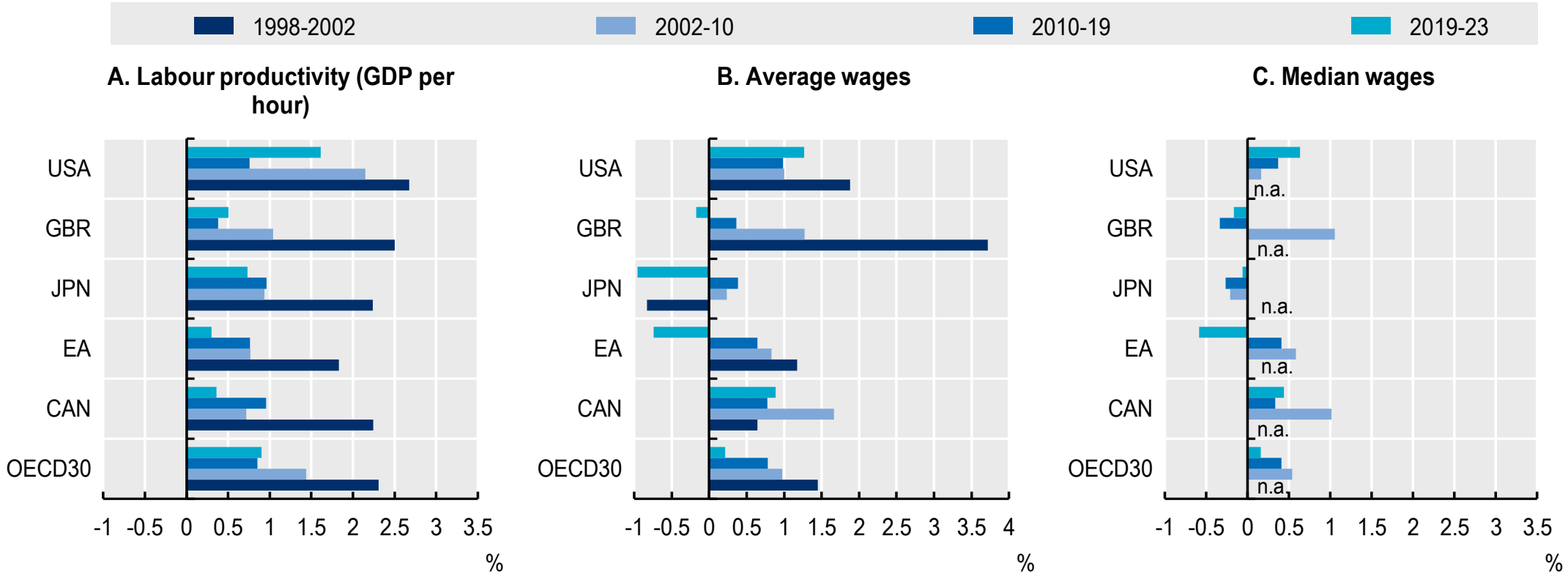
1. Aggregate productivity growth has weakened and become less broadly shared

Real average annual growth rates in labour productivity, average wages and median wages by country group and period



Source: OECD calculations based on OECD databases on productivity annual wages (for average wages) dataset; OECD database on earnings distribution (for median wages).

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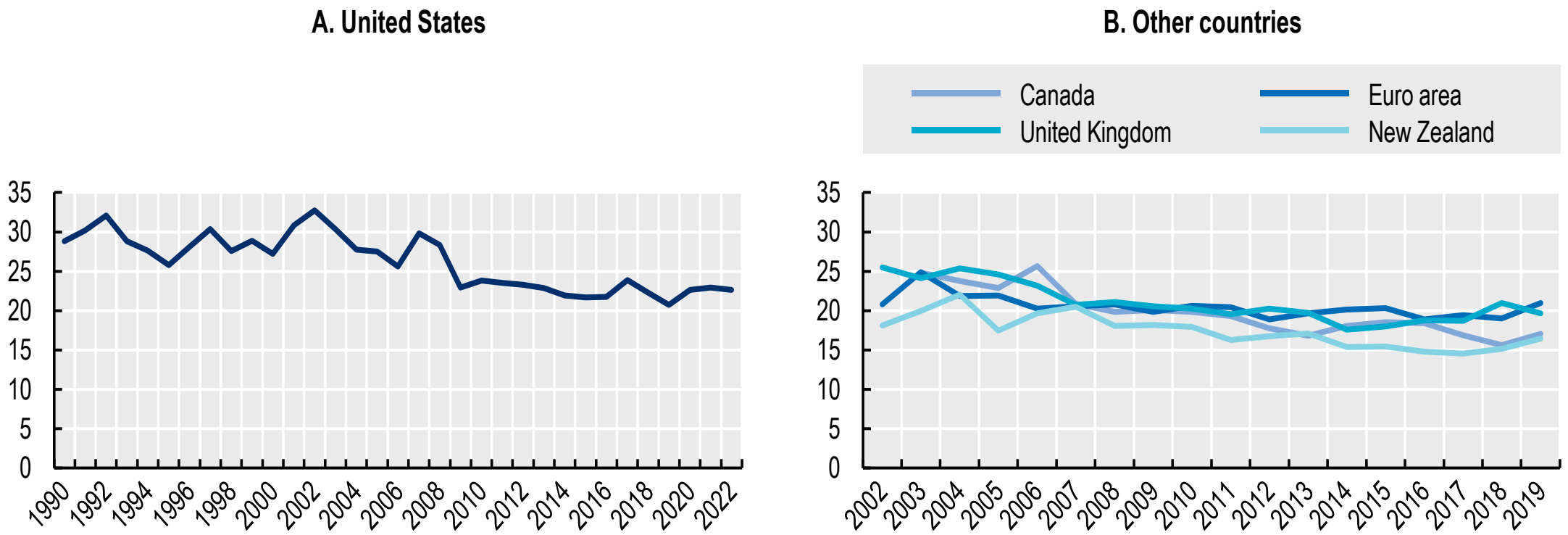
2. Job reallocation has been steadily declining in many countries, potentially contributing to slowdown in growth

Gross job reallocation (job creation + job destruction) rates over time, selected countries, percentage of employment



Source: Bureau of Labour Statistics for the United States (Panel A); Longitudinal Business Database from the Office for National Statistics for the United Kingdom, and national linked employer employee data for the other countries.

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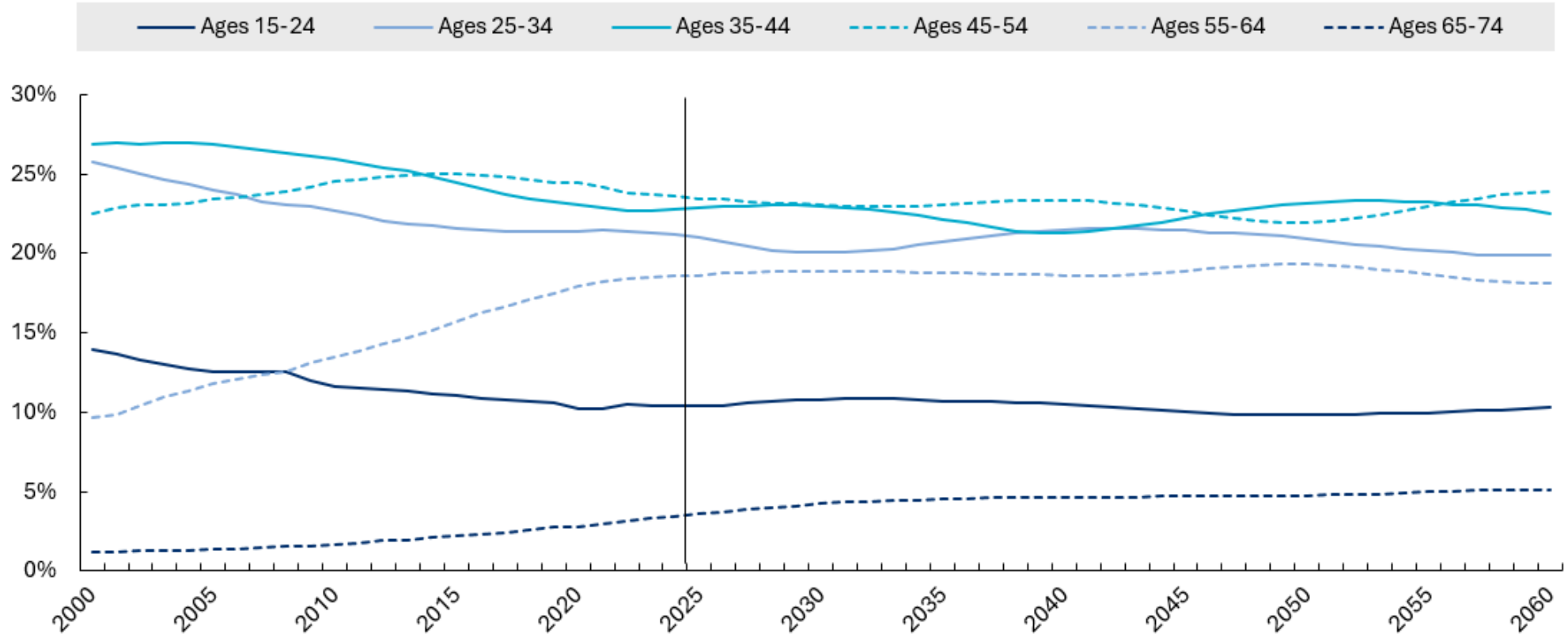
3. The age composition of employment has become older, which plausibly contributes to facts 1 and 2

Historical and projected evolution of age-composition of employment, 17 OECD countries*, 2000 - 2060



Source: Labour force participation based on Fluchtmann, Keese and Adema (2024); Population based on United Nations (2024).

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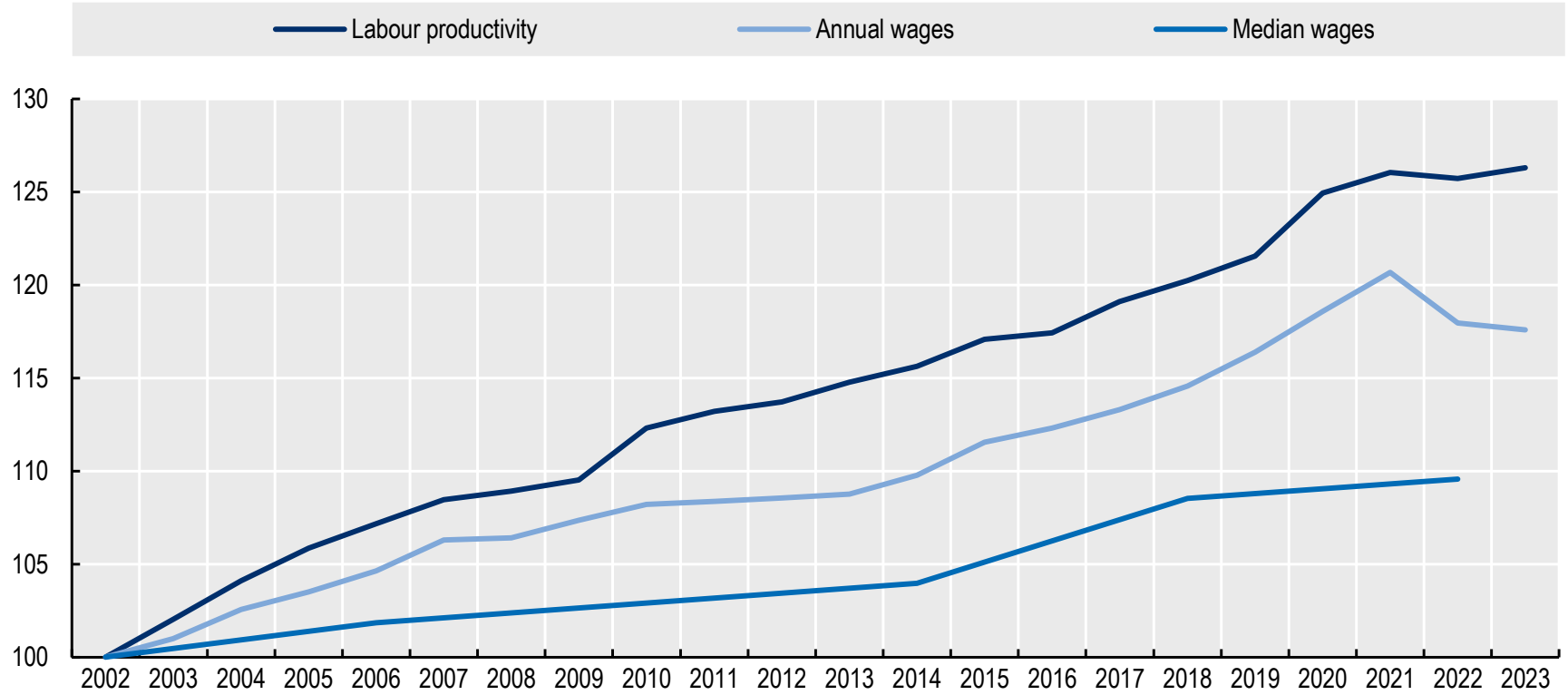
Real wages have decoupled from labour productivity

Real average annual growth rates in labour productivity, average wages and median wages, index 2002 = 100



Source: OECD calculations based on OECD databases on productivity annual wages (for average wages) dataset; OECD database on earnings distribution (for median wages).

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Mobility concepts

Gross Worker Mobility

Sum of all hires and separations between periods

$$G_t = \underbrace{H_{J_t} + S_{J_t}}_{\text{Gross job-to-job mobility}} + \underbrace{H_{N_t} + S_{N_t}}_{\text{Gross employment mobility}}$$

Gross Job Mobility/Reallocation

Sum of job creation and destruction across firms

$$R_t = \underbrace{\sum_{\Delta E_{i_t} \geq 0} \Delta E_{i_t}}_{Job\ creation} + \underbrace{\sum_{\Delta E_{i_t} < 0} |\Delta E_{i_t}|}_{Job\ destruction}$$

Net Job Mobility

Changes in employment structure across firm groups (e.g., by productivity)

$$N_{Q,t} = \underbrace{\sum_{i \in Q} H_{J_{i,t}} - S_{J_{i,t}}}_{\text{Net job-to-job mobility}} + \underbrace{\sum_{i \in Q} H_{N_{i,t}} - S_{N_{i,t}}}_{\text{Net employment mobility}}$$

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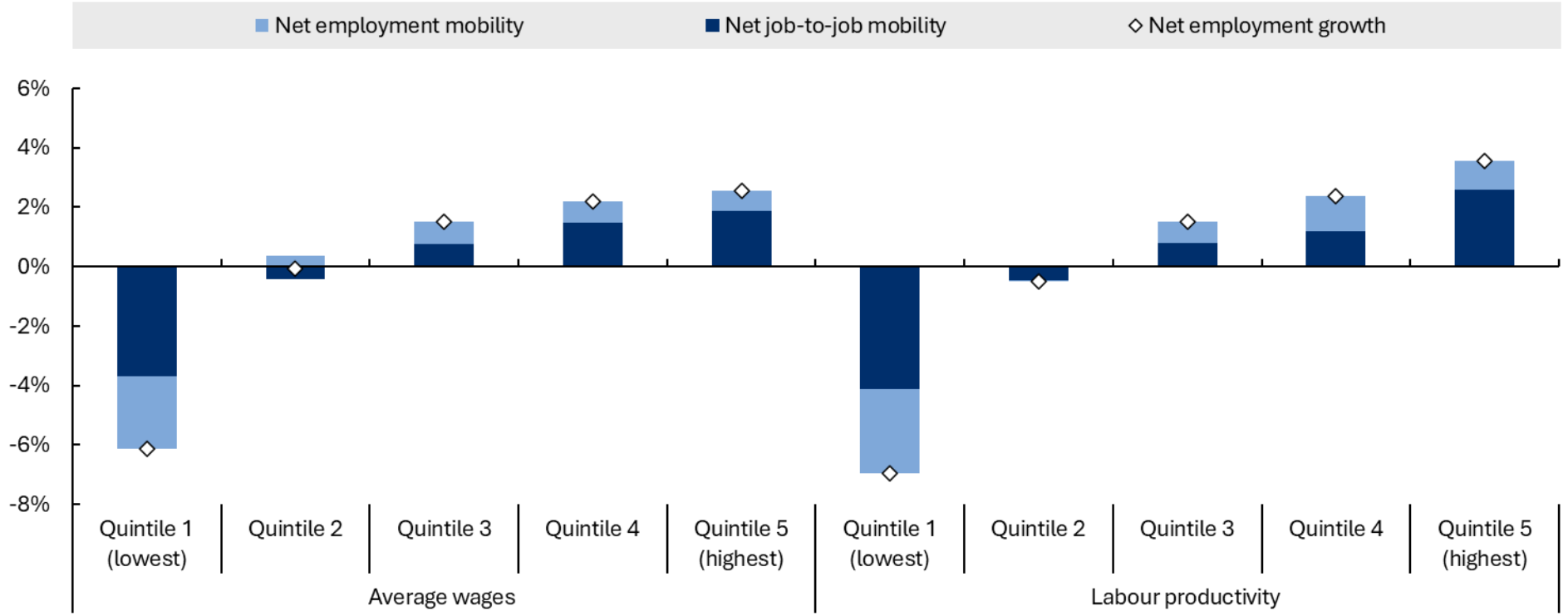
Average annual net employment growth among incumbent firms by quintile of the within-industry firm-distribution of wages and productivity, relative to average employment growth



Source: National linked employer employee data

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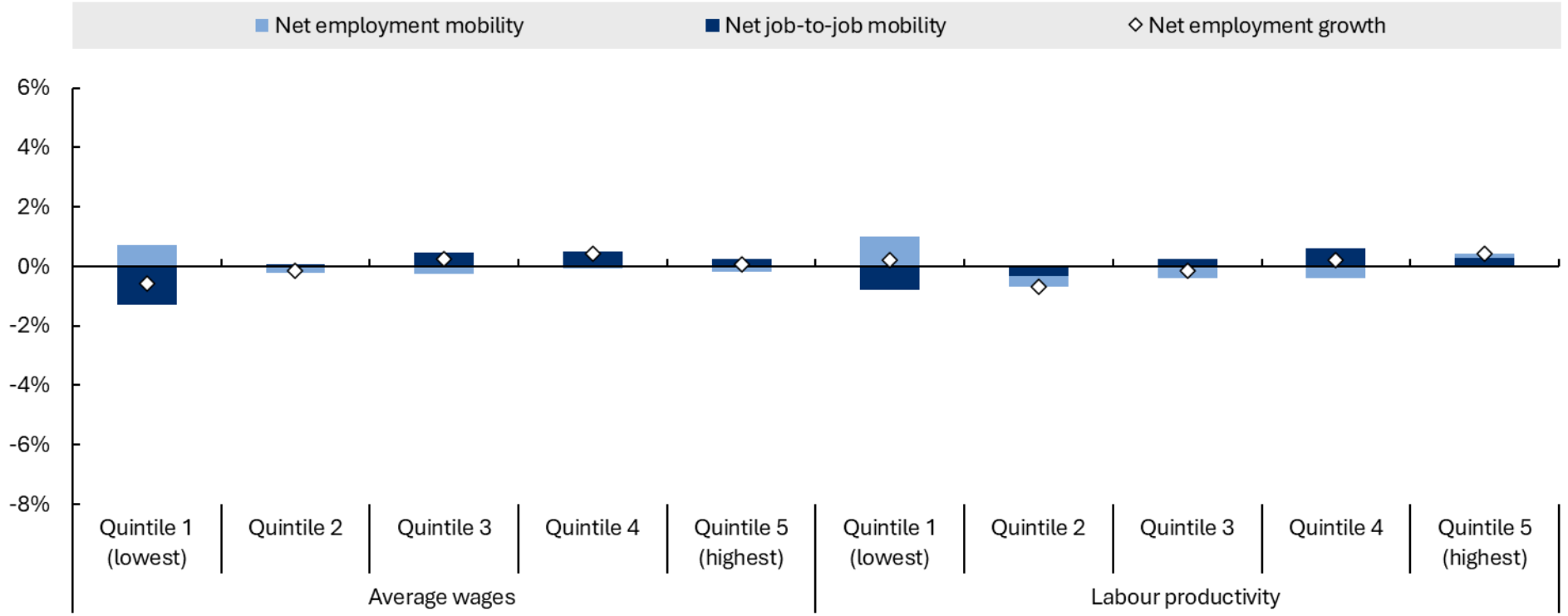
Average annual net employment growth among incumbent firms by quintile of the between-industry firm-distribution of wages and productivity, relative to average employment growth



Source: National linked employer employee data

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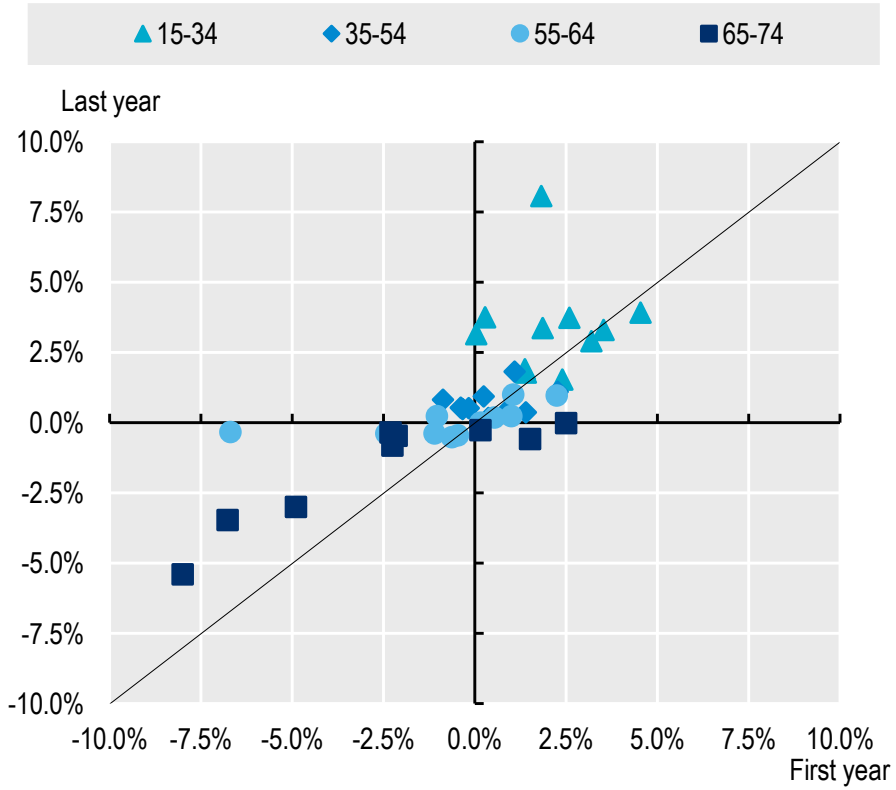
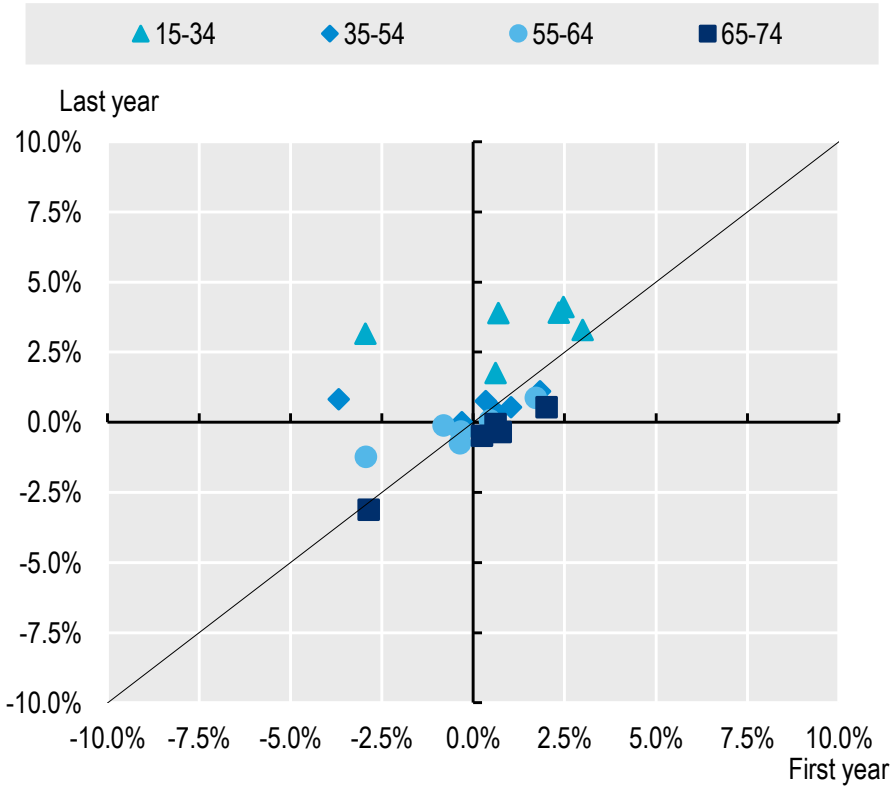
There are some changes in age-specific between-firm wage and productivity growth

Age-specific between-firm aggregate wage and productivity growth rates, by age group, first vs last year, percentage

A. Average wages



B. Labour productivity



Source: National linked employer employee data

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