COUNTRIES FOR OLD MEN: AN ANALYSIS OF THE AGE WAGE GAP

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The age wage gap has increased in high-income countries in favor of older workers


At the same time, the average workforce age has increased substantially

- E.g.: share of O55 workers in US almost doubled in 1985-2020

Can a larger supply of older workers be compatible with age wage gap increase?

Obviously, classic imperfect substitutability + supply story cannot explain this trend

This paper: more older workers generate negative spillovers on younger cohorts

- provide conceptual framework, show consistent evidence, and test for alternatives
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  - add two key elements to classical labor demand model with two jobs:
    - cannot fully renegotiate wages and job allocation of older workers
    - firms have limited resources: cannot promote everyone who deserves it

  - Derive following predictions from increased supply of older workers:
    1. deterioration in wages of younger: crowd out from top jobs, not change in wage premia
    2. deterioration from both lower entry position and lower growth over lifecycle
    3. crowd-out within firm, especially in top paying ones where older workers retire later
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What we find

1. **Deterioration of younger workers’ careers**: pushed to bottom of wage distribution
   - Many O55 workers swapped positions with U35 workers in wage distribution
   - E.g., share of total increase explained by change in rank is 78% in Italy and 98% in US

2. Younger workers lose rank both at entry and over life-cycle

3. **Within firm dynamics** are important:
   - Across all levels of firm average pay, U35 lose positions within firms, while O55 gain

4. Younger workers crowded out of higher-paying firms
   - Older workers manage to increase tenure in longer-living high-paying firms

5. Bigger age wage gap increase in more constrained firms
   - E.g., low-growth, older, larger firms: less room for creating new positions at the top

6. Complement with additional evidence to rule out alternative stories
   - Among others: workforce composition, inequality trend, education and returns to experience
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1. Wage gap between older and younger employees

- Relatively small literature on age wage gap (Rosolia & Torrini (2007); Naticchioni et al. (2014))
- Our contribution:
  - Conceptual framework
  - Administrative and survey data from multiple countries
  - More tests and improved external validity
  - Implications of our results on pay and employment gap for income: Guaitoli and Pancrazi (2022)
  - Worsening in life-time earnings of younger workers (Guvenen et al., 2022)
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   - Widening of age wage gap compatible with main takeaway of these papers
Literature review

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3. Link age wage gap with other strands of the labor literature
   - Wage inequality (Autor et al. (2008); Card et al. (2013); Song et al. (2019)), increases in returns to experience (Jones (2009); Azoulay et al. (2020); Jeong et al. (2015)); SBTC (Acemoglu et al. (2011); Autor et al. (2006)); domestic outsourcing (Goldschmidt & Schmieder (2017)); demand for skills (Deming (2021)); selection
Outline

Conceptual framework

Data

Deterioration in Younger Workers Careers, Improvement for Older Workers
  Shifts along the wage distribution and firms’ hierarchies
  Importance of Changes in Relative Rank in Wage Distribution
  Entry Rank Vs. Rank Growth

The Role of Firms
  Rank Increase Between Vs. Within Firms
  Age Gap Trend Heterogeneity Across Types of Firms

Alternative Mechanisms

Conclusions
Conceptual framework
Labor demand with multiple jobs and constrained firms

Goal: highlight the **two key elements needed to generate career spillovers**
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1. imperfect ability to renegotiate with incumbent older workers
   - e.g. “promise keeping”, adjustment costs
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1. imperfect ability to renegotiate with incumbent older workers
   - e.g. “promise keeping”, adjustment costs

2. limited resources: cannot promote all who deserve a promotion
   - generates bottleneck at the top of firms’ hierarchies, “conflict” between opportunities
Model setup

- Two age groups with homogeneous workers: young (y) and old (o)
- Two jobs: top (t) and bottom (b)
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- **Efficient labor**: $L_a = \theta_{t,a} l_{t,a} + \theta_{b,a} l_{b,a}$, with $\theta_{t,a} > \theta_{b,a}$
- **Imperfect substitutability in production**: $F(L_y, L_o)$, $F_{L_y L_o} > 0$
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  - can demote $x_o$ older workers by paying convex cost $c(x_o)$
  - cannot adjust the wages of older workers
- **Constraint on resources**: firm must pay ($\kappa$) to maintain top job and cover adjustment
  \[ c(x_0) + \kappa \cdot \left( l_{t,o}^{-1} - x_0 + l_{t,y} \right) \leq K \]
Wage formation

- Top jobs pay some premium/wedge $\mu_{t,a}$ over bottom jobs
  - can easily microfund with efficiency wage considerations

- Workers would like to take top jobs, but they are rationed
  - firms will still be on labor demand (Acemoglu and Restrepo, 2023)
  - will demand labor until wage equal MPL
Crowding out and career spillovers

Result 1: If constraint binds, larger older cohort ($l_o$) causes the following average wage change

$$\frac{\partial \bar{w}_y}{\partial l_o} = \frac{1}{l_y} \frac{\partial l_{t,y}}{\partial l_o} (\mu_{t,y} - 1) w_{b,y} + RS \{F_{L_y L_o}, F_{L_y L_y}\}$$

- Crowding-out (-): fewer slots in top jobs, younger workers in lower positions
- Relative supply (+): more older workers increase relative price of younger labor

Takeaways:
- A larger supply of older workers can increase their relative wage
- Worse careers for younger due to lower likelihood of having top jobs, not to change in wages

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Predictions from the conceptual framework

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Three main data sources:

- **Italy:** Social Security Institute (INPS) - VisitINPS Program
  - universe of private sector employees, 1985-2019
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- **Other 19 Countries:** Luxembourg Income Study (LIS)
  - samples of workforce, varying years
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Use ITA as main setting, replicate for others when possible.
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The Careers of Young and Old Workers
Result 1: more older workers block access to higher-paying positions
Career Spillovers: implications on opportunities

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How does likelihood of being at the top changes for the two age groups?
U35 workers move towards bottom vigintiles

Percentage-point shift, 2019–1985

Vigintiles

Quartiles time series
055 workers move towards top vigintiles

Percentage-point shift, 2019−1985

Quartiles time series
Opposite movements over the hierarchy of wages

Opposite shifts over the distribution of wages, consistent with changes in careers

Additional implication of Result 1: increase in gap driven by probability of being in top jobs
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Job title movements

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However, there are other potential sources of increase in the gap

- changes in wages at the top might have influenced the age wage gap
- because 055 are more likely to be at the top
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Can we quantify contribution of each force?
Decomposition: rank gap and distributional gap

The change in mean wages for age group \( a \) between periods \( t \) and \( t' \) can be written as follows:

\[
\Delta w_{a}^{t,t'} = \sum_{v} s_{a,v,t} (\bar{w}_{v,t'} - \bar{w}_{v,t}) + \\
\text{Distributional gap}
\]

- \( s_{a,v,t} = \) share of workers in age group \( a \in \{U35, O55\} \), vigilile \( v \) of the distribution of wages, and year \( t \)
- \( \bar{w}_{v,t} = \) mean log wage in vigilile \( v \) and year \( t \)
Decomposition: rank gap and distributional gap

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$$

- $s_{a,v,t} =$ share of workers in age group $a \in \{U35, O55\}$, vigintile $v$ of the distribution of wages, and year $t$
- $\bar{w}_{v,t} =$ mean log wage in vigintile $v$ and year $t$
- Difference between age groups $a \in \{U35, O55\}$ to decompose change in age wage gap
Most of the increase in age wage gap from larger rank gap
Rank gap more important in most countries

![Graph showing the comparison of rank gap and distributional gap in various countries.](image-url)
Entry Rank Vs. Rank Growth
Entry rank Vs. rank growth

Result 2: lower entry position and lower growth over lifecycle
Entry rank Vs. rank growth

▶ **Result 2**: lower entry position and lower growth over lifecycle

▶ Decomposition of wage-rank loss for U35 workers between period t and t′
Entry rank Vs. rank growth

- **Result 2:** lower entry position and lower growth over lifecycle

- **Decomposition of wage-rank loss for U35 workers between period $t$ and $t'$**
  - **Intercept:** change in rank at labor-market entry between $t$ and $t'$
  - **Slope:** change in post-entry rank growth between $t$ and $t'$

Details of the decomposition
U35: loss from both entry and post-entry growth

Rank change in log weekly wages, year $t-1995$

<table>
<thead>
<tr>
<th>Year</th>
<th>Rank change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>−.08</td>
</tr>
<tr>
<td>1998</td>
<td>−.06</td>
</tr>
<tr>
<td>2001</td>
<td>−.04</td>
</tr>
<tr>
<td>2004</td>
<td>−.02</td>
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<td>2007</td>
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</tr>
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<td>2010</td>
<td>0</td>
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<tr>
<td>2013</td>
<td>0</td>
</tr>
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- Rank change in log weekly wages, year $t-1995$
- Change in entry rank
- Change in rank growth
The Importance of Within and Between Firm Dynamics
Sorting of workers

- Younger people lose and older gain
  - Is it because young workers are more likely to end up in low paying firms?
  - OR, do they grow less within equally paying firms?

Result 3: crowd-out within firm, especially in top paying ones where older retire later

Result 4: crowd-out between firms, young workers pushed out of top-paying firms

In every year, divide workers into 50,000 firm-worker groups (Machado & Mata (2005)):
  - 100 firm groups (f) depending on average firm wage
  - 500 worker groups (e) within each firm group

Decomposition within vs between firms
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Decomposition within vs between firms
U35 lose rank within any level of firm pay, O55 gain almost everywhere
O55 concentrate in high-paying firms and generate competition

Discussion

Turnover
Firm Heterogeneity
Larger effects in more constrained firms

Result 5: career spillovers are larger in more constrained firms

- Key: crowd-out depends on constraints in adding higher-ranked jobs
- Constrained firms: do not grow, are in mature stage of their life cycle
- Consistent with prior findings (Bennett & Levinthal (2017); Bianchi et al. (2022))
- These firms are becoming more common:
  - Firms become older over time
  - Lower GDP growth in most high-income countries
Larger effects within older, larger, slow-growing firms
Alternative Mechanisms
Alternative mechanisms

- **Outsourcing:** U35 might lose because outsourced to lower-paying sectors
  - most of age gap increase happens within sector

Evidence:
- most of age gap increase happens within sector
- increases in returns to experience and education
  - they should work through distributional gap (Bayer and Charles, 2018)
  - returns to experience decreased because of larger supply of experienced (Jeong et al., 2015)
- changes in workforce composition
  - residual (education, gender, type of contract) age gap shows similar increase
  - look at subpopulations: e.g. men, women, domestic, permanent contract
  - focus on 55-60 males to avoid changes in composition b/c of pension reforms
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- Document increase in age wage gap, despite larger supply of older workers

- Provide possible explanation based on internal labor market: a story of "congestion"
  - Larger supply of older deteriorates career opportunities for younger workers

- Find evidence in line with career spillover story:
  - Younger workers are less likely to be at the top of wage ranking, older are more likely
  - Younger workers enter in lower-ranked positions and grow less
  - Within firm dynamics matter mostly for younger; younger pushed towards low-paying firms
  - Larger effects within older and slower-growing firms

- These results point to the importance of negative career spillovers

- Implications for gender pay gap:
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THANK YOU
Appendix
Wage gap between older and younger workers increased

Change in Age Wage Gap (Log Points)

-1 -1.1 -1.2 -1.3 -1.4 -1.5 -1.6 -1.7 -1.8 -1.9 -2 -2.1 -2.2 -2.3 -2.4 -2.5 -2.6 -2.7 -2.8 -2.9 -3 -3.1 -3.2 -3.3 -3.4 -3.5 -3.6 -3.7 -3.8 -3.9 -4 -4.1 -4.2 -4.3 -4.4 -4.5 -4.6 -4.7 -4.8 -4.9 -5 -5.1 -5.2 -5.3 -5.4 -5.5 -5.6 -5.7 -5.8

IT (SS) DE (SS) AU CA CH DE DK ES FI FR GR IL NL NO UK US

Time series
ITA: Increase of Age Wage Gap at Mean and Median

![Graph showing the increase of age wage gap at mean and median from 1985 to 2020. The x-axis represents the years from 1985 to 2020, and the y-axis represents the log weekly wages of O55-U35. The graph compares the mean and median wage gap over the years.]
Steeper Wage Curve Over Life Cycle

![Graph showing the increase in mean weekly wages over age from 1985 to 2019.](image-url)
U35 workers from top to bottom quartile

The chart illustrates the share of workers in each quartile from 1985 to 2020. The x-axis represents the year, ranging from 1985 to 2020, and the y-axis shows the share in year t over share in 1985.

- 1st quartile (blue line and circles)
- 2nd quartile (pink line with diamonds)
- 3rd quartile (green line with squares)
- 4th quartile (orange line with crosses)

The data shows a consistent increase in the share of workers in the 1st quartile, indicating a growing disparity between the top and bottom quartiles over the years.
055 workers from bottom to top quartile

- **1st quartile**
- **2nd quartile**
- **3rd quartile**
- **4th quartile**

*Graph showing the share of workers from the bottom to the top quartile from 1985 to 2020.*
U-35 move to apprenticeship, O-55 to managerial jobs
Shares in Age Group with Managerial Job

![Graph showing the share of age cohort in manager position from 1996 to 2016 for under 35 and over 55 age groups.]

- **Under 35**: The share of age cohort in manager position for under 35 shows a slight increase from 1996 to 2006, then stabilizes and slightly decreases until 2016.
- **Over 55**: The share of age cohort in manager position for over 55 shows a noticeable increase from 1996, reaching a peak around 2011, and then decreases slightly until 2016.
Two types of increases in the age wage gap

▶ Wage distribution at baseline:

Age wage gap = 3-2=1

▶ Age wage gap can increase through a change in wage rank:

Age wage gap = 3.5-1.5=2
Two types of increases in the age wage gap

▶ Wage distribution at baseline:

Age wage gap = 3-2=1

▶ Age wage gap can increase through a change in mean wages at different percentiles:

Age wage gap = 4-2=2
Decomposition by age group: U35 lose, while O55 gain

Change in log weekly wages (2019−1985)

<table>
<thead>
<tr>
<th>Rank change</th>
<th>Distributional change</th>
<th>Residual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 35</td>
<td>0.2</td>
<td>-0.1</td>
</tr>
<tr>
<td>Over 55</td>
<td>0.4</td>
<td>0.3</td>
</tr>
</tbody>
</table>
Rank Gap in Germany - Daily Wages

The graph illustrates the changes in the rank gap, distributional gap, and residual gap in log daily wages, year t - 1985, from 1995 to 2015. The rank gap shows a significant increase from 1995 to 2005, followed by a decline. The distributional gap also increases before 2005 but peaks later, and the residual gap shows a different pattern, with no significant change over the period.
Entry rank Vs. rank growth

- Decomposition of wage-rank loss for U35 workers between period $t$ and $t'$
Entry rank Vs. rank growth

- Decomposition of wage-rank loss for U35 workers between period t and t’
- Change in rank at labor-market entry between t and t’ (e is years from entry)

\[
\sum_{e \in [0,18]} s_{e,t} \cdot \sum_{v} \left[ \left( s_{e,t',v}^E - s_{e,t,v}^E \right) \cdot \bar{w}_v,t \right]
\]

- Change in entry rank
- \( s_{e,t,v}^E \) = the share of workers who are e years from entry in year t in vigintile v at the time of entry in the labor market (E)
- \( s_{e,t} \) = the share of workers who are e years from entry in year t out of all U-35
Entry rank Vs. rank growth

- Decomposition of wage-rank loss for U35 workers between period t and t' 

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\sum_{e \in [0, 18]} s_{e,t} \cdot \sum_v \left[ \left( s_{e,t'}^E - s_{e,t,v}^E \right) \cdot \bar{w}_{v,t} \right]
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- Change in post-entry rank growth between t and t'

\[
\sum_{e \in [0, 18]} s_{e,t} \cdot \sum_v \left[ \left( \Delta s_{e,t',v}^{t-E} - \Delta s_{e,t,v}^{t-E} \right) \cdot \bar{w}_{v,t} \right]
\]

Change in rank growth

- \( \Delta s_{e,t',v}^{t-E} = s_{e,t',v}^E - s_{e,t,v}^E \) = change in share at vigintile v of those who are e years from entry in t
U30 Loss Mostly Comes from Worse Rank at Entry

-0.1
-0.08
-0.06
-0.04
-0.02
0
0.02

Rank change in log weekly wages, year t−1990

Year

Rank change
Change in entry rank
Change in rank growth

Rank change in log weekly wages, year t-1990
The change in the rank gap for age group \( a \in \{U35, O55\} \) can be written as follows:

\[
\sum_v \left( s_{a,v,t'} - s_{a,v,t} \right) \bar{w}_{v,t} = \sum_{g \in (f,e)} \left( s_{a,f,t'} - s_{a,f,t} \right) \cdot s_{a,(e|f),t} \cdot \bar{w}_{g,t}
\]

### Rank gap

- Between firms

- Within firms

\[ \varepsilon_{t,t'} \]
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+ \sum_{g \in (f,e)} s_{a,f,t} \cdot \left( s_{a,(e|f),t'} - s_{a,(e|f),t} \right) \cdot \bar{w}_{g,t} + \epsilon_{a}^{t,t'}
$$

You can further differentiate between two age groups $a \in \{U35, O55\}$
Within-firm component accounts for 61% of rank-gap increase
Within firm dynamics are mostly important for U35
Between Vs. Within Firms in Germany
U35 lose rank within firms at entry, and for lower growth
U35 find it harder to grow within firms

Within-firm loss is the main source of U35 career deterioration

- U35 enter in lower-ranked position and progress less within their firm
- U35 lose rank in any firm group
U35 find it harder to grow within firms

Within-firm loss is the main source of U35 career deterioration

- U35 enter in lower-ranked position and progress less within their firm
- U35 lose rank in any firm group

Older workers have small/zero gains within firms

- Two opposing forces:
  - longer tenure improves their relative position within firm
  - higher competition with other 055 deteriorates their relative position
- Consistently, 055 gain everywhere within firms, except at the top where they concentrate
U35 seem to have been crowded out of high-paying firms

Older workers concentrate more in top-paying firms

- Not as a consequence of late move: have high tenure (> 12 yrs in above median group)
- Tenure change across firms follows O55 incentives (lower tenure loss in higher groups)
- O55 age increases more for top-paying firm groups (delay retirement more)
- High-paying groups have more than doubled firm age
  - O55 concentration at top might have been favored by business dynamics
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  - O55 concentration at top might have been favored by business dynamics

U35 became more likely to be in low-paying firms

- U35 less present in top-paying firms where O55 concentrate
- U35 seem to have been segregated more to low-paying firms
Shares with Turnover Events

Year
U35
Share with turnover event
O55
Despite larger turnover, average rank growth in turnover declines.
Despite larger turnover, average rank growth in turnover declines

Change in mean rank jump (1985–2019): −1.15
Despite larger turnover, average rank growth in turnover declines

Change in mean rank jump (1985–2019): −1.15
Change in share of positive jumps (1985–2019): −.03
Decreasing GDP Growth In Most High-Income Countries

Several cohorts in Italy

16-25 across countries
Within-Occupation Component Accounts Most of Rank-Gap Increase
Consider a simple but general wage equation:

\[ w_{i,a}^t = \beta_0 + \beta^t_1 x_{i,a}^t \]

- \( w_{i,a}^t \) = wage of worker i of age group a in period t
- \( x_{i,a}^t \) = quantity of wage-enhancing factor possessed by worker i in period t
- \( \beta_1^t \) = unitary price of factor x in period t
- Older workers possess on average a higher quantity of x
  - Age wage gap positive in every country and year
Consider a simple but general wage equation:

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- \( \beta_1^t \) = unitary price of factor \( x \) in period \( t \)
- Older workers possess on average a higher quantity of \( x \)
  - Age wage gap positive in every country and year

Age wage gap can increase because

- Price of factor \( x \) increases
- Gap in quantity of \( x \) between older and younger workers increases
Simulate Changes in Price

- Baseline scenario (matches data moments in Italian admin data):
  - $x^t_Y \sim N(4.6, 0.25)$ and $x^t_0 \sim N(4.7, 0.49)$
  - $\beta^t_1 = 1$, $\beta_0 = 1$
  - Share older workers $(s^t_0) = 0.08$

- "Normal" price hike:
  - $\beta^t_1 = 2$

- "Normal" price hike & more older workers:
  - $\beta^t_1 = 2$, $s^t_0 = 0.2$

- "Normal" price hike & way more older workers:
  - $\beta^t_1 = 2$, $s^t_0 = 0.35$

- "Large" price hike:
  - $\beta^t_1 = 4$
Simulate Changes in Price

- Baseline scenario (matches data moments in Italian admin data):
  - $x_t^Y \sim N(4.6, 0.25)$ and $x_t^O \sim N(4.7, 0.49)$
  - $\beta_t^1 = 1, \beta_0 = 1$
  - Share older workers ($s_t^O$) = 0.08

- 4 simulated changes in price
  - “Normal” price hike: $\beta_t^{t'} = 2$
  - “Normal” price hike & more older workers: $\beta_t^{t'} = 2, s_t^{t'} = 0.2$
  - “Normal” price hike & way more older workers: $\beta_t^{t'} = 2, s_t^{t'} = 0.35$
  - “Large” price hike: $\beta_t^{t'} = 4$
Price Hikes Act Through Distributional Gap

![Bar Chart](chart.png)

- Rank gap
- Distributional gap

**Shares of age-wage-gap increase**

- normal
- normal +
- normal +++
- large

**Baseline**
Price Hikes Act Through Distributional Gap

[Bar chart showing different distributions of rank gap and distributional gap across baseline, higher variance, less distant means, lower variance, and more distant means.]

Back
Simulate Changes in Quantities

- Baseline scenario (matches data moments in Italian admin data):
  - \( x_t^Y \sim N(4.6, 0.25) \) and \( x_t^O \sim N(4.7, 0.49) \)
  - \( \beta_t^1 = 1, \beta_0 = 1 \)
  - Share older workers \( (s_t^O) = 0.08 \)

- 4 simulated changes in distribution of \( x \)
  - “Normal” distribution change: \( \mathbb{E} \left[ x_t^{O'} \right] = 4.8 \)
  - “Normal” distribution change & more older workers: \( \mathbb{E} \left[ x_t^{O'} \right] = 4.8, s_t^{O'} = 0.2 \)
  - “Normal” distribution change & way more older workers: \( \mathbb{E} \left[ x_t^{O'} \right] = 4.8, s_t^{O'} = 0.35 \)
  - “Large” distribution change: \( \mathbb{E} \left[ x_t^{O'} \right] = 5 \)
Quantity Changes Act Mostly Through Rank Gap

The diagram illustrates the distributional gap and rank gap across different scenarios. The x-axis represents the scenarios: baseline, higher variance, less distant means, lower variance, and more distant means. The y-axis represents the shares of age-wage-gap increase.

Key observations:
- Rank gap and distributional gap show distinct patterns across scenarios.
- In baseline and higher variance scenarios, the rank gap shows a significant increase, whereas the distributional gap is minimal.
- As variance increases and means become more distant, the rank gap remains relatively stable, while the distributional gap increases.

The chart visually supports the text that quantity changes act mostly through rank gap, with distributional gap playing a lesser role.
Intuition About Results of Numerical Framework

- **Price increase** when baseline difference in xs
  - increases dispersion of young and old distribution
  - spreads out the overall earnings distribution
  - captured by distributional component

- **Quantity increase** with overlapping distributions
  - moves young and old distributions apart
  - more overlap at baseline: more older workers overcome young
  - captured by rank component

- Similar logic in Bayer and Charles (2018) for black-white gap
  - positional: reduced discrimination, better access to schools
  - distributional: changes in returns to education, skills
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Takeaways From Numerical Framework

Increases in price of wage-enhancing factors incompatible with increased rank gap:

- Increase in returns to experience (Jones (2009); Azoulay et al. (2020); Jeong et al. (2015))
- Skill-biased technological change (Acemoglu & Autor (2011); Autor et al. (2006))
Within-Sector Component Accounts for 90% of Rank-Gap Increase

The graph illustrates the O55-U35 rank gap in weekly wages, year t − 1985, from 1985 to 2020. The data shows that within 3-digit sectors account for 90% of the rank-gap increase, while between 3-digit sectors contribute less significantly. The graph indicates a steady increase in the rank gap over the years, with fluctuations. The x-axis represents the years from 1985 to 2020, and the y-axis shows the rank gap in weekly wages from 0 to 0.15.
Between Vs. Within Firms: No High-Outsourcing Sectors

Notes: Sample does not include all sectors identified by Goldschmidt and Schmieder (2017) as primary receivers of most domestically outsourced jobs: 49.2, 49.4, 50.2, 50.4, 51.2, 52.1, 52.2, 56.2, 78.1, 78.2, 78.3, 80.1, 80.2, 80.3, 81.1, 81.2, 82.1, 82.2, 82.9 (NACE Rev. 2).
Changing Composition of U-35 and O55 Workforce

- Trends in other characteristics of young and old can be confounders
- We might be referring to age the byproduct of something else
- Some contemporaneous changes in demographics
  - increased share migrants in U35
  - increased share temporary contracts in U35
  - increased share of females in U35
  - increased education for both age groups
  - health improvements for older workers over time
  - longer working lives for O-55
Notes: Age wage gap with controls uses residuals from year-specific regressions of log wages on gender, nationality (race in US), temp. contracts, education, disability status.
055 Workers = 56-60 Years Old Men

Increase in age wage gap

- O55 vs. U35
- 56–60 vs. U35

Countries: IT (SS), DE (SS), AU, CA, CH, DE, DK, ES, FI, FR, GR, IL, NL, NO, UK, US