

Deadwood Labor: The Effects of Eliminating Employment Protection

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Employment Protection Legislation (EPL)

Employment Protection Legislation (EPL): rules that mainly **constrain layoffs** (just cause, advance notice,...)

Tremendous variation across countries

- From laissez-faire approaches as in the United States
- To heavy regulation as in France and **Sweden (our setting)**

Contentious policy and academic debate

Pro: Increases job security (and perhaps on-the-job training,...)

Con: Inefficient matches, misallocation, productivity losses, curbs hiring,...
Many are downstream symptoms of “**deadwood labor**” problem!

Universal feature: EPL **favours high-tenured, older insiders**

- Often explicitly built into phase-in and seniority rules (e.g., step functions of tenure, age-based rules,...)

How does EPL shape **insiders'** jobs and labor market prospects?

Specifically, how many “**deadwood**” jobs does EPL foster (ex post), and of which kind?

- Hard to empirically assess exactly b/c **phase-outs** of EPL are rare

Our Paper: Quasi-Exp Elimination of Strong EPL

Strategy: Exploit sharp age discontinuity in EPL in Sweden

- Strong EPL until age 67
- At age 67, sharp and complete elimination of EPL
- In contrast to common variation: gradual phase-in of weak EPL
- Clean: no other policy change (no interference from pensions etc.)
- Also use reform-driven shifts in cutoff (65 → 67 → 68)

Variation+data permit comprehensive analysis:

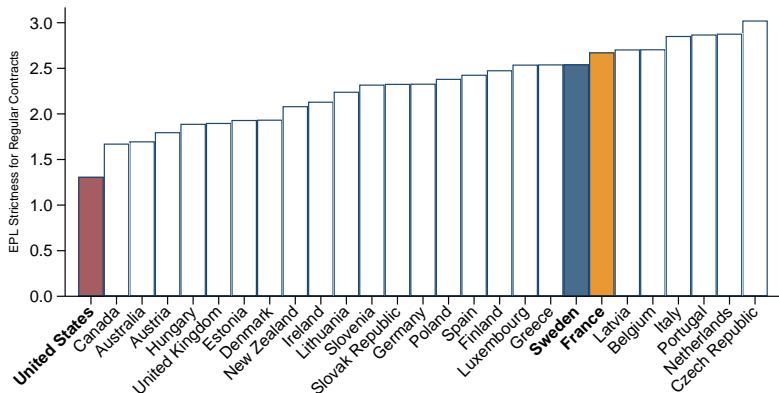
- Direct effect: separations & heterogeneity
- Effects on ongoing jobs / stayers
- Total effect: employment/hiring/earnings p.c.

Findings:

- Clear—but moderate—effects of extremely strong EPL
Upper bound? (sample of older workers, strong EPL)
- Quantity effects only (sep's, emp, hours)—no wage adjustment
- Involuntary separations/retirement/hours cuts (Lazear 1979!)
- Compliers: high tenure, large firms, recently sick, **public sector**
⇒ Swedish employers—*esp. private sector*—mostly get around EPL

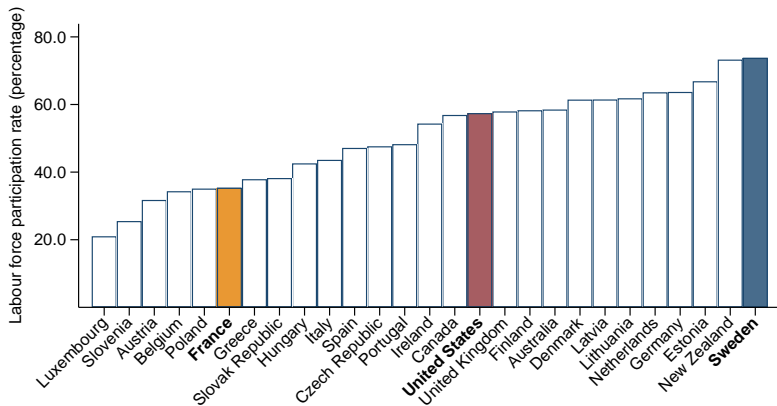
Setting: Strong EPL

(OECD Index)

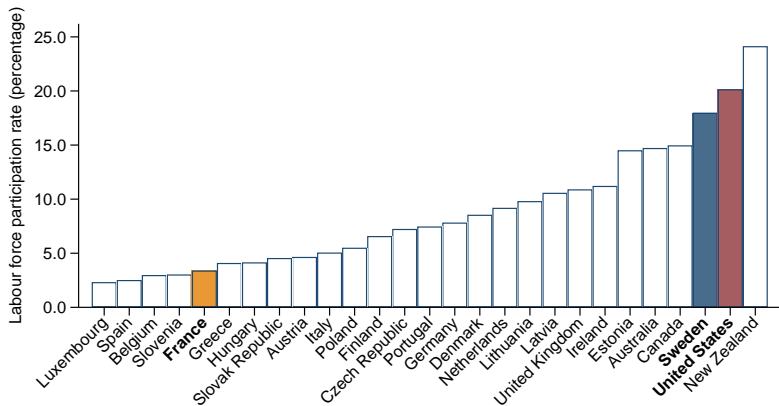


OECD 2019; Anglo-Am/EU comparison

Setting: High LFP Rate Among Older Pop: 60-64



Setting: High LFP Rate Among Older Pop: 65+

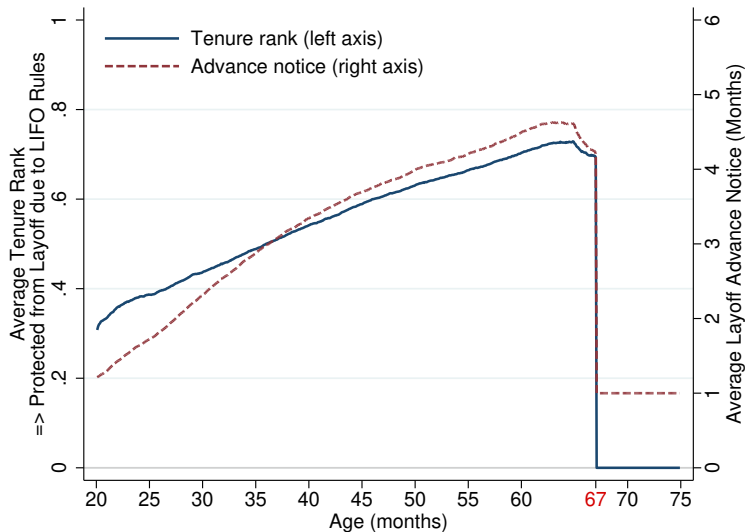


Setting: Strong EPL Among Older Workers

As ~everywhere, Swedish EPL gradually increases w/ tenure (hence age):

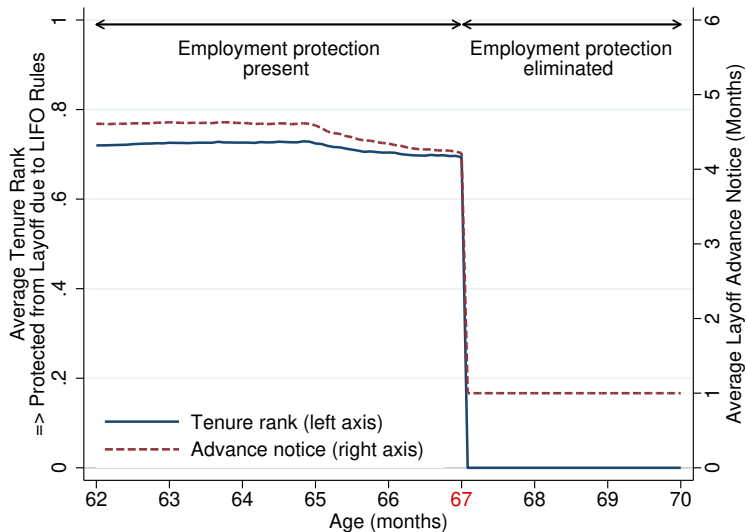
- After 6 months, all regular contracts become protected: e.g., require legitimate cause for layoffs
- Advance notice requirement (multiple months)
 - Studied in Cederlof, Fredriksson, Nekoei, and Seim (2023)
- LIFO (last in, first out) within job type
 - Applies in case of redundancies
 - Age breaks tenure ties

Research Design: Elimination of EPL at Age 67



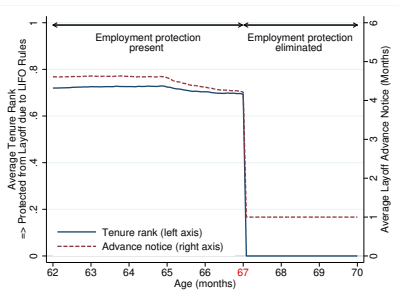
Plus additional CBA-based advance notice rules that are age-based (up to 12 months). Age also breaks tenure ranks in LIFO.

Research Design: Elimination of EPL at Age 67



Plus additional CBA-based advance notice rules that are age-based (up to 12 months). Age also breaks tenure ranks in LIFO.

Research Design: Elimination of EPL at Age 67



Identification opportunity from EPL variation at 67:

- Unusually large: maximal EPL to zero
- Sharp discontinuity—age measured precisely in admin data, and not manipulatable
- Clean: no other policy change at threshold (pension, UI, DI,...)
 - Modern Swedish pension system is flexible and actuarially fair w.r.t. to retirement age
- Additional reform-based variation of cutoff
(65: pre-2003, 67: 2002-19; 68: 2000-22; 69: 2023+)

Data (Merged)

Admin. matched employer-employee data (universe)

- (Monthly) labor market biographies
- Focus on 2019
(switch to highest accuracy of monthly earnings data; pre-COVID)
- Additional data (sickness, precise birth date, employer info,...)

Structure of Earnings Survey

- Large, panel for subset, universe of public; employer-reported for full workforce at annual snapshot
- Information on hours/wages/earnings (rather than monthly earnings)

Labor Force Survey

- Short panel
- Contract type (permanent/temporary)

Our Analysis is Reduced Form

Many potential conceptual frameworks

- DMP jobs w/ endogenous separations & heterogeneity
- Lifecycle labor supply
- Labor demand and adjustment costs
- Long-term contracts—broadly, provides good account of findings
- ...

Simplest Possible Model: Ex-Post “Deadwood” Labor

Consider fixed wages (similar results for flexible wages).

Separation (layoff, quit): firm's or worker's participation constraint violated:

$$S^F = J^F - w - (O^F - f) \geq 0 \quad \wedge \quad S^W = J^W + w - O^W \geq 0 \quad (1)$$

Firm side relevant for EPL. Consider “gross of EPL” firm surplus:

$$\tilde{S}^F = S^F(f=0) = J^F - w - O^F \geq -f \quad (2)$$

EPL's deadwood jobs: surplus for firm (w/o EPL), pos. for worker:

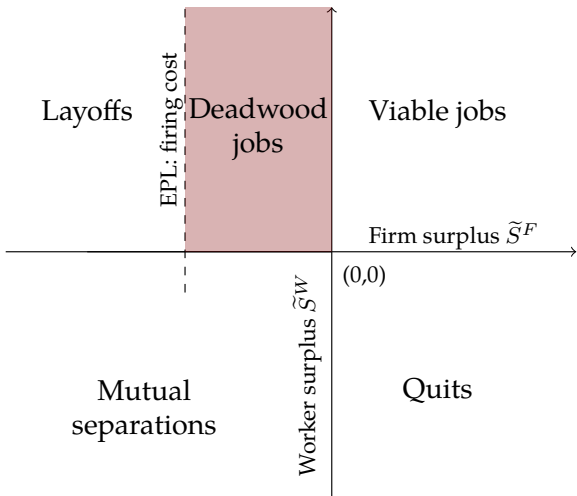
$$-f \leq \tilde{S}^F < 0 \quad \wedge \quad S^W \geq 0 \quad (3)$$

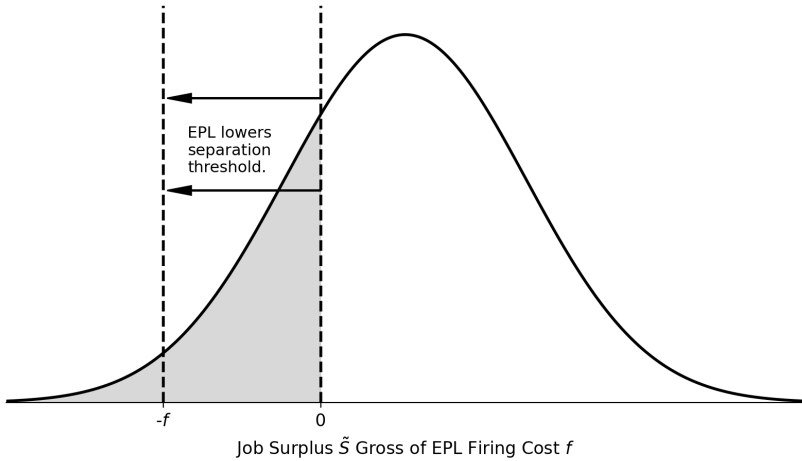
Our strategy: identify this set of jobs from “excess separations” in response to elimination of EPL ($f^T = 0$, $f^C = f > 0$):

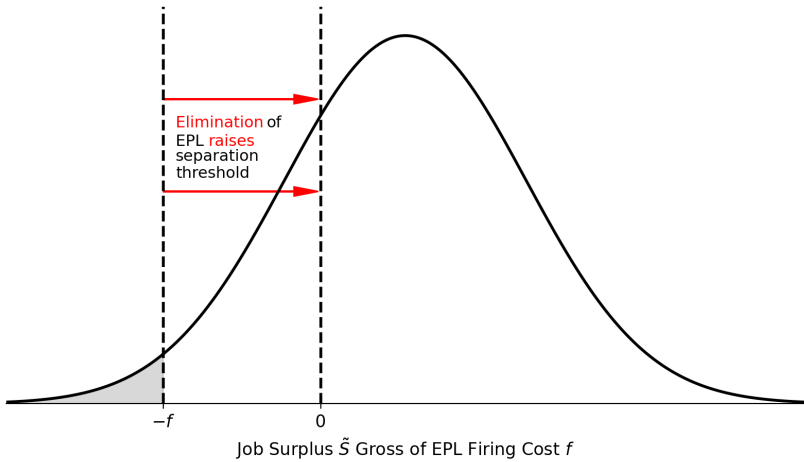
$$\text{ExcessSeparations} = \text{ShareSeparating}^T - \text{ShareSeparating}^C \quad (4)$$

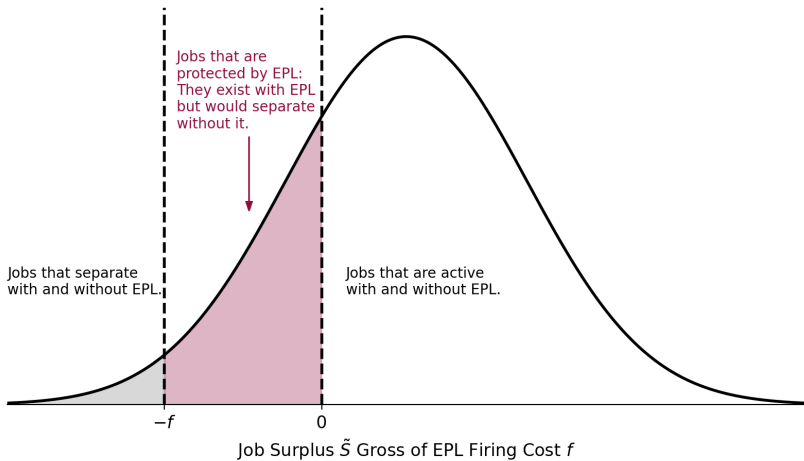
$$= F^{\tilde{S}}(0) - F^{\tilde{S}}(-f) = F^{\tilde{S}}(-f \leq \tilde{S}^F < 0) \quad (5)$$

Also: Characteristics? Where do sep's go (reallocation vs. generally unemployable)? Effects on continuing jobs? Wage rigidity vs. flexible wages? Hiring?







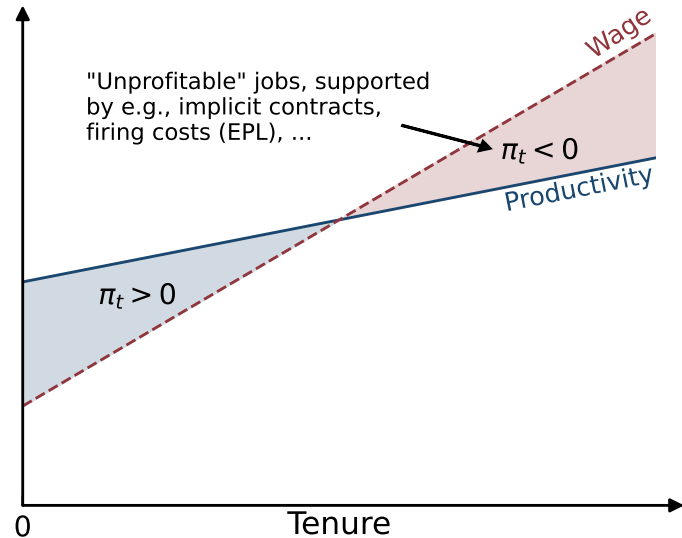


Revealed-preference logic as in Jäger Schoefer Zweimüller (forthcoming) (but on UI & efficiency of separations)

Example: Lazear (1979)-Type Setting

Het. Model

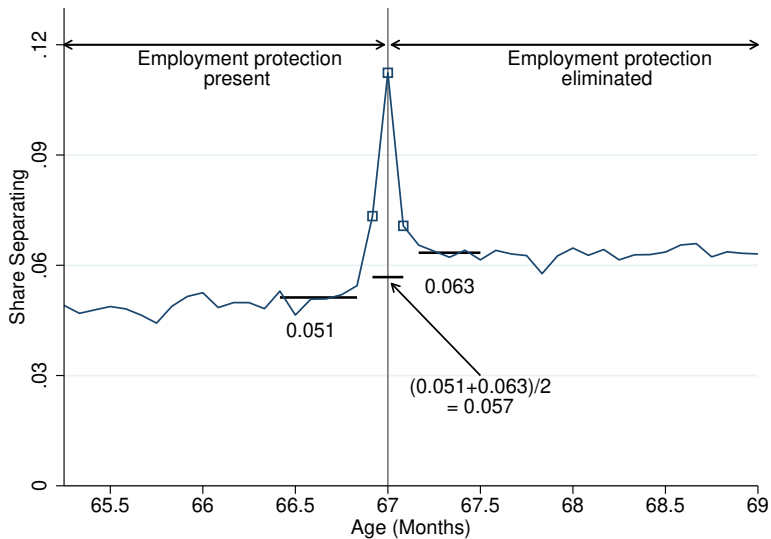
(Preview: Broadly, this view provides a good account of our findings.)



Empirical Roadmap

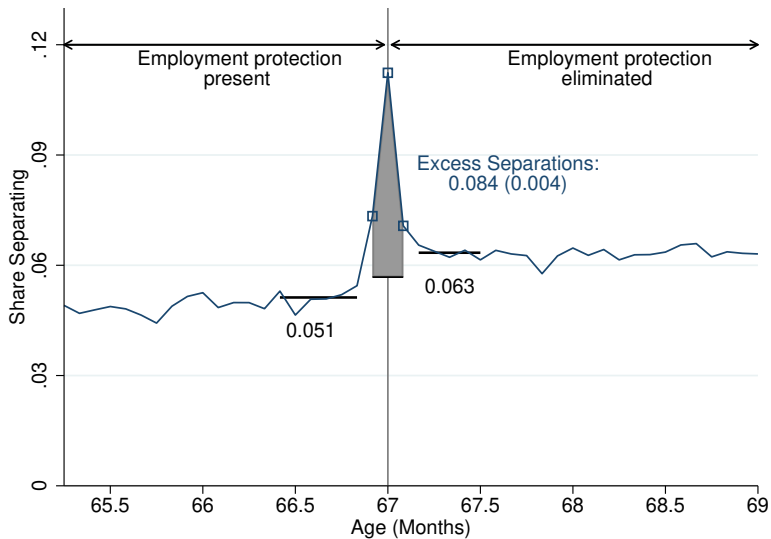
1. **Now: Direct effect on separations**
2. Understanding the effect
3. Beyond separations: effects on stayers
4. Total effect: employment, hiring, earnings per capita
5. Policy evaluation and counterfactual: reform-based EPL shifts

Quantifying the Effect: Bunching Analysis



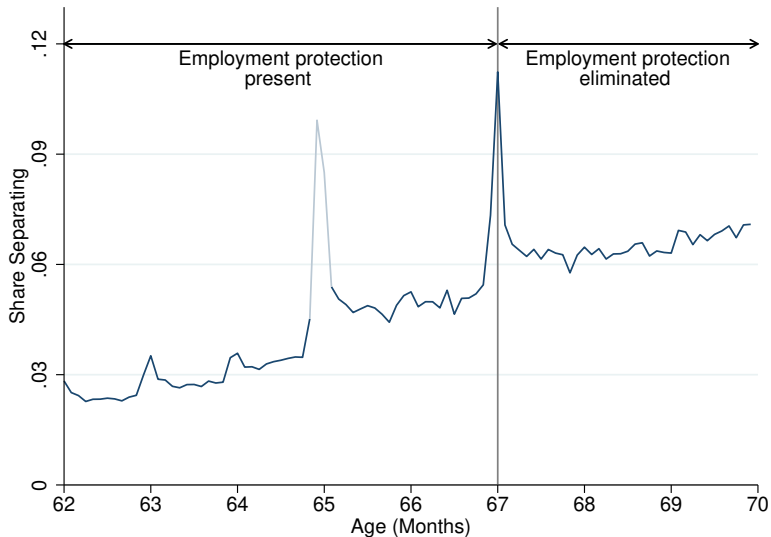
Basic Saez (2010) bunching method. Similar results w/ polynomial counterfactual (Chetty et al. 2014).

Quantifying the Effect: Bunching Analysis

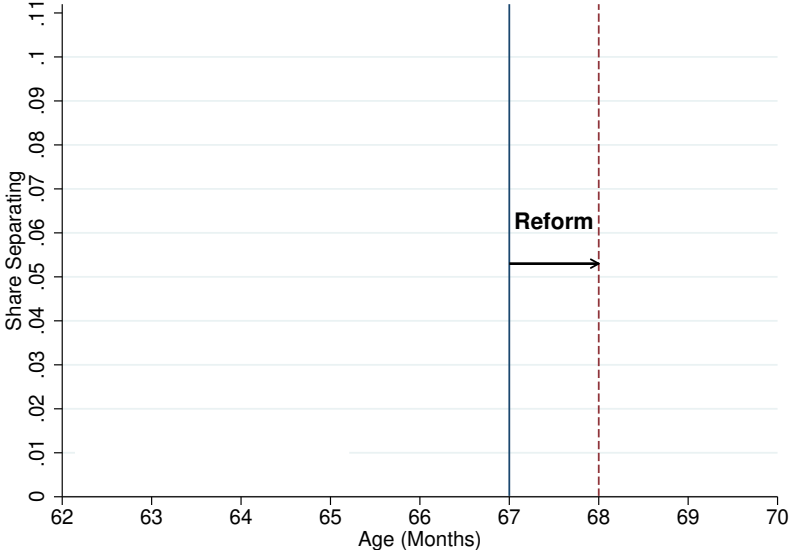


Basic Saez (2010) bunching method. Similar results w/ polynomial counterfactual (Chetty et al. 2014).

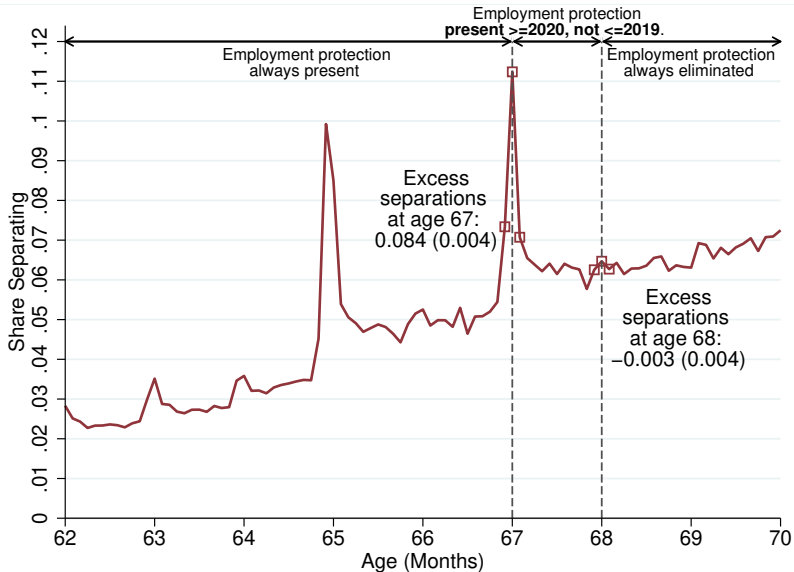
Validation of Effect: Causation by EPL?



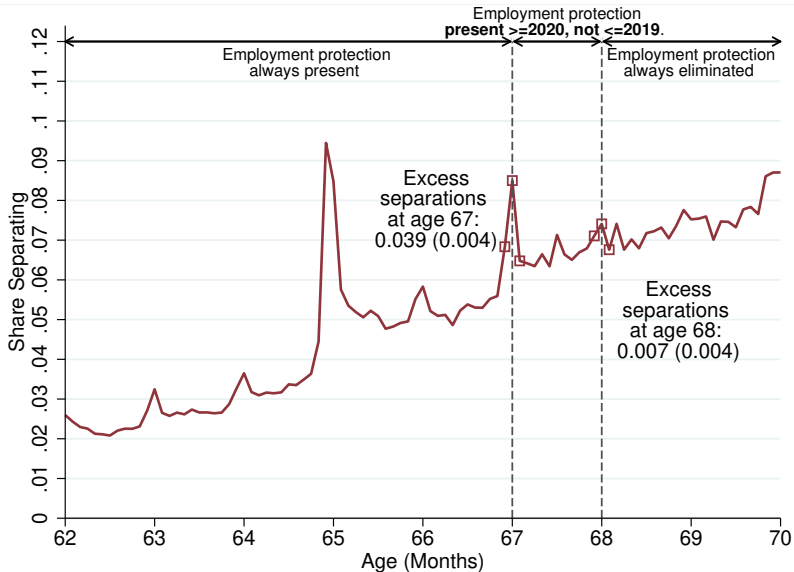
Reform in 2020: EPL Cutoff Shifts from 67 to 68



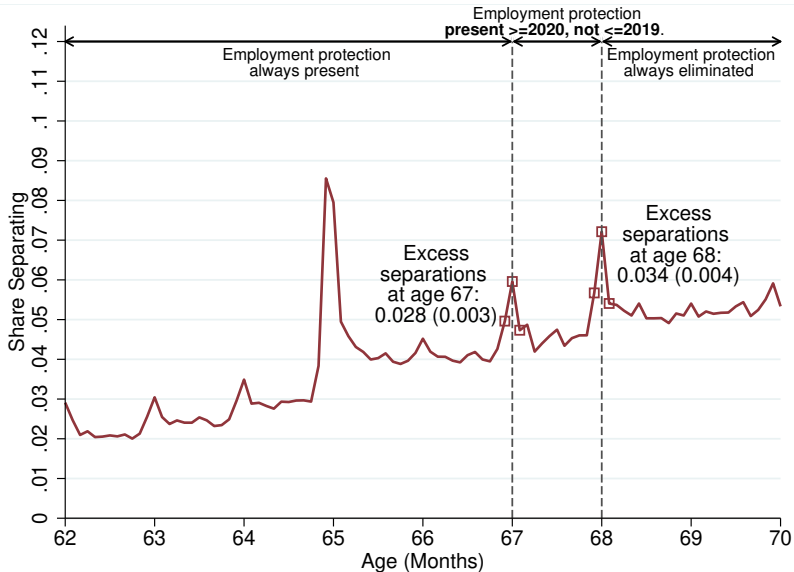
Reform in 2020: Excess Separations in 2019



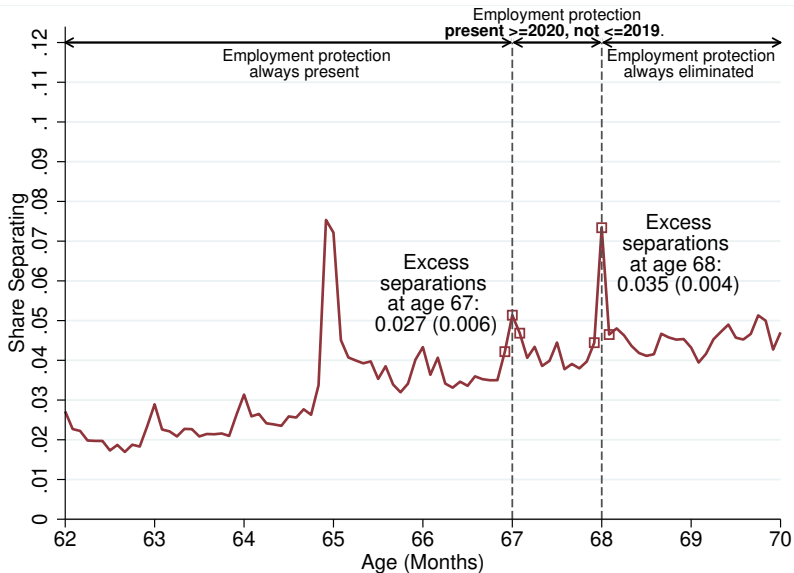
Reform in 2020: Excess Separations in 2020



Reform in 2020: Excess Separations in 2021

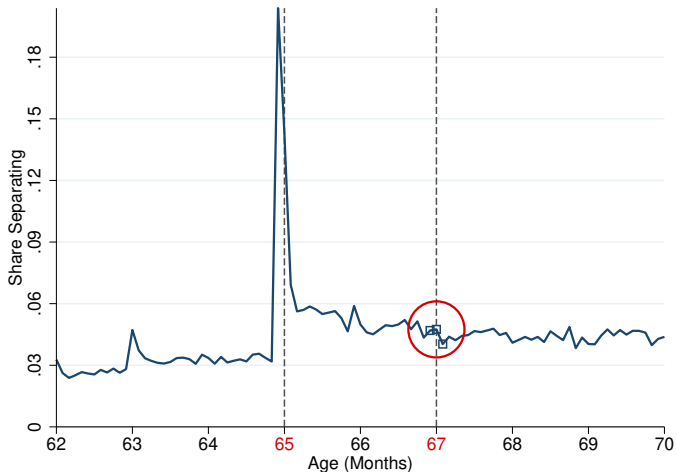


Reform in 2020: Excess Separations in 2022



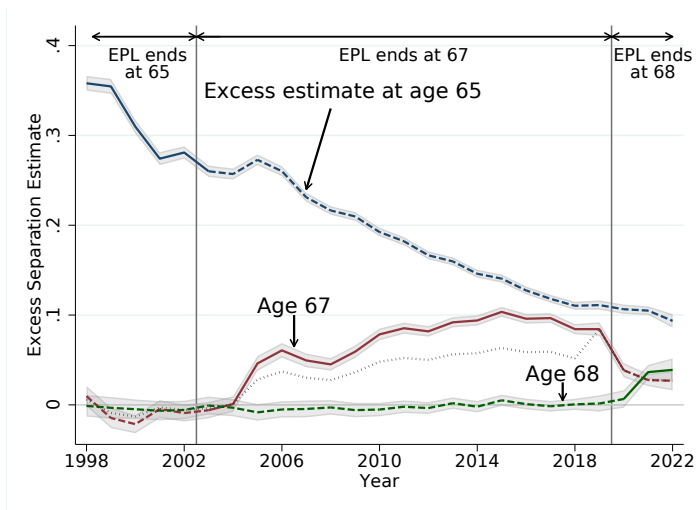
Placebo: No Spike in 2002 (Cutoff was 65 Pre-2003)

Spike at 65 Larger: Confounding EPL with Retirement at 65



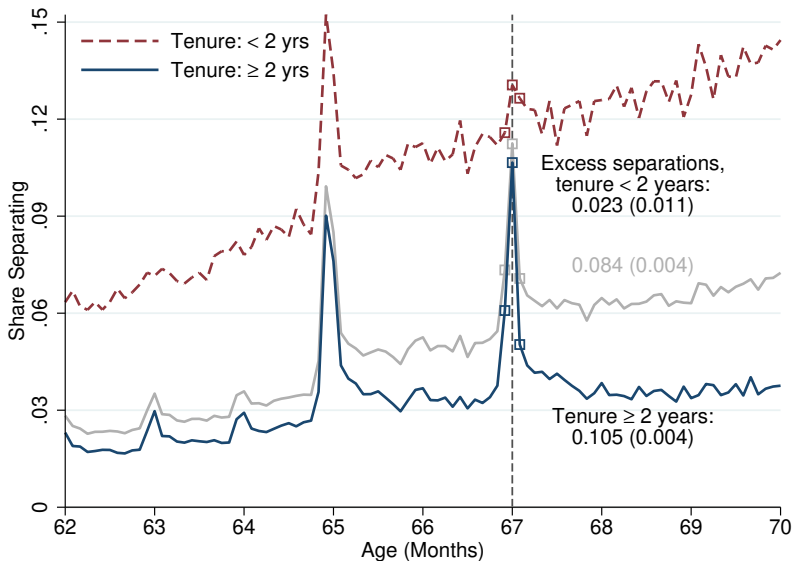
Note: due to (monthly) data quality limitations pre-2019 and retirement norms / incentives at 65 in those years, the spike at 65 pre-2003 does not lend itself to identifying EPL effects, and we focus on the post-2019 period.

Evolution of Excess Separations at ages 65, 67, 68

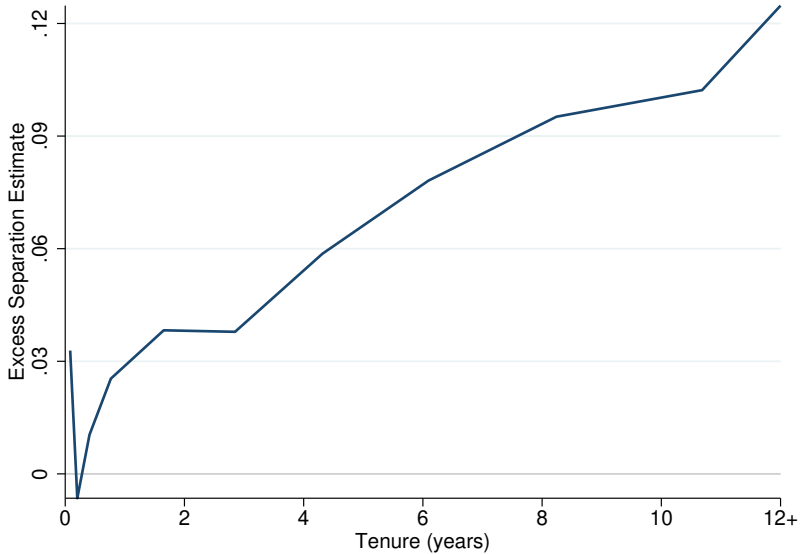


Note: (monthly) data quality limitations pre-2019 create discontinuity from 2018 to 2019. Series at age 67 are readjusted pre-2019 to remove discontinuity from 2018 to 2019 (discontinuous raw series displayed in dotted line).

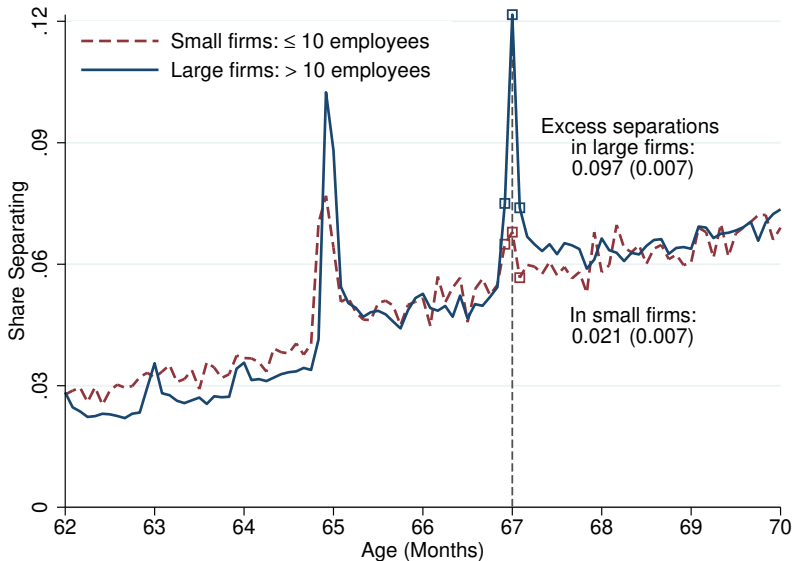
Heterogeneity by EPL Strength: Tenure



Heterogeneity by EPL Strength: Tenure



Het. by EPL Strength: Relaxed LIFO For Small Firms



Taking Stock

Clear effect: about 8% of jobs separate in response to elimination of strong EPL

- Likely **upper bound** for causal direct micro effect of EPL on separation—strong Swedish EPL and maximally protected workers, with retirement outside option

Sharply concentrated around 67

Causal effect of EPL

Tenure rules and LIFO seem to play significant role

Open questions we start exploring next:

- Which mechanisms can account for the spike?
- Which jobs and workers drive the effect?

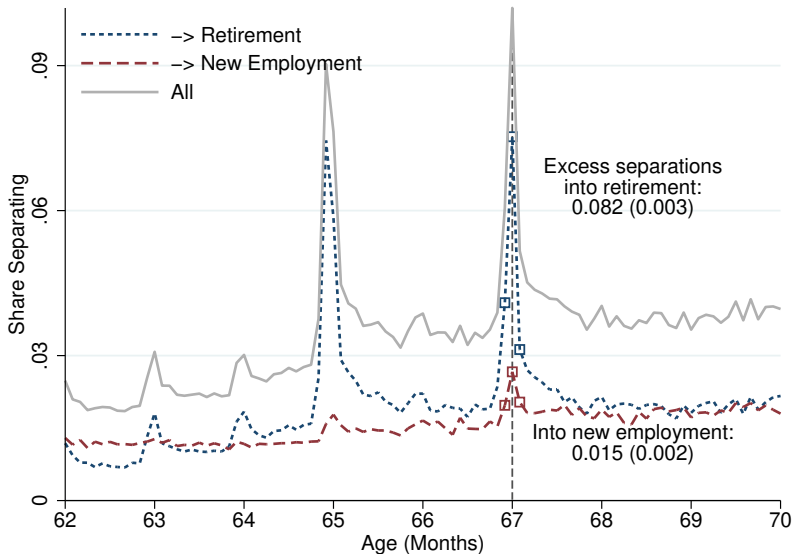
Afterwards: beyond separations—stayers and total labor market effects

Empirical Roadmap

1. Direct effect on separations
2. **Next: Understanding the effect**
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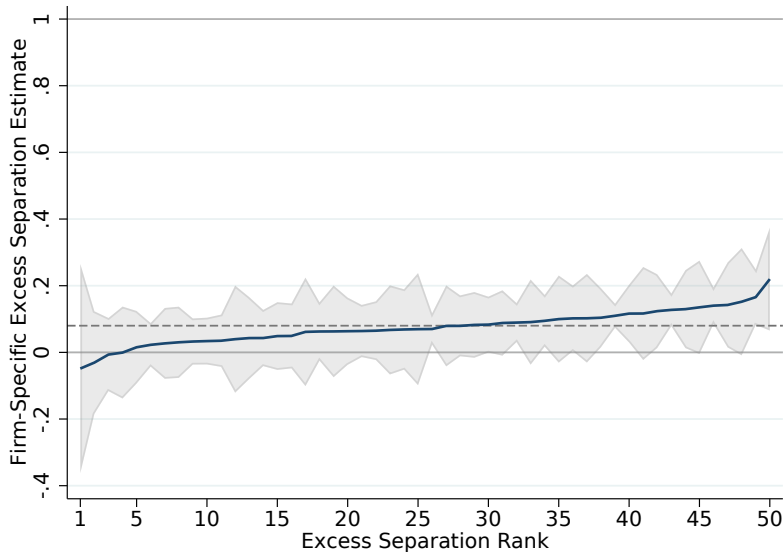
Spike Goes Into Permanent Nonemployment

⇒ Happily Stay Put—But Won't Find/Take Other Job

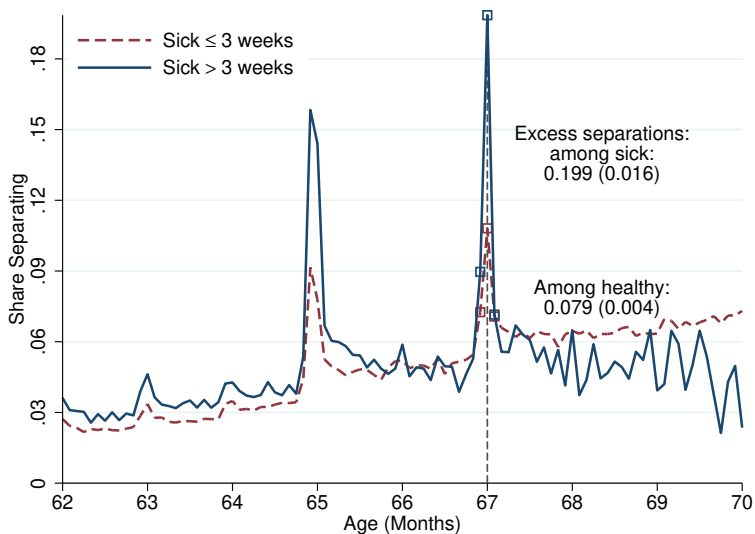


Excess Seps Not Concentrated in Specific Firms

⇒ **No Evidence for Mandatory Retirement HR Policies**

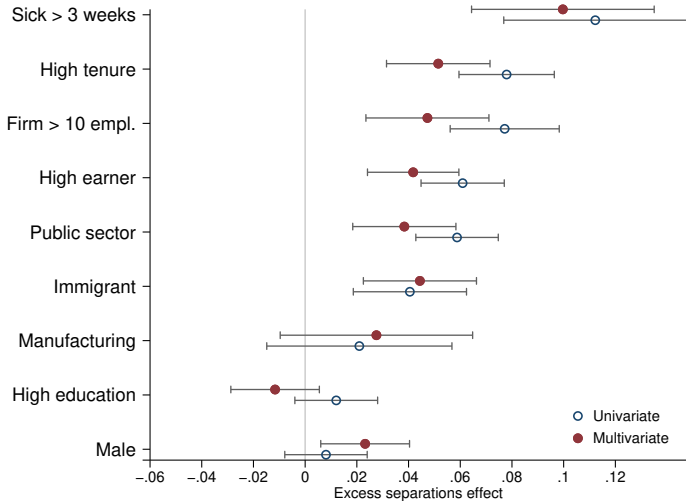


Recently (in 2018) Sick Workers Separate at 67 ⇒ Firms Getting Rid of Less Productive Workers?



Sickness in 2018 flagged in administrative data corresponding to about 3 weeks of sickness.

Heterogeneity: Regression Analysis



Method of regression-based bunching analysis: regression in micro data with age dummies interacted with binary variable(s); bunching analysis is done on the basis of interaction coefficients on focal ages as in baseline bunching analysis.

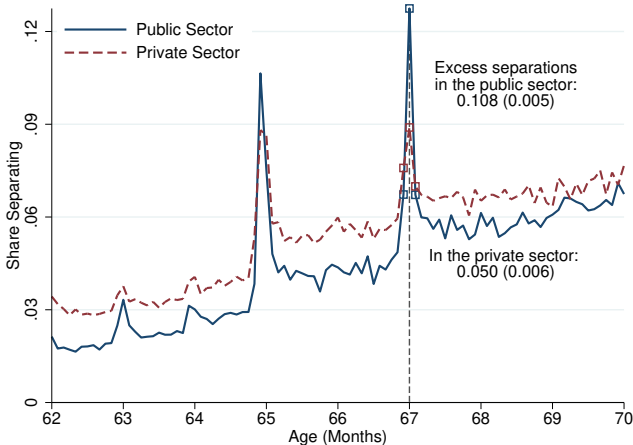
Effect Stronger in Public Sector

⇒ Implicit contracts? Lump of labor? “Good” jobs?

Less pre-67 pressure and selection?

How does private sector get around EPL?

Profs coming soon! (Ashenfelter Card 2002)



Taking Stock

Clear effect: about 8% of jobs separate in response to elimination of strong EPL, sharply around 67

Understanding the effect:

- Patterns broadly consistent with Lazear (1979) type setting
- Involuntary separations—spike migrates when EPL cutoff shifts
- Not concentrated in firms; no firm-wide mandatory retirement; firms seem to cherry-pick
- Suggestive targeting of low-productivity workers (sickness proxy)
- Workers driving the spike appear happy to work in this job (presumably enjoying a rent), but do not take/find other job post-separation
- Separations effect driven by public sector—private employers appear to get around EPL much better, much smaller effect there

Next: total labor market effects (beyond separations)

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Panel Analysis of Stayers in Same Job: Hours and Wage, and Earnings

Goal: effects on **stayers** along margins such as wages and hours

But: only see monthly (job-specific) earnings in admin matched employer-employee data

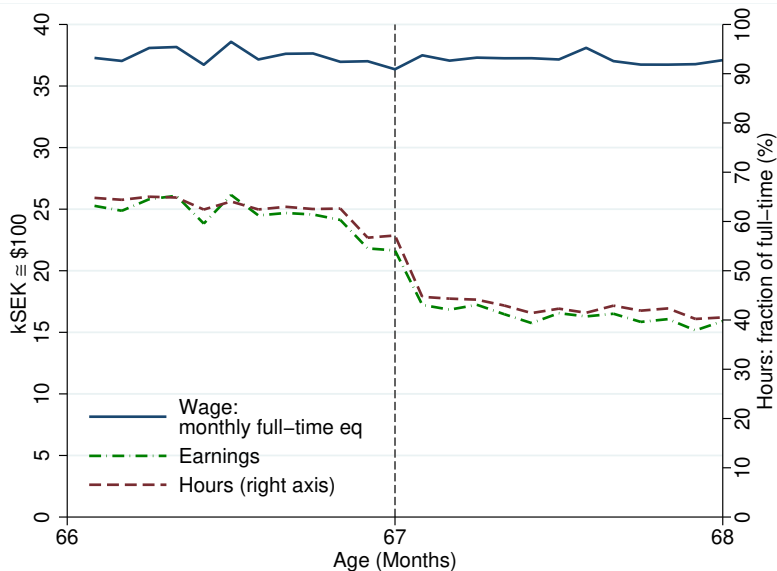
Solution: draw on **Structure of Earnings Survey** to study hours (fraction of full time) and wages

- Coverage beyond 67: **public sector only**
- (Cross-check in admin data for private sector later)

Annual panel—focus on balanced panel of stayers in same firm around 67
(same employer before and after 67 in narrow age window)

Panel Analysis of Stayers:

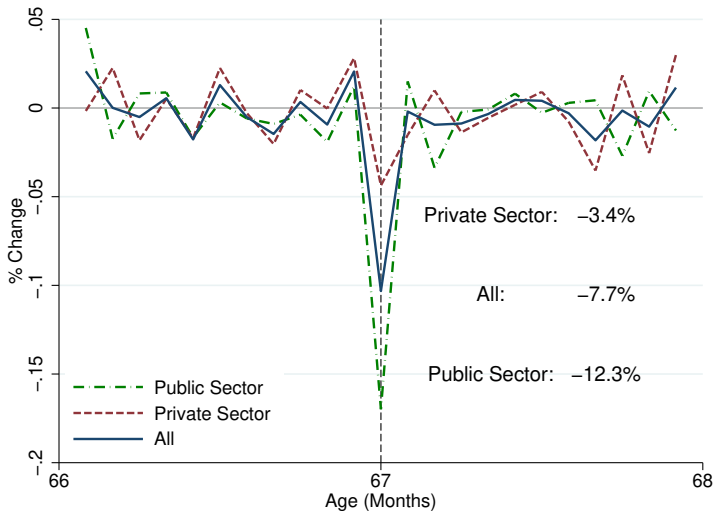
Hours, Wage, Earnings Structure Earnings Survey, Public Sector



Panel Analysis of Stayers:

Earnings Growth

Now Back to Admin Data, incl Private

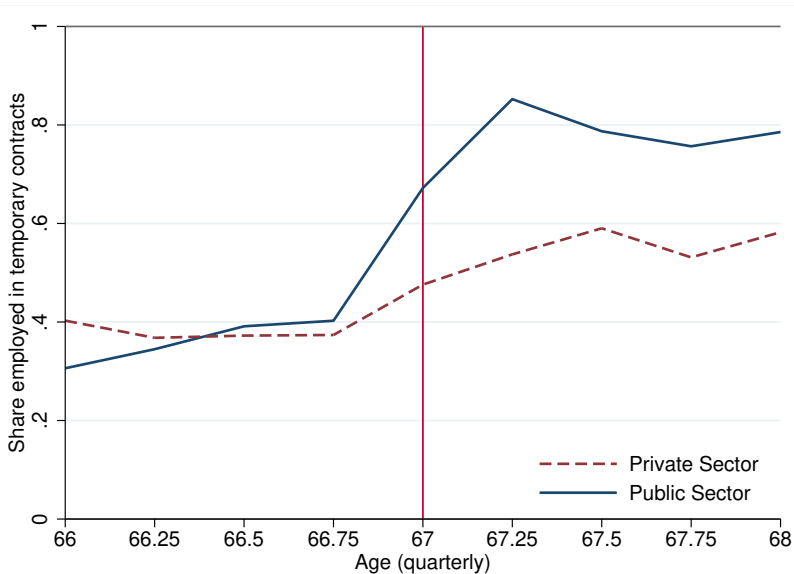


Stayers continuously employed with same employer between age 66 and 67 and 4 months; starting 67.5, only stayers' outcomes.

Panel Analysis of Stayers:

Temp Contracts

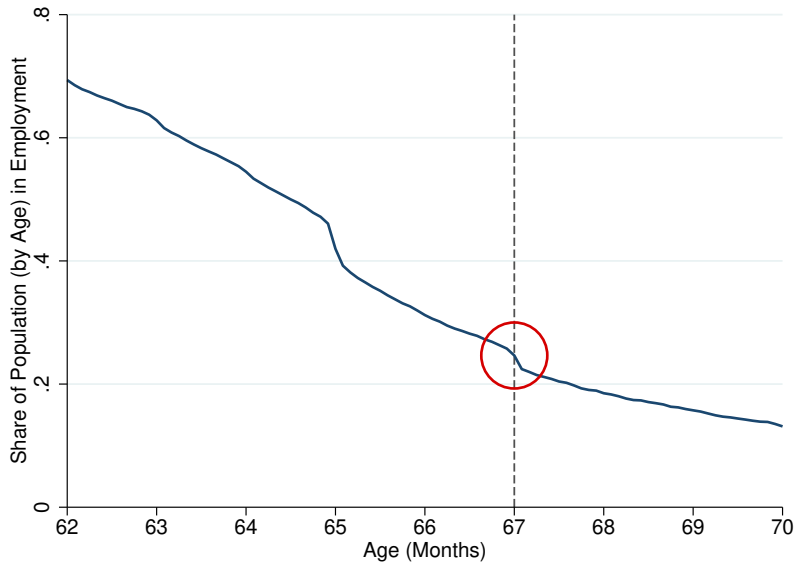
Labor Force Survey



Empirical Roadmap

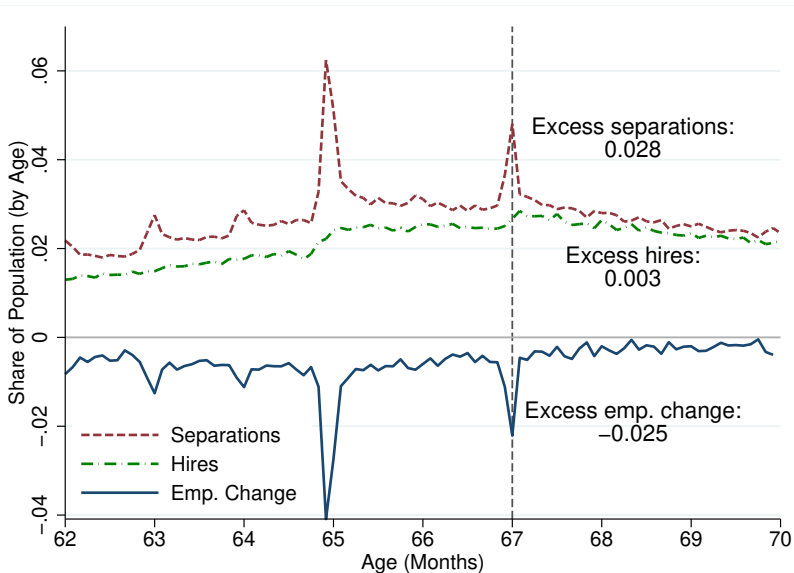
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Total Effect: Employment-Population Ratio in 2019

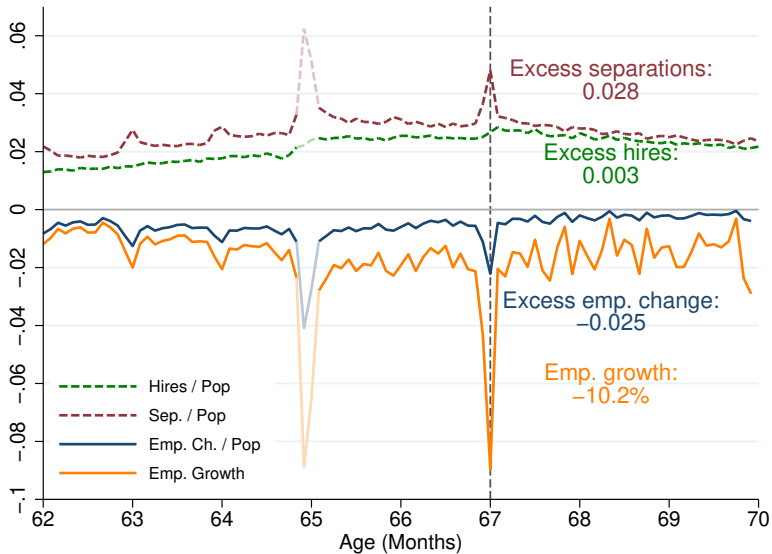


E-Pop: Change: Effect & Decomp

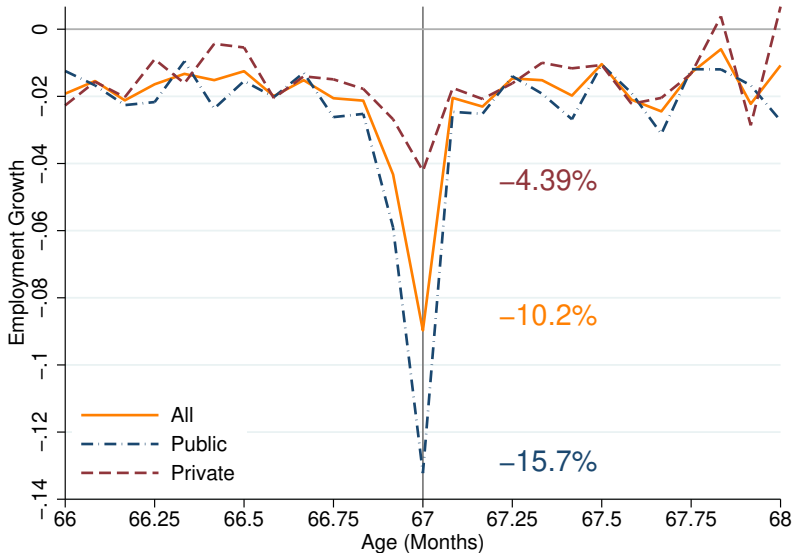
$$\Delta \text{Emp} = \text{Hires} - \text{Sep}'\text{s}$$



E-Pop: Change (ΔEmp) vs. Growth ($\frac{\Delta\text{Emp}}{\text{Emp}}$)

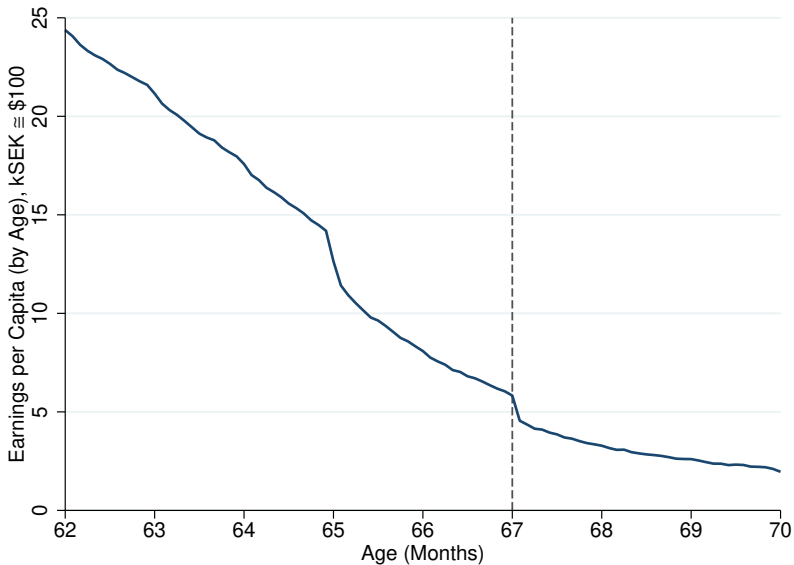


E-Pop: Effect Concentrated in Public Sector



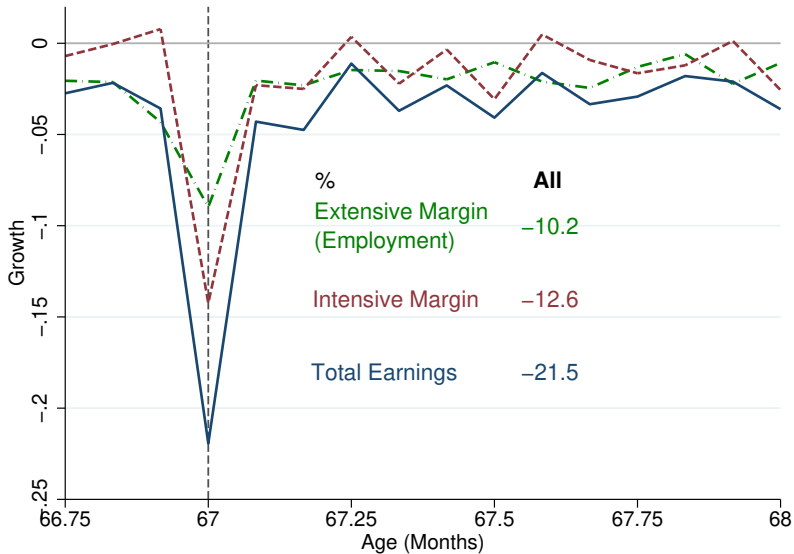
Earnings Per Capita

$$Y = \bar{y} \cdot E + 0 \cdot (P - E) = \bar{y}E$$

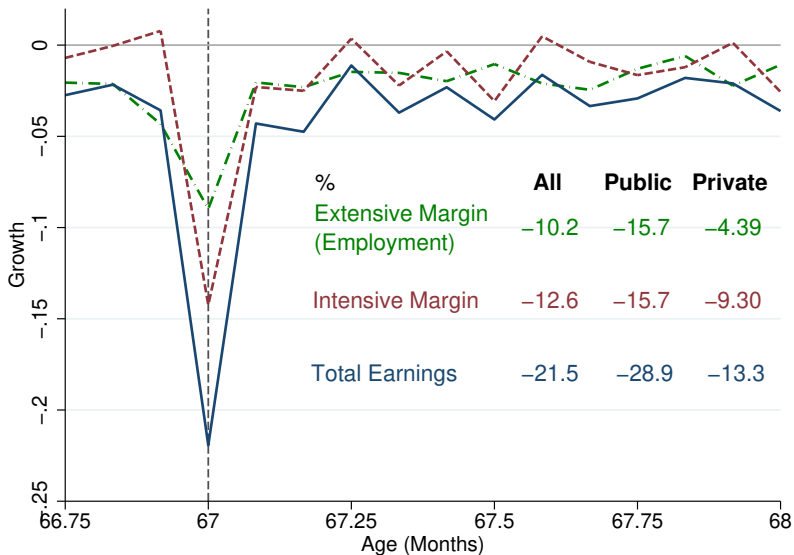


Earnings p.c.: Int + Ext Margins

$$\frac{\Delta(\bar{y}E)}{\bar{y}E} \approx \frac{\Delta\bar{y}}{\bar{y}} + \frac{\Delta E}{E}$$



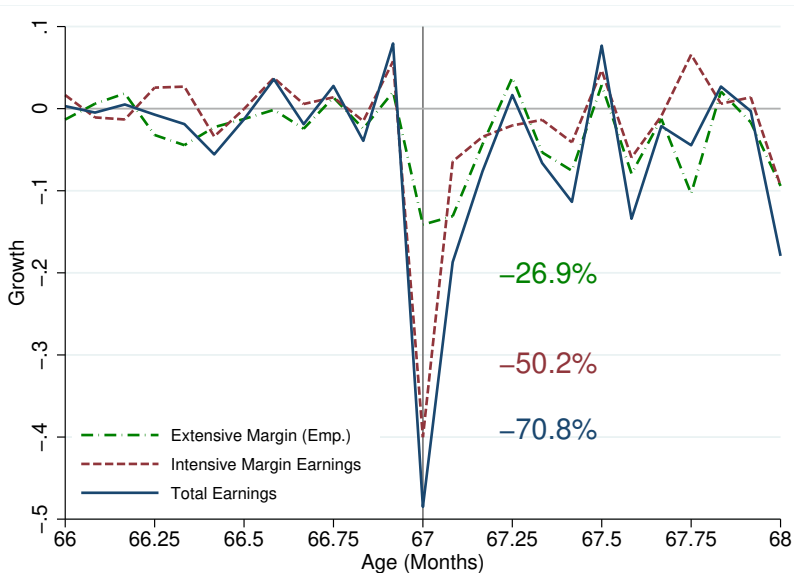
Earnings p.c. Decomp: Public vs. Private



Earnings p.c. Decomp: **Professors Are Special!**

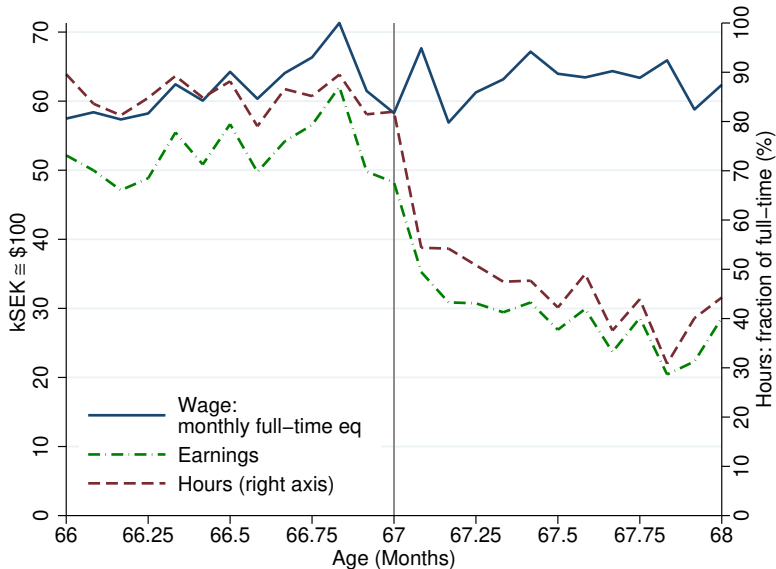
See: Ashenfelter and Card (2002)

Ashenfelter Card 2002



Professors: Hours/Wages/Earnings Among Stayers

Ashenfelter Card 2002



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Final Step: Non-Local Analysis of EPL Reform

Untested identification assumption of *local* analysis so far:

- Effect is entirely concentrated on impact, locally around 67 cutoff, no effect on other ages

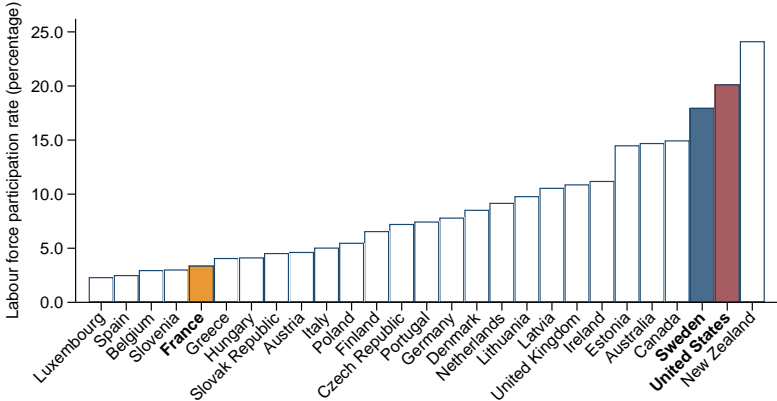
Ideal experiment: push out EPL cutoff age

- Our local analysis predicts employment effects accounted for by separations
- Predicts convergence again at the **next age cutoff by delaying separations**

Additional implied prediction of findings so far: EPL can boost lifecycle employment by extending duration and hours (of last job)

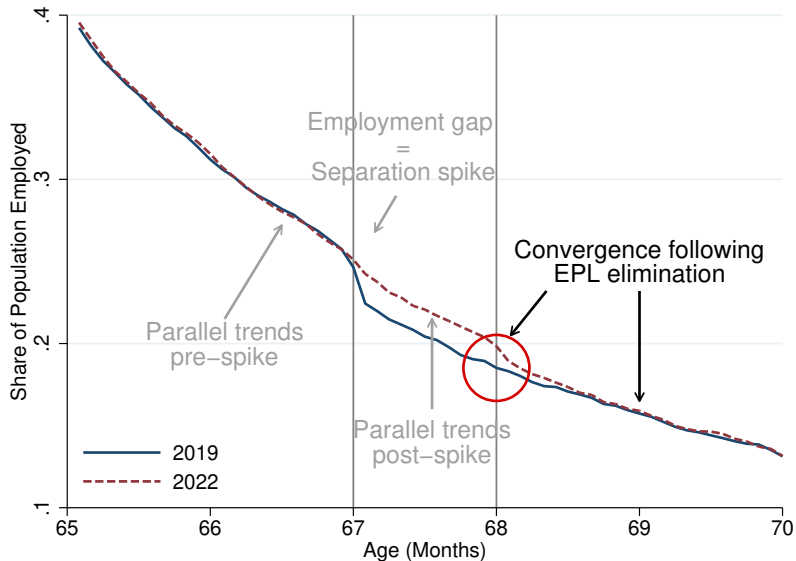
Policy relevance: Swedish government is extending cutoffs with the stated goal of boosting employment

Equilibrium vs. Local Analysis



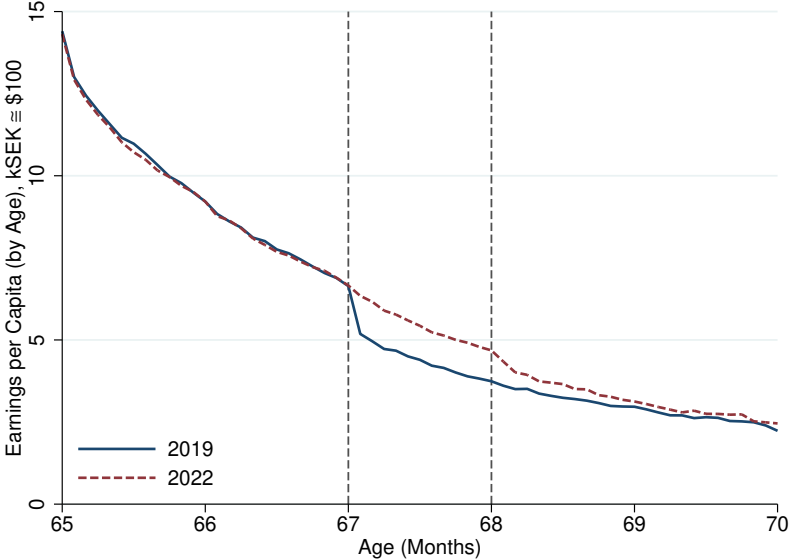
LFP Rate Among Older Pop: 65+; OECD 2019; Anglo-Am/EU comparison

DiD: E-Pop w/ EPL Age at 67 vs 68 (2019 vs 2022)

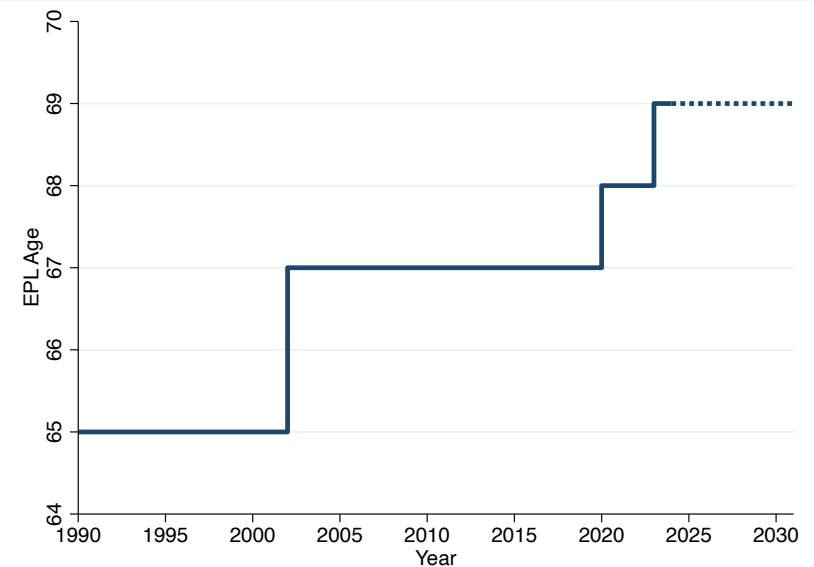


Note: alignment of lines at baseline age.

DiD: Earnings per capita w/ EPL Age at 67 vs 68 (2019 vs 2022)



Policy Implications and Background: Reform of EPL Cutoff Age



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Conclusion

Strategy: exploit sharp age discontinuity that eliminates strong EPL for Swedish older workers

Find clear effect on quantities (sep's & hours)—zero wage effect

- About 8% of jobs separate
- No hiring effect, 10% employment effect, 20% earnings effect

Interpretation:

- Involuntary separations/retirement/hours cuts (squares w/ Lazear 1979)
 - Compliers: high tenure, large firms, recently sick, **public sector**
- ⇒ Swedish employers—*esp. private sector*—mostly get around EPL
- Upper bound? (older workers, strong EPL, small effect on private)

Potential policy implications:

- Extending EPL can provide boost to worklife (in last job)
 - Relatively powerful leverage compared to, e.g., tax incentives?
- Caveat: redistribution (from firms to workers) (at least ex post)
- Caveat: untested potential equilibrium effects (younger workers)