

# Labor Market Implications of Fixed-Term Contract Duration: Evidence from a Dutch Reform

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# Dual Markets and Duration Limits

- ▶ Dual labor markets are common: fixed-term and open-ended contracts (FTC & OEC)
- ▶ FTC common among young workers, can be converted into OECs
- ▶ Important implications for wage growth and job stability, mostly studied in countries with low promotion rates (Blanchard and Landier (2002), Dolado et al. (2002))
- ▶ Use of FTCs heavily regulated
  - ▶ OEC costly to terminate, FTC automatically run out
  - ▶ Prominent feature: **duration limits** → cannot employ worker on FTC indefinitely

# Research Questions

- ▶ How do FTC duration limits affect workers and firms?
  - ▶ Workers: speed up 'promotion' to OECs vs. increase turnover to others
  - ▶ Firms: employment levels, workforce composition, match quality, profits
  
- ▶ Mechanisms: why are (long) fixed-term contracts used?
  1. Flexible adjustment of workforce to product-demand shocks (not today)
  2. Learning about worker/match quality
  3. Labor market power (risk of poaching)

# The Effect of FTC Duration Limits on Workers & Firms

## Empirical strategy:

- ▶ Data: administrative EE Dutch tax records (monthly level)
- ▶ Variation: Dutch reform (July 2015) shortened FTC duration limits (3 to 2 yrs)
  - ▶ Compare individuals who are hired 2 before the reform (e.g. June vs July 2013)

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- ▶ Shortening FTC duration limits **increased** promotion rate to OEC:
  - ▶ Stronger effect for firms with greater labor-market power
  - ▶ Increase in promotion is concentrated among low-wage earners

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## Interpretation

- ▶ Firms have learning / risk-sharing motives to delay promotion
- ▶ High labor-market power allowed firms to delay promotion

# Contribution

- ▶ **Dual Labor Markets:** Blanchard and Landier (2002); Dolado et al. (2002); Cahuc and Postel-Vinay (2002); Garcia Perez and Osuna (2014); Daruich, Addario, and Saggio (2022), Palladino and Sartori (2022); Pijoan-Mas and Roldan-Blanco (2022)
- ▶ **Market Power:** Amodio et al. (2023), Berger et al. (2022)
- ▶ **FTC as screening:** Faccini (2014)  
→ **Learning:** Farber and Gibbons (1996); Altonji and Pierret (2001); Lange (2006); Schönberg (2007)
- ▶ **Contributions:**
  - ▶ Focus on duration limit feature of FTC
  - ▶ Explore labor-market power as a new explanation for longer FTC duration

# Outline

- 1 Data and Empirical Strategy**
- 2 Effects on Workers: Transition Rates, Earnings**
- 3 Potential Mechanisms**



# Outline

## **1** Data and Empirical Strategy

2 Effects on Workers: Transition Rates, Earnings

3 Potential Mechanisms

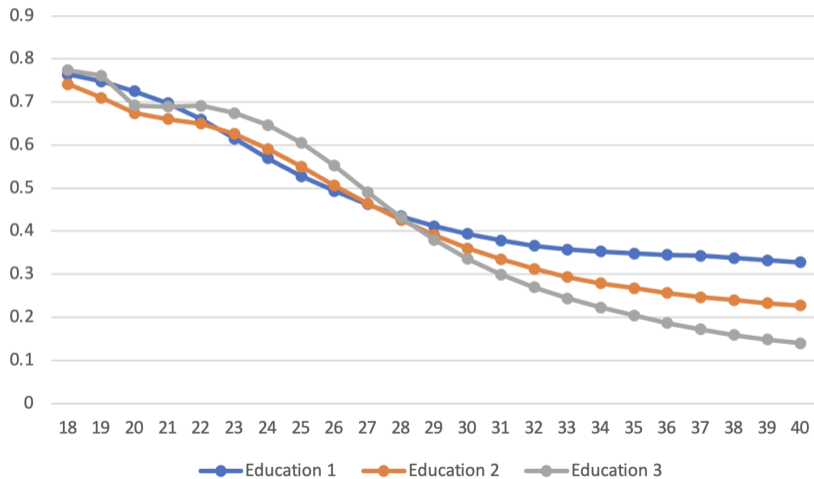
# Data

- ▶ Administrative Dutch data
  - ▶ EE Monthly panel: employment, earnings, hours, FT/OE status (2010-2020)
  - ▶ Other: gender, nationality, education
- ▶ Employee Sample:
  - ▶ Dutch-born individuals aged 18-40
  - ▶ FTC: start dates 2011-2016
  - ▶ Exclude: duration  $< 3$  mo,  $< 20$ h per week, exiting firms, temp agencies and firms under collective bargaining agreements

	FTC	OEC
Age	27.9	30.4
Men	.55	.58
Mthly Hours	135.4	146.9
Mthly Earnings (EUR)	1906.4	2657.9
Observations	2470912	982030

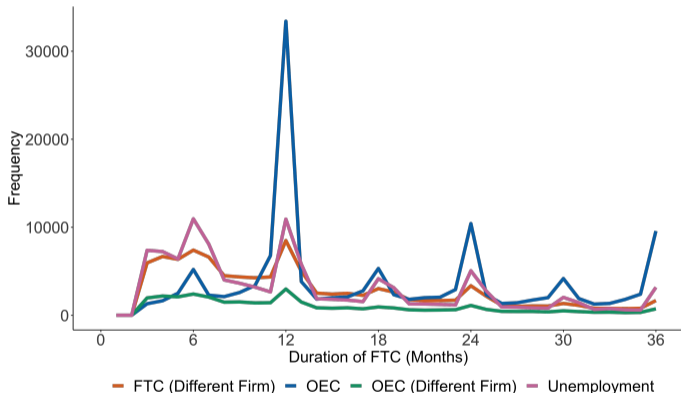
# FTC Common Among Young & Lower Ed. Workers

FT Share by Age



# FTC Durations in Netherlands (Pre-Reform)

- ▷ Avg. FTC = 15.4 mo
- ▷  $\Pr(\text{FTC} > 24 \text{ mo}) = 18.1\%$
- ▷ Yearly FTC renewal most common
- ▷ 'Graduation' from FTC:
  - ▷ OEC = 35.3%
  - ▷ Unemp. = 27.1%
  - ▷ FTC (other firm): 28.4%
  - ▷ OEC (other firm): 9.3%



Pr(promotion)

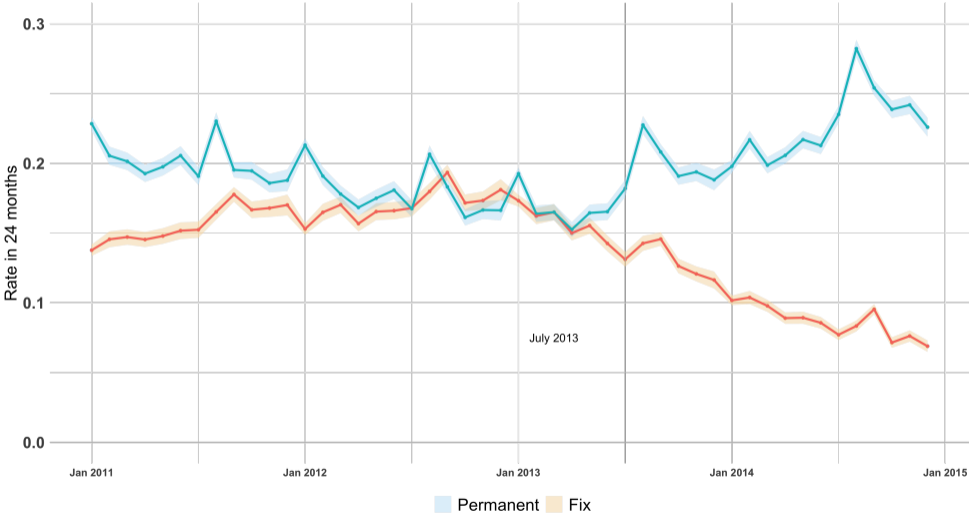
Pr(promotion—share FTC)

# Work and Security Act 2015 (WSA)

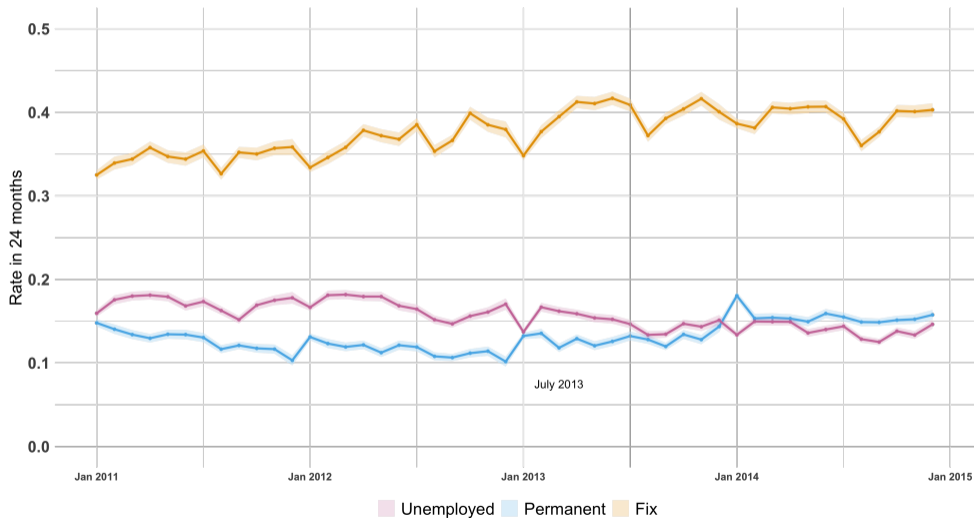
- ▶ Decrease limit of max duration for FTCs from three to two years
  - ▶ Affected FTC: renewed after July 2015 (announced June 2014)
- ▶ Yearly FTC renewal most common – first affected cohort started in July 2013
- ▶ Other small changes regarding more protection for OECs:
  - ▶ Harder dismissal procedure
  - ▶ Introducing severance payments
  - ▶ Longer pause required to reset tenure clock

Other Changes

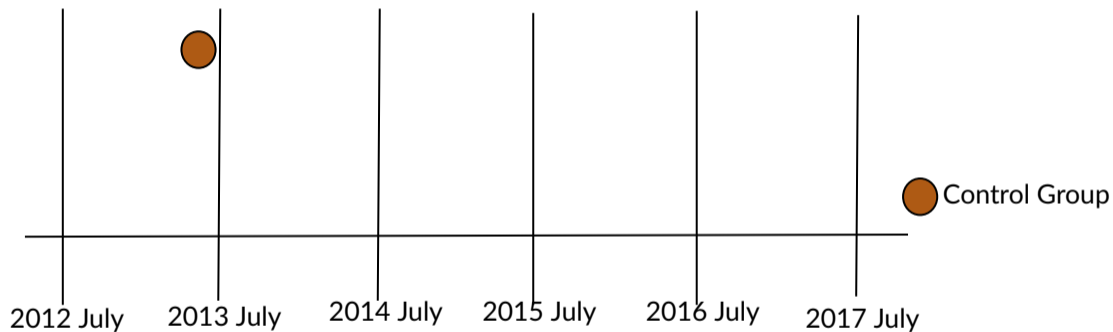
# Stayers: FTC and OEC After Two Years



# Leavers: Unemployed, OEC and FTC (Other Firm)

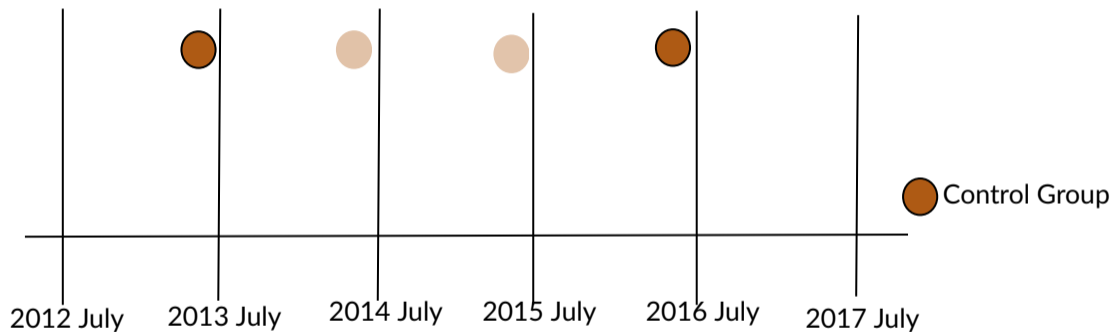


# DD: Identification

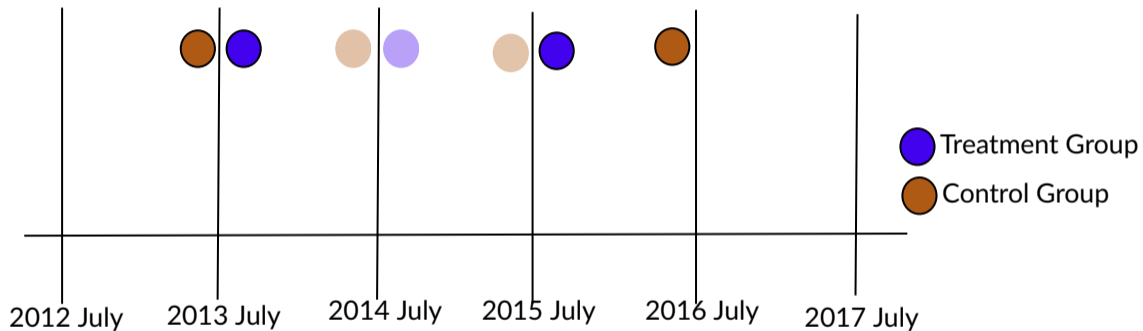




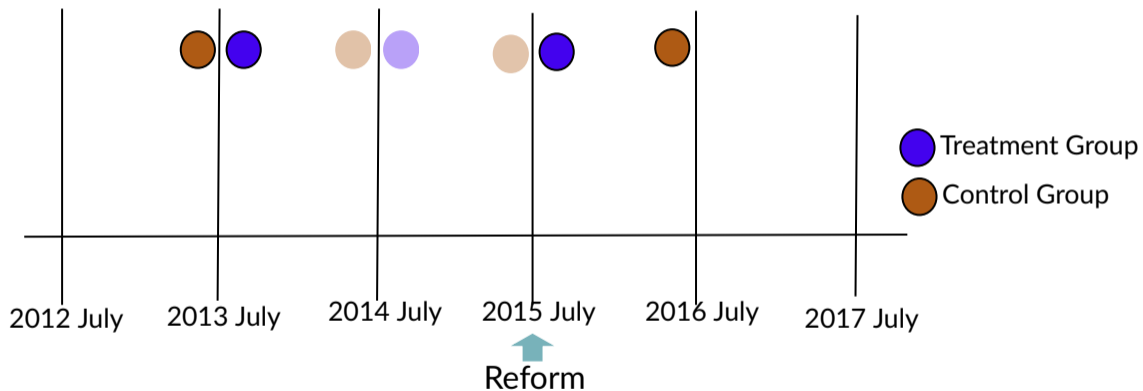
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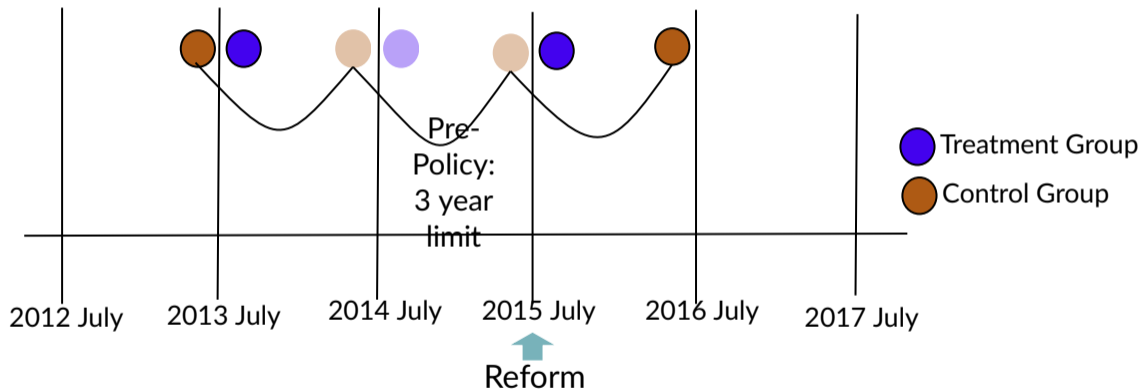
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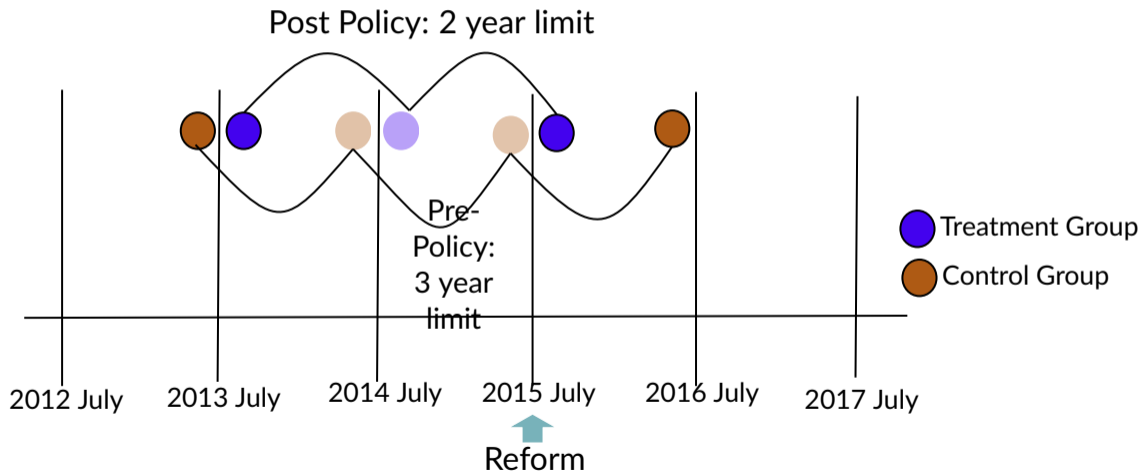
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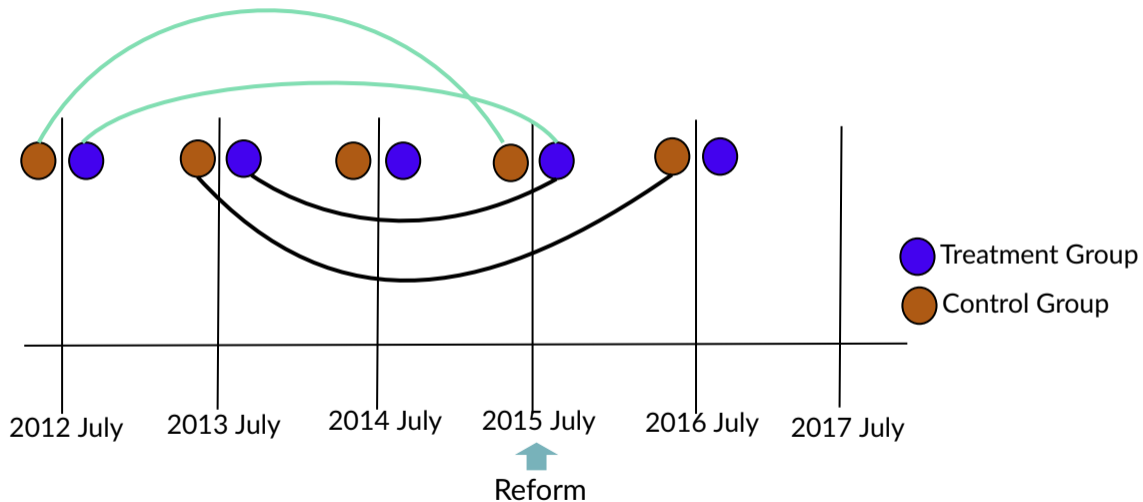
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# Empirical Strategy: Timing of Hiring

$$y_{it} = \sum_{j \neq 2012} \beta_j \mathbb{1}\{j = yr(t)\} \cdot H_{it} + \gamma_{yr(t)} + \gamma_{m(t)} + x_{it} \beta_x + \epsilon_{it}$$

- ▷  $y_{it}$  : employment outcome of individual  $i$ , hired in time  $t$  (year and month)
- ▷  $H_{it} = 1$  : if individual  $i$  was hired b/t July-Oct vs March-June
- ▷  $\gamma_{yr(t)}, \gamma_{m(t)}$  : year and month fixed effects (economic cycles and seasonality)
- ▷  $x_{it}$  : education, firm, and age (at time of hiring) fixed effects
- ▷  $r_{it}$  : error term

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Intuition: workers hired early vs late 2013 are comparable (controlling for seasonality)

Potential violations:

- ▷ SUTVA: effect on treated workers will affect promotion decisions on control workers
- ▷ Manipulation of second renewal date (attenuation)



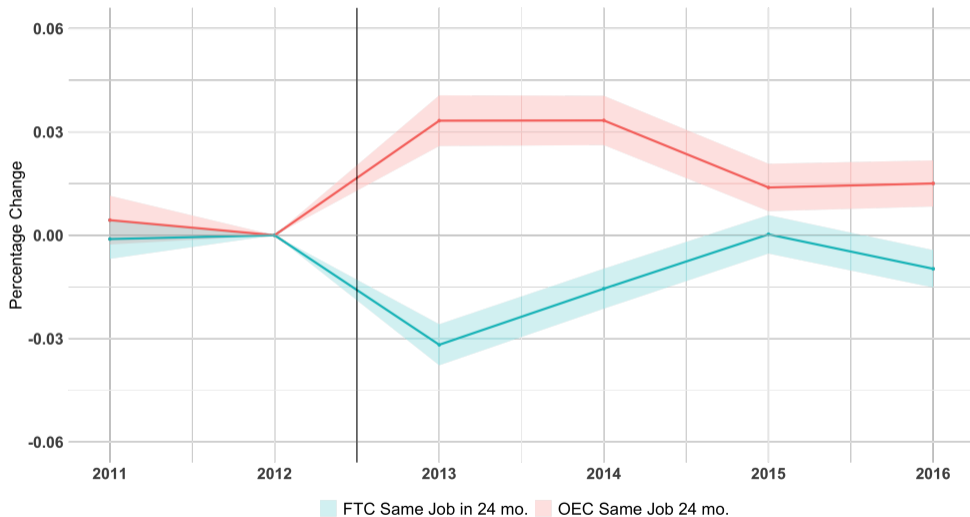
# Outline

1 Data and Empirical Strategy

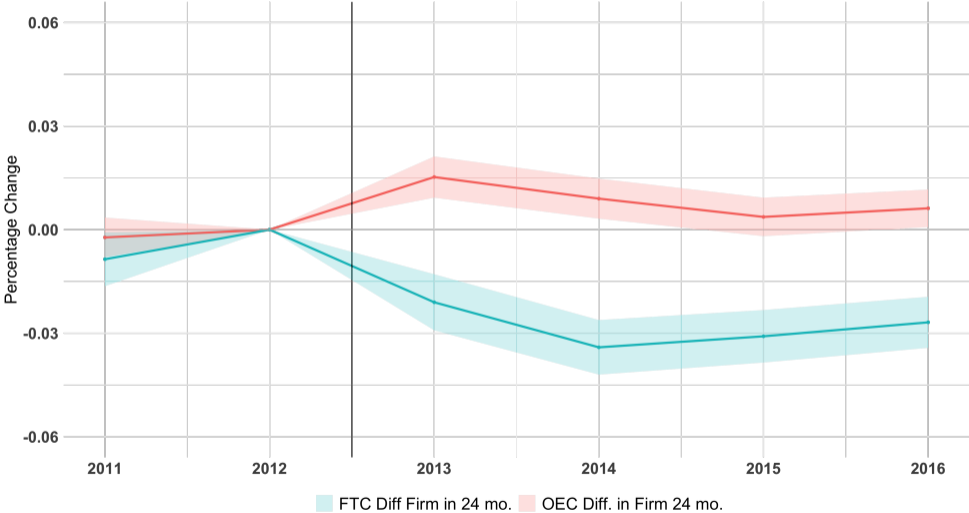
**2 Effects on Workers: Transition Rates, Earnings**

3 Potential Mechanisms

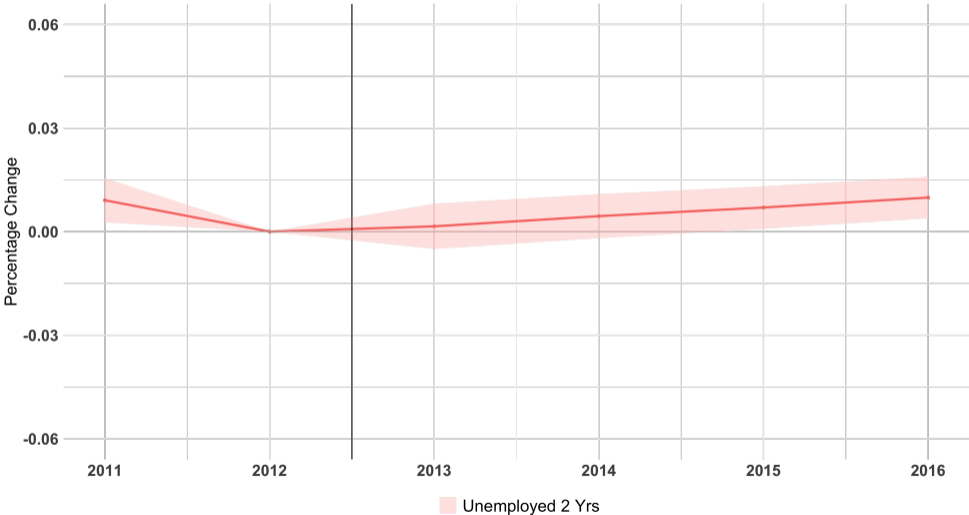
# Shift from FTC and OEC in 2 Years (Same Firm)



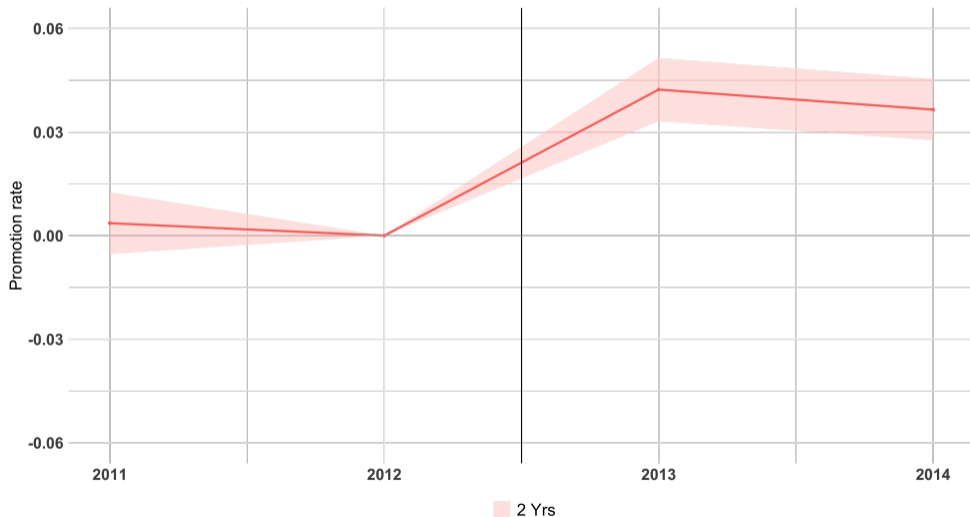
# Shift from FTC and OEC in 2 Years (Different Firm)



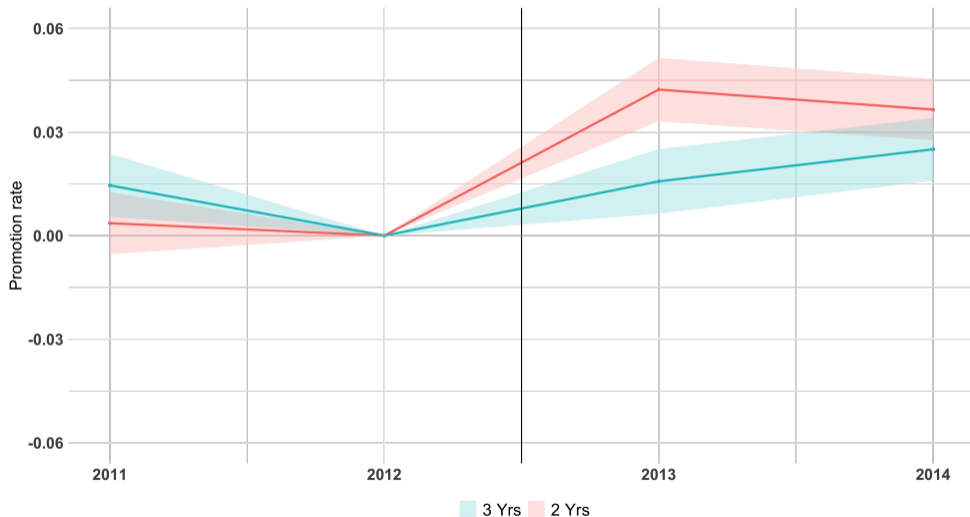
# Small Delayed Effect on Unemployment in 2 Years



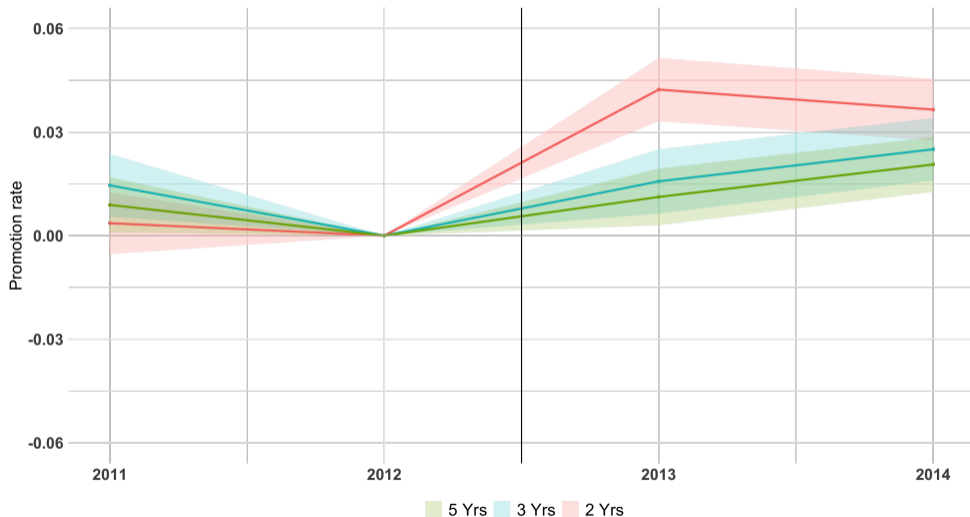
# Persistent Effect OEC Same Firm in Medium Term



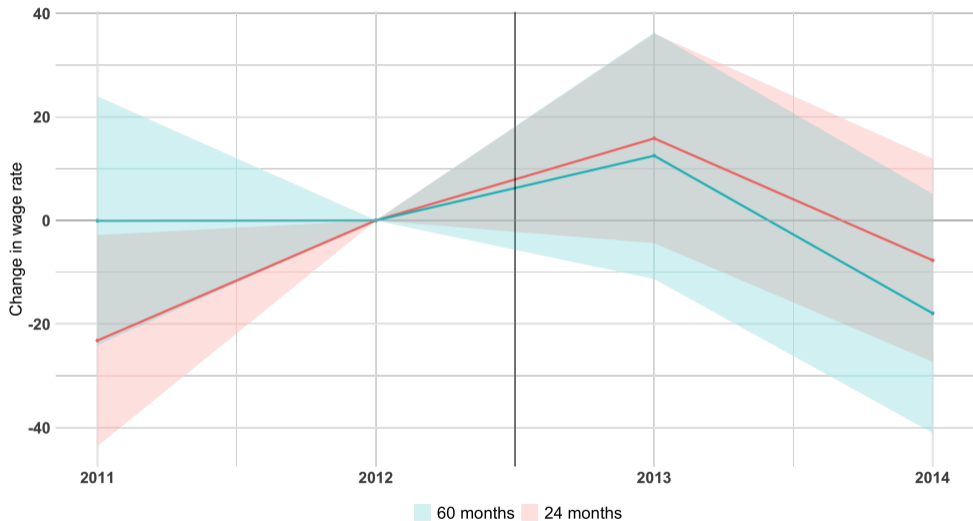
# Persistent Effect OEC Same Firm in Medium Term



# Persistent Effect OEC Same Firm in Medium Term



# No Effect on Monthly Earnings





# Results Recap

- ▶ Shortening the maximum duration forces early decisions of firms after two years
- ▶ Some get promoted to OEC earlier, persistent effect
- ▶ Small delayed effect on unemployment
- ▶ No effect on wages up to 5 years after initial hiring point

# Outline

1 Data and Empirical Strategy

2 Effects on Workers: Transition Rates, Earnings

**3 Potential Mechanisms**

# Potential Mechanisms

1. Labor market power
2. Learning: worker-firm match quality
3. Adjustment to shocks (not today)

# 1. Labor Market Power

- ▶ Competitive labor-markets:
  - ▶ 'Good' workers receive outside offers (poaching)
  - ▶ Competition drives firms to promote to OEC as soon as it's profitable
  - ▶ FTC duration naturally limited without policy
  
- ▶ Firms with high LMP:
  - ▶ Low risk of losing good workers, keep workers on FTC as long as possible
    - ▶ Motive: adjustment to risk / learning
  - ▶ Policy forcing shorter FTC durations: could be welfare-improving for workers

# Measuring Labor Market Power

▷ Labor-market ( $m$ ) : region (40)  $\times$  sector (2-digit)  $\times$  education (3)

▷ Market share of firm  $j$ :

$$s_j = N_j^{\text{workers}} / N_m^{\text{workers}}$$

▷ Estimate labor market concentration:

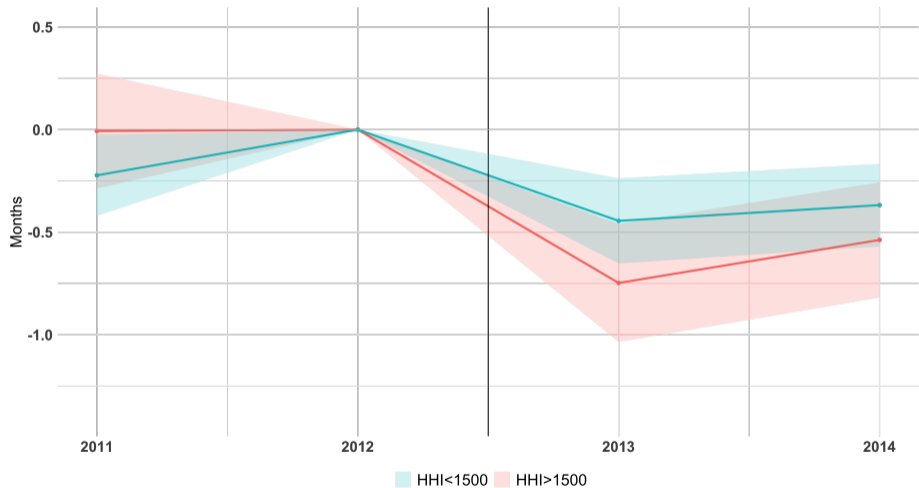
$$HHI_m = \sum_{j \in m} s_j^2$$

# High Market Power is Related to Long FTC (Pre-Reform)

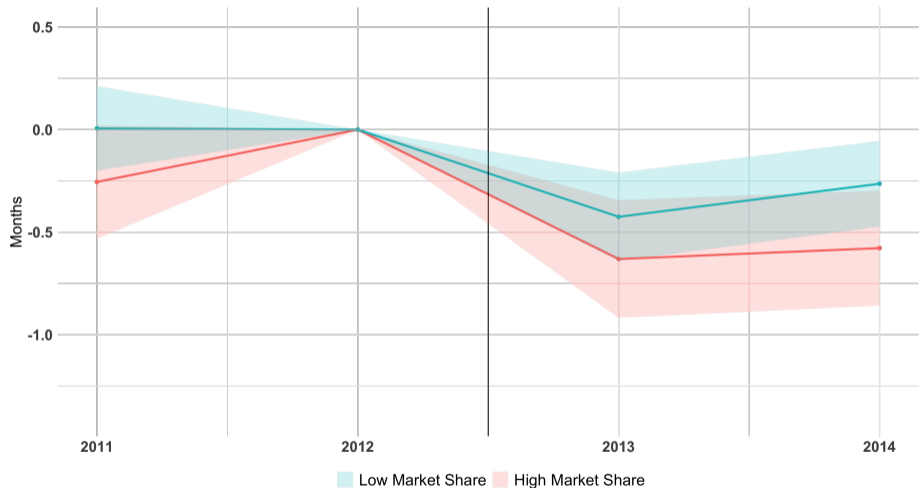
Outcome: FTCs > 24months			
	(1)	(2)	(3)
Market Share	0.0317 (0.0013)		
$\log(HHI)$		0.0097 (0.0002)	
High concentration ( $HHI > 1500$ )			0.0186 (0.0015)
Constant	0.2666 (0.0015)	.2068 (0.0015)	0.2645 (0.0015)
Observations	769045	769045	769045

Notes: Each observation is a firm-education-district triple. The outcome is the share of FTC spells that are longer than 24 months. Regressions include industry and education FEs.

# Reform Effects on FTC Durations by HHI



# Reform Effects on FTC Durations by Market Share

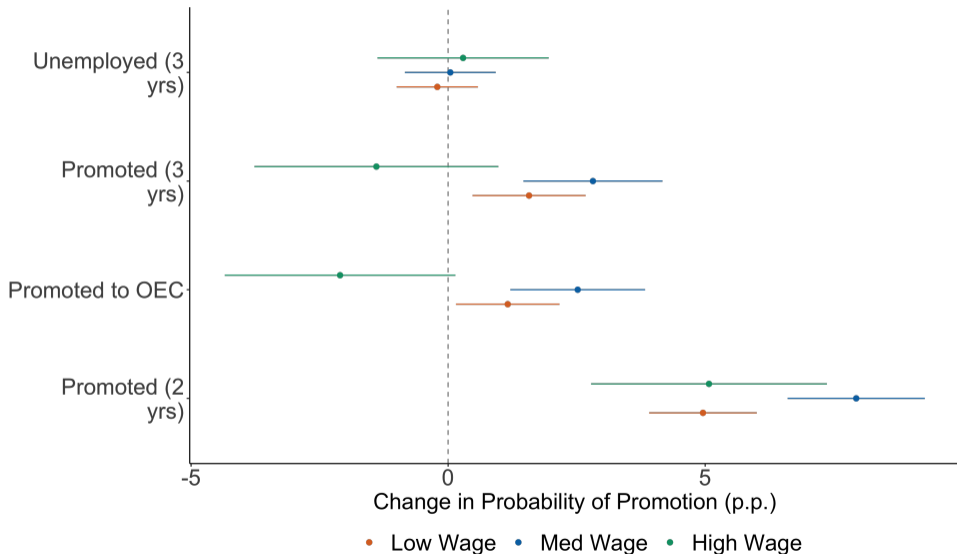




## 2. Learning About Worker/Match Quality

- ▶ Lit. suggests learning is mostly completed within 2 years (Lange 2006)
  - ▶ Consistent with our findings: no aggregate negative impact on worker's employment or promotion rate
- ▶ Learning could play a role in certain sectors/occupations:
  - ▶ Negative effects in promotion rates to OEC when more than 2 years is needed for learning (e.g. high-wage workers)

# Effects by Starting Wage Group



# Results Recap and Interpretation

- ▶ Shortening the maximum duration forces early decisions of firms after two years
- ▶ Some get promoted to OEC earlier, persistent effect
- ▶ Stronger effects for markets with high labor market concentration
- ▶ Increase in the probability of promotion to OEC for low to mid-wage, but decrease for high wage

# Conclusion and Next Steps

- ▶ Study Dutch reform that reduced max duration of FTC
  - ▶ Firms promote workers earlier → increase retention
  - ▶ Stronger effect for firms with higher market power
  - ▶ High-wage workers less likely to be promoted
  - ▶ Decrease in number of employees and total wage bill

Firm Level Analysis

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Firm Level Analysis

- ▶ Interpretation: high labor-market power allowed firms to delay promotion due to learning / risk-sharing motives

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- Firm Level Analysis
- ▶ Interpretation: high labor-market power allowed firms to delay promotion due to learning / risk-sharing motives
  - ▶ Next Steps:
    - ▶ Create exposure measures at the firm level using more data (2006-2009)
    - ▶ Exploit policy variation from collective bargaining agreements
    - ▶ Explore: firm exits, older population (40+)

THE END!

# Appendix



# Outline

4 General Appendix

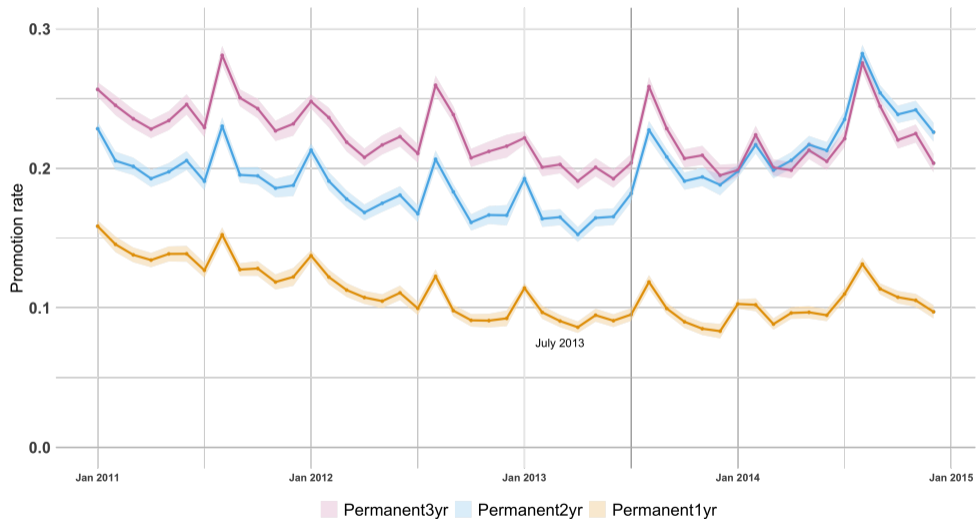
5 Context Appendix

6 Effects on Firms: Employment, Hiring, Financials

# Outcomes of Interest

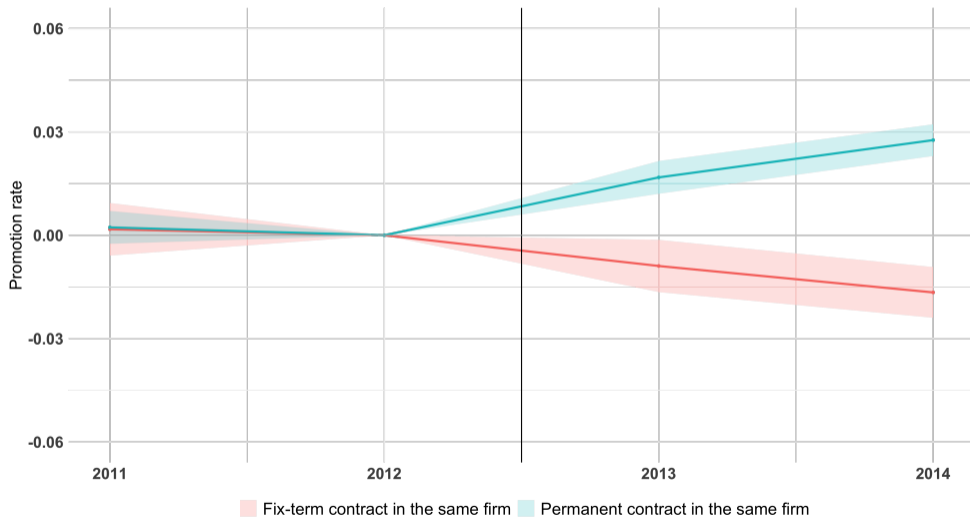
- ▶ Contract type: fixed vs permanent (same vs different firm)
- ▶ Employment: full, part-time, non-employment
- ▶ Earnings: monthly and hourly wages
- ▶ Family formation: Parenthood, N. of kids, marriage (and cohabitation)

# Permanent Employment Years 1-3



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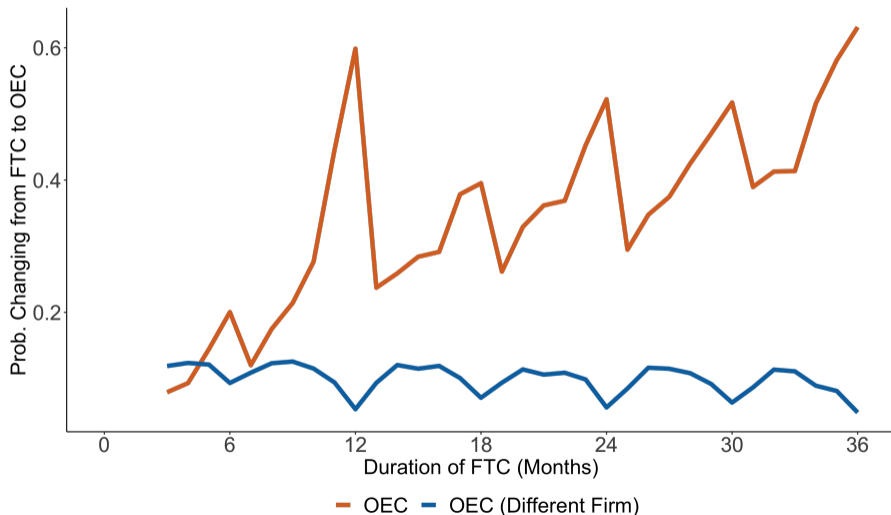
# Effect of Announcement (1 Year Horizon, Same Firm)



# Covariates Comparison Test

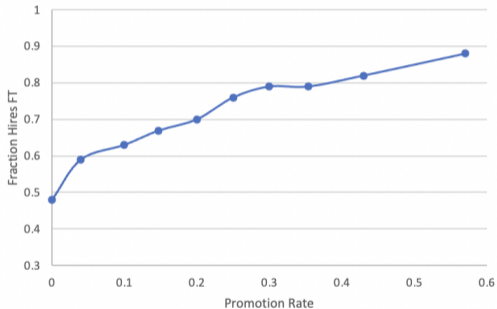
	Age		Hourly Wage	
	Women	Men	Women	Men
2011	-0.031 (0.061)	-0.02 (0.061)	<b>0.127</b> <b>(0.058)</b>	<b>0.139</b> <b>(0.060)</b>
2013	0.074 (0.061)	-0.049 (0.061)	0.039 (0.057)	-0.031 (0.060)
2014	<b>0.200</b> <b>(0.059)</b>	0.014 (0.059)	0.108 (0.055)	0.006 (0.058)

# Transitions into Permanent Employment

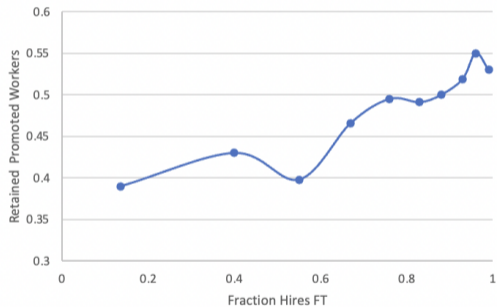


# Share FTC and Promotion Rate

Proportion Hired FT by Average Promotion Rate



Retained Permanent Workers by Proportion Hired on FT



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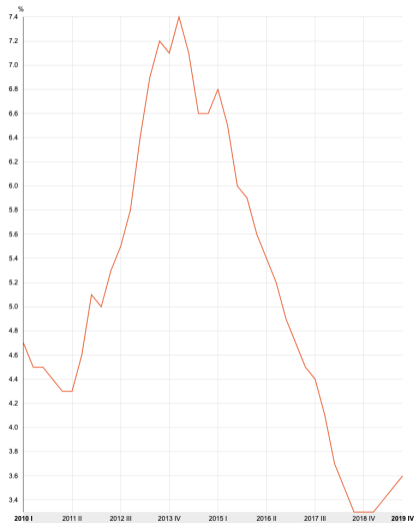
# WSA: Other Details (Announced June 10th 2014)

- ▶ January 2015:
  - ▶ Contracts  $\leq 6$  months: no probation period, exclusion of the obligation to pay
  - ▶ O/w: 1-month notice for termination + canceled non-compete clause
- ▶ July 2015:
  - ▶ **Reduced total duration** in fixed-term contract (from 3 to 2 years)
    - ▶ Max interval changed from 3 to 6 months
    - ▶ No change in limits on renewals
  - ▶ Termination payment for employees with  $\geq 2$  years of tenure
  - ▶ Other changes: cooling-off period, harder dismissal process, “suitable job” definition (to receive unemp benefits for longer than 6 months)
- ▶ Jan 2016 - 2019: max unemp. span reduced from 38 to 24 months



# Unemployment in NL

- ▷ Duration:
  - ▷ Min 3 months
  - ▷ Added month per year of work (up to 38 months)
- ▷ 75% avg monthly wage (last year)



# Outline

4 General Appendix

5 Context Appendix

**6 Effects on Firms: Employment, Hiring, Financials**

# Firms Response for FTC Duration Limits

- ▶ Firms might respond by restructuring workforce (hiring, firing)
- ▶ Possible implications for wage bill, profits
- ▶ Timing of response less clear, some time between announcement and implementation (June 2014- July 2015)
- ▶ Alt identification strategy: using pre-reform fraction of long FTC ( $>24$ mo)
- ▶ DD: Markets with higher share of long FTCs more affected by reform
  - ▶ Calculate for local labor market defined as industry-districts

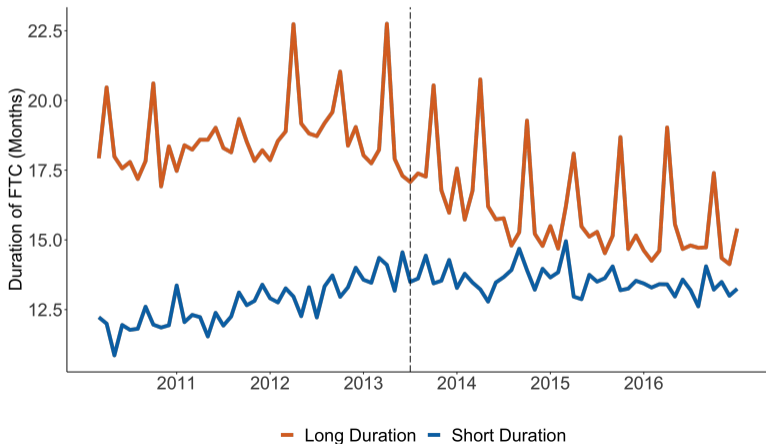
# Data - Firms

- ▶ Firm Sample: Balanced 2011-2016, yearly observations
  - ▶ Number and composition of employees
  - ▶ Geographical location, sectors
  - ▶ Income statements (non-financial firms)

Number of Employees	31.9
Yearly New Hires	2.5
Yearly New FTC Hires	2.1
% Employees FTC	43.3
Profits per Worker	14.4K
Wage Bill per Worker	58.1K
Observations	396821

# High and Low Share of Long FTC

- ▶ Let  $p$  be fraction of long FTC in pre-reform period for a local labor market
- ▶ Compare top to lowest quintile, exposure:  $exp = 1$  if  $p > .25$ ,  $exp = 0$  if  $p < .1$



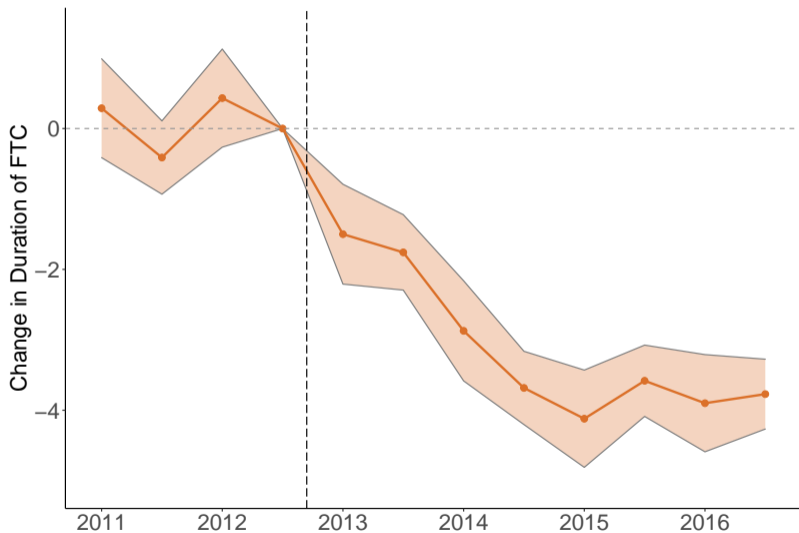
# Empirical Strategy: DD

Individual regression at year-month level, with treatment effects by semester:

$$y_{it} = \sum_{k \neq 2012.5} \beta_k \mathbb{1}\{k = sem(t)\} \cdot exp_i + exp_i + \gamma_{sem(t)} + \gamma_{mth(t)} + x_{it}\beta_x + r_{it}$$

- ▷  $y_{it}$ : employment outcome of individual  $i$  hired in  $t$
- ▷  $exp_i = 1$ : if individual  $i$  operate in high exposure LM
- ▷  $\gamma_{sem(t)}, \gamma_{mth(t)}$ : semester and month fixed effects (economic cycles and seasonality)
- ▷  $x_{it}$ : individual covariates: education, age (at time of hiring), and industry fixed effects.
- ▷  $r_{it}$ : error terms

# Effect of Duration Limits on FTC Duration



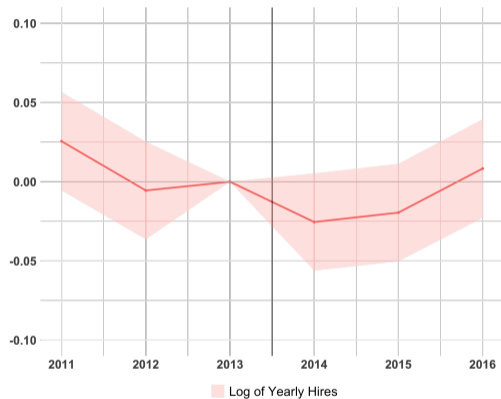
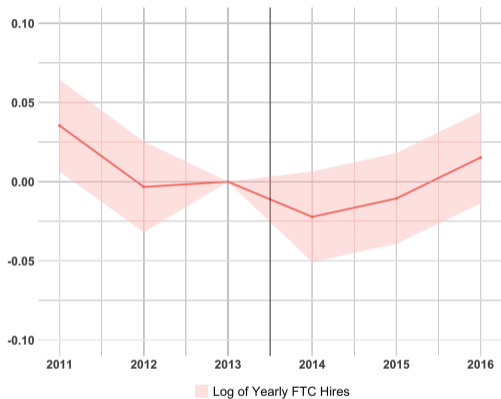
# Empirical Strategy: DD

$$y_{f,yr} = \sum_{l \neq 2013} \beta_l \mathbb{1}\{l = yr\} \cdot exp_f + exp_f + \gamma_{yr} + r_{f,yr}$$

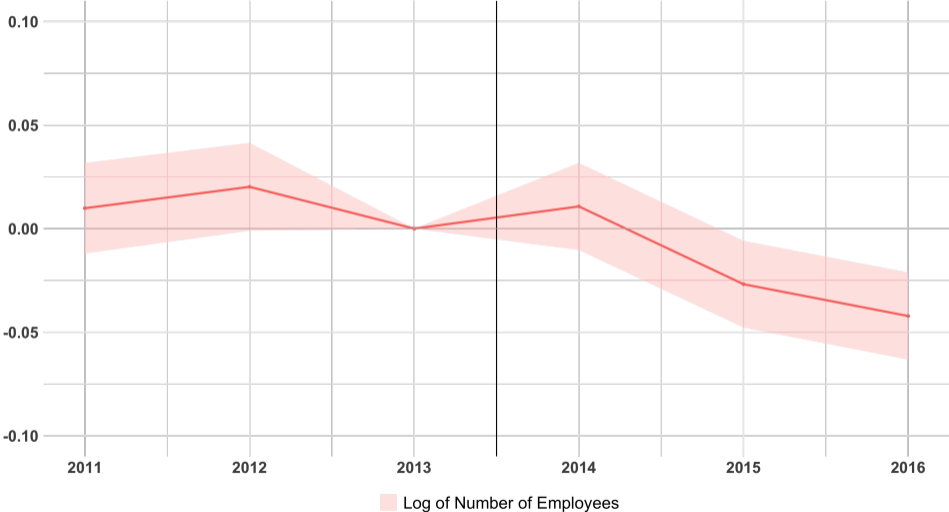
- ▷  $y_{f,yr}$  : outcome of firm  $f$  in year  $yr$
- ▷  $\gamma_f$  : firm FE (unobserved heterogeneity)
- ▷  $\gamma_{yr}$  : year FE (economic cycles)
- ▷  $r_{f,yr}$  : error terms



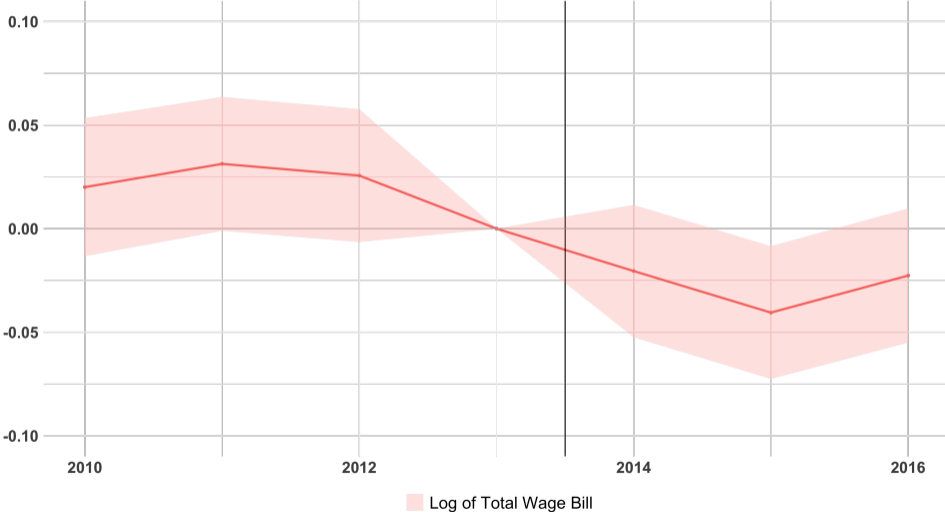
# Hiring



# Total Number of Employees - Decrease



# Total Wage Bill - Decrease



# Profits

