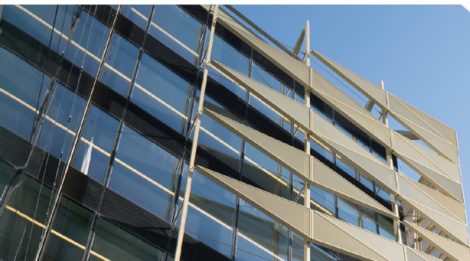




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# Flexibility of new hires' earnings

Evidence from Ireland during the Great Recession

Banco de España

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# Disclaimer

The views presented here are those of the authors only, and do not necessarily reflect the views of the Central Bank of Ireland or the ESCB.



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- In standard search and matching framework Pissarides (2009)...
  - ▶ For hiring decision of firms and therefore (un)employment fluctuations, it is *wages of new hires from unemployment* that matter, not the average wages or wages of existing workers.



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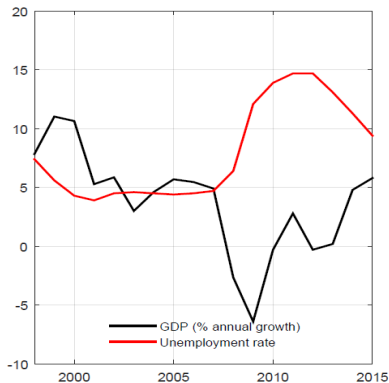
- In standard search and matching framework Pissarides (2009)...
  - ▶ For hiring decision of firms and therefore (un)employment fluctuations, it is *wages of new hires from unemployment* that matter, not the average wages or wages of existing workers.
- Empirical evidence mixed
  - ▶ Micro data lacking, aggregation bias (Bils, 1985)
  - ▶ US – contradictory results
  - ▶ Europe – few studies, most recent show little difference between new hire/incumbent pay following an unemployment shock
  - ▶ Time period – most studies finish before the Great Recession



# Turbulence in Irish labour market ...

2009-2012: employment  $\searrow$  300k, recovery from 2013

Employment, hours, unemployment and GDP trends in Ireland



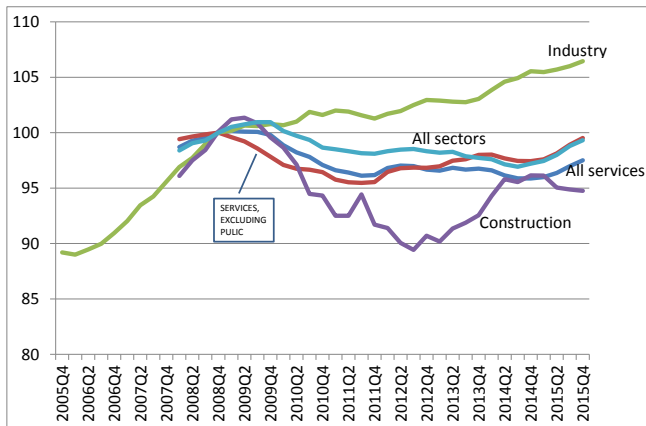
Source: Central Statistics Office.



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# Nominal weekly pay, 2008=100



Source: Nominal weekly pay, CSO. Services 1\* includes the following NACE sectors: G, H, I, J, M, N, O, P, Q, R-S. Services 2\* excludes the public sector dominated sectors: O, P (Education) and Q (Health). All sectors includes NACE codes B to S.

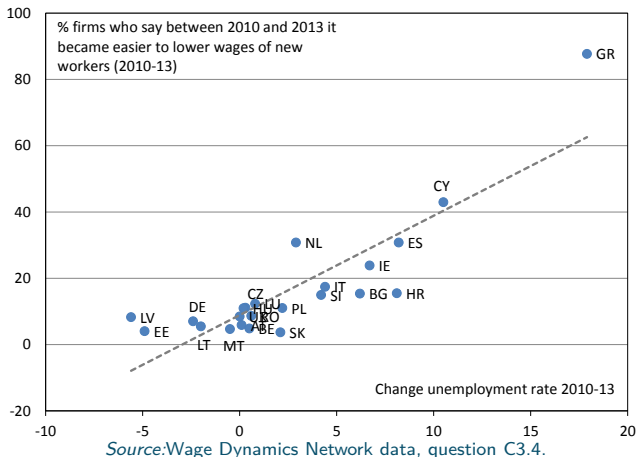


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# Post-2010, 'easier' to pay new workers less

Figure 1: Evidence from the the Wage Dynamics Survey





# International evidence



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Haefke, Sonntag & Van Rens (2013) – US CPS 1984-2006

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- Job changers’ earnings more sensitive to unemployment shocks – new hires no different to stayers



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Stüber (2015, IAB-BeH 1977-2009) & Bauer & Lochner (2016, IAB-BeH 2000-2014)

- Workers & firms matched – control for cyclical job up-/down-grading
- Wages of all workers pro-cyclical
- Support for cyclical match quality, **new hires no more sensitive to Unemp**



# Our data

Annual earnings, weeks worked in the HFCS, 2005-14

Link earnings from tax records to HFCS individuals (c. 10k individuals over 10 years) – the 'HFCS-Admin' dataset

We know: age, education, marital status, etc, occupation, sector, labour market history & region (8)

Strategy: identify 'new hires', 'job changers' and 'job stayers', test whether some groups are more sensitive to changes in regional unemployment.



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Pros – long panel, large sample, administrative data, spanning a strong cycle

Cons – no hours (we address this in robustness checks where we look at EU-SILC as an alternative)

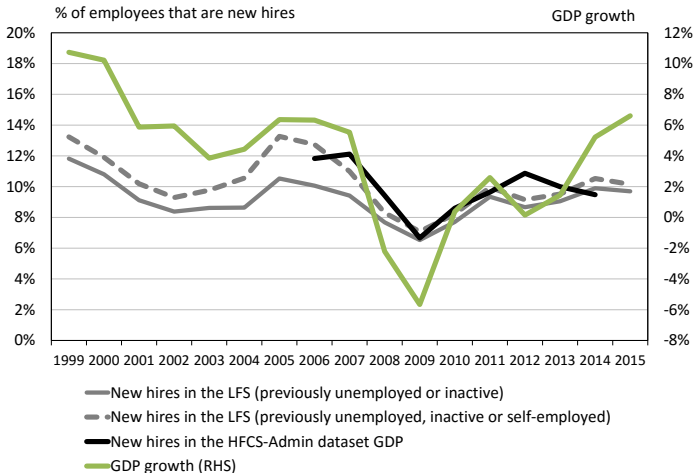


Table 1: Earnings observations in the HFCS-Admin dataset

	Male	Female	Total	Total (Ex-public sector)
2005	2,267	2,166	4,433	3,758
2006	2,320	2,276	4,596	3,906
2007	2,461	2,343	4,804	4,070
2008	2,487	2,370	4,857	4,112
2009	2,393	2,246	4,639	3,905
2010	2,366	2,174	4,540	3,796
2011	2,385	2,140	4,525	3,771
2012	2,427	2,217	4,644	3,875
2013	2,478	2,271	4,749	3,979
2014	2,454	2,328	4,782	4,027
2006-2014	21,771	20,365	42,136	35,441

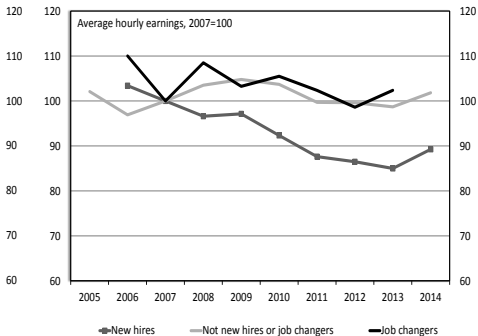
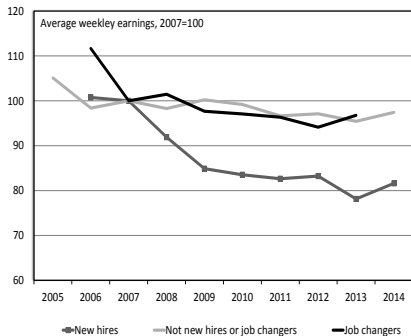


# Trends 1: New hires as % of all workers over time





## Trends 2: Weekly & hourly earnings



Source: HFCS-Admin



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# Regressions – Wage equation

e.g. Bils (1985), GHT (2015), Topel & Ward (1992), Barlevy (2001, 2002), Martins et al. (2012)

$$\begin{aligned}w_{it} = & x'_{it}\beta_x + \beta_u u_t \\ & + \beta_{newU} \cdot newU_{it} + \beta_{newU,u} \cdot newU_{it} \cdot u_t \\ & + \beta_{newE} \cdot newE_{it} + \beta_{newE,u} \cdot newE_{it} \cdot u_t \\ & + \alpha_i + \eta_{it},\end{aligned}\tag{1}$$

$newU_{it} = 1$  if 'new hire' (from unemployment or inactivity)

$newE_{it} = 1$  if 'job changer'

$u_t =$  regional (8) unemployment rate

What to expect?  $\beta_{newU,u} < \beta_{newE,u} \leq 0$



# Results from fixed effects specification

Table 2: Unemployment and the earnings of new hires

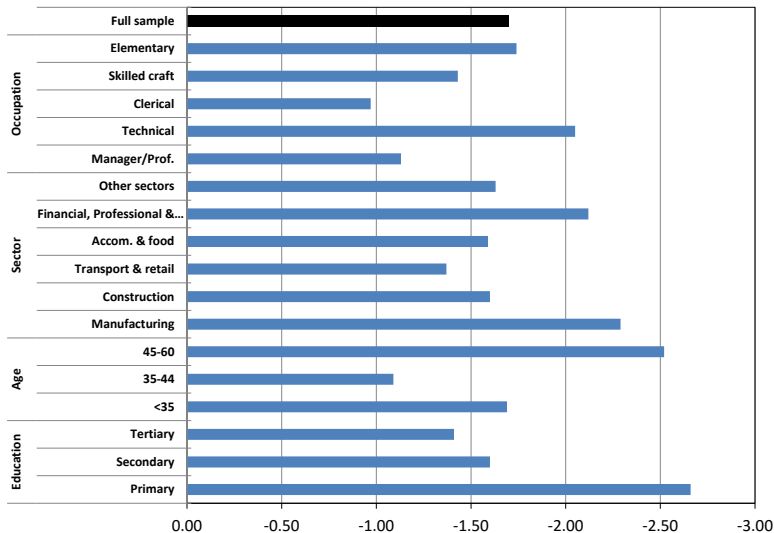
	(1)	(2)	(3)
	Fixed effects	Fixed effects	Fixed effects (X-public sector)
Unemployment ( $\beta_u$ )	-0.376*** (0.0688)	-0.376*** (0.0687)	-0.464*** (0.0791)
Newhire #Unemp ( $\beta_{new,u}$ )	-0.703*** (0.130)		
Newhire, U #Unemp ( $\beta_{newU,u}$ )		-1.178*** (0.156)	-1.282*** (0.1696)
Newhire, E #Unemp ( $\beta_{newE,u}$ )		0.0421 (0.211)	0.0189 (0.2416)
Observations	42,136	42,136	35,441
Number of id	6,775	6,775	5,968
Semi-elasticity (U, newhires)	1.08	1.55	1.75
R-squared	0.188	0.190	0.22

Standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Notes: Controlling for age, age-squared, weeks worked.



# Semi-elasticities for specific groups, new hires only



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# Robustness (1) – lab. market history, match quality

## Other explanations ...

- Hagedorn & Manovskii (HM, 2013) – cyclical variation in job match quality
  - ▶ Include proxies for number of job offers received during jobs spells
  - ▶  $q^{HM}$  summarises the number of 'job offers' received during the current employment spell
  - ▶  $q^{EH}$  measures the number of 'job offers' received in previous jobs
  - ▶ Proxy for 'job offer'?  $E_{t,s}/U_{t,s}$  ( $s$ =sector)
  - ▶ HM use  $V_{t,s}/U_{t,s}$ , but sector vacancy data only available since 2008 in Ireland
- Beaudry & DiNardo (1991) – history matters (implicit contract)
  - ▶ Immobile workers  $\implies$  labour mkt conditions at start of spell matter ( $u_{begin}$ )
  - ▶ Mobile workers  $\implies$  'best' labour mkt conditions in current spell matter ( $u_{min}$ )



# Results

	(1)	(2)	(3)	(4)
Dependent variable is the log of weekly earnings.				
Unemployment ( $\beta_u$ )	-0.551*** (0.0811)	-0.583*** (0.0812)	-0.565*** (0.0813)	-0.609*** (0.0813)
$U_{min}$	-1.753*** (0.135)		-1.899*** (0.145)	
$U_{begin}$		-1.185*** (0.104)		-1.297*** (0.111)
$Log(q^{HM})$			0.0325*** (0.00944)	0.0430*** (0.00928)
$Log(q^{EH})$			0.553*** (0.0441)	0.565*** (0.0443)
Newhire, U	-0.593***	-0.748***	-0.361**	-0.489***
#Unemp ( $\beta_{newU,u}$ )	(0.174)	(0.173)	(0.175)	(0.174)
Newhire, E	0.123	0.104	0.0727	0.0700
#Unemp ( $\beta_{newE,u}$ )	(0.0897)	(0.0908)	(0.0896)	(0.0906)
Semi-elasticity (U, newhires)	1.14	1.33	0.93	1.11



## Robustness (2) – composition bias

The key result – that new hires' earnings are more sensitive – could be sensitive to compositional shifts, e.g.

- Emigration and the 'brain drain', share of third level graduates in new hires falls over time (Glynn et al., 2013)
- First-difference spec – as in Devereux (2001), amongst others – not possible with new hires **because no  $w_{t-1}$**
- Solution (based on GHT, 2015):  $\log \hat{w}_{gt} = \log w_{gt} - (x_{gt} - \bar{x}_g)' \beta$
- $\Delta \log \hat{w}_{gjt} = \alpha_g + \gamma \Delta \log u_{gjt} + \epsilon_{jt}$
- The second stage involves estimating the first difference specification commonly used in the literature, only at the *group g* and, in our case, region *j* level



# Results from first-difference spec

Table 3: Response of earnings to unemployment changes

	First differences specification			
	First stage estimated as fixed effects model			
	(1)	(2)	(3)	(4)
	All workers	Incumbents	Job Changers	New hires
$\Delta$ unemployment	-0.404*** (0.185)	-0.259 (0.206)	-2.190 (1.570)	-1.800*** (0.772)
Observations	32,264	32,264	32,264	32,264

Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Observations refer to the number of employees in the first stage.





# Other robustness checks

## Hourly pay

- Use EU-SILC 1994-2015
- Fixed effects ✓
- Differences ✓
- Sensitivity to length of unemployment spell ✓

## Hagedorn and Manovskii (2013)

- Also estimate a “change in starting wage” spec
- For workers with multiple spells
- We test this on subsample of new hires from unemployment with more than one spell (N=507)
- Semi-elasticity of -1.926 (\*\*) ✓



# Conclusion

New hires' pay more sensitive than incumbents or changers to unemployment

Result holds after controlling for (proxy) for quality of job match

Outside options matter – older and less educated workers even *more* sensitive to U.

Labour market dynamics over the recession:

- By 2014, we estimate that almost a fifth of workers were new hires during the recession
- Is it bargaining or weaker outside options?
- Empirically difficult to differentiate.

