

# **Employment and Wage Insurance within Firms**



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# Research questions

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- Why insurance “within firms”?
- What determines the “amount” of employment insurance provided within firms?
  - Supply: family-firms vs. non-family firms
  - Demand: social provision of unemployment insurance
- Wage insurance: a different story?
- Is firms’ unemployment insurance priced?
- Has its “amount” changed over time, and if so why?
- Note: based on joint work with A. Ellul and F. Schivardi

# Why “insurance within firms”?

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- The idea that **firms provide insurance to workers** goes back to Knight (1921): “the confident and venturesome assume the risk and insure the doubtful and timid by guaranteeing to the latter a specified income”
- Formalized by the **implicit contract** model of Baily (1974) and Azariadis (1975): **risk-neutral entrepreneurs** provide insurance to **risk-averse workers** by insulating their salaries from adverse shocks to production
- Entrepreneurs’ ability to provide insurance to workers depends crucially on their superior **access to financial markets**: they can diversify idiosyncratic risk to insure workers (Berk and Walden, 2013)
- **Why “implicit”?**
  - Incomplete contracting, impossible to involve future parties (e.g. raider)
  - Easier to renegotiate (if a shock makes previous contract inefficient)

# How much insurance within the firm?

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- Look at factors that can affect the **supply** of insurance by firms and the **demand** for insurance by workers
- **Supply side:**
  - Different ability to commit (family vs. non-family firms)
  - Access to capital markets (distressed vs. non-distressed firms)
- **Demand side :**
  - Public unemployment insurance lowers the need for insurance within the firm (high vs. low unemployment subsidy)

# Supply side – 1: commitment ability

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- Implicit contracts must be self-enforcing: firm must be willing to stick to its pledge when hit by adverse shocks
  - **Supply-side** determinant: **firm's ability to commit**
  - **Family firms** more able to commit than **non-family** ones:
    - long-term ownership and control: “dynasty's name” is at stake
    - immunity to hostile takeovers: no raider can breach contract
- ⇒ Unless threatened by financial distress, family firms should
- offer **more stable employment and wages** to their employees
  - earn an “insurance premium” = **pay lower wages**, other things equal

# Supply side – 2: efficient renegotiation

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- Family firms also feature more “paternalistic”, less confrontational labor relations:
    - long-term relationship  $\Rightarrow$  more trustworthy when reporting bad news to workers
  - So they **can persuade employees** to take wage cuts in the presence of adverse shocks and avoid inefficient firings
- $\Rightarrow$  Offer **more stable employment** but **less stable** wages:
- “During the recession I offered my employees a deal: no firings in exchange of high effort and a salary freeze”* (Egidio Maschio, owner of Maschio Gaspardo, world leader in agricultural machinery)

# Anecdotal evidence on family firms

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- In the early 20<sup>th</sup> century at Endicott Johnson, shoe manufacturer in NY, new hires received a booklet stating “*You have now joined the Happy Family*”. To maintain the company’s welfare program during the Great Depression, the firm’s patriarch G. F. Johnson cut dividends, angering other stockholders (Mueller and Philippon, 2011)
- “*The family business in Warroad, Minnesota [...] didn’t lay off a single one of their four thousand employees during this recession, even when their competitors shut down dozens of plants, even when it meant the owners gave up some perks and pay*” (Obama, 2012)
- “*In 1976 I faced Gianni Agnelli with a drastic choice: here at FIAT we must lay off 25,000 employees, I told him. He thought about it for two days, then replied: it cannot be done. That reply contained the moral heritage of his grandfather*” (Carlo De Benedetti, former CEO of FIAT, 2013)

# Family vs. non-family: previous findings

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- Most previous evidence is based on French data
- In France, listed family firms provide more employment insurance to their employees than non-family ones:
  - in heir-managed firms' employment is less sensitive to industry sales shocks; they pay lower average wages and earn larger profits (Sraer and Thesmar, 2007, Bassanini et al. 2011)
  - family-promoted CEOs are associated with lower job turnover and less wage renegotiation (Bach and Serrano-Velarde, 2010)
  - family firms are less likely to face strikes and to have unionized workers, have fewer layoffs, sanctions and disputes ending in court (Müller and Philippon, 2007; Waxin, 2009)



# Demand side: insurance by State or market

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- Workers need **less** implicit insurance from their employers where and when:
  - social security provides **more** unemployment insurance (akin to Agarwal and Matsa (2013), who show that US firms take more risk in states that increase unemployment benefits)
  - labor market is **tighter** (unemployed easily find a new job)
- Both public unemployment insurance and labor market tightness vary greatly across countries and over time
- Such variation can be used to identify “demand shifts”

# Measuring public unemployment insurance

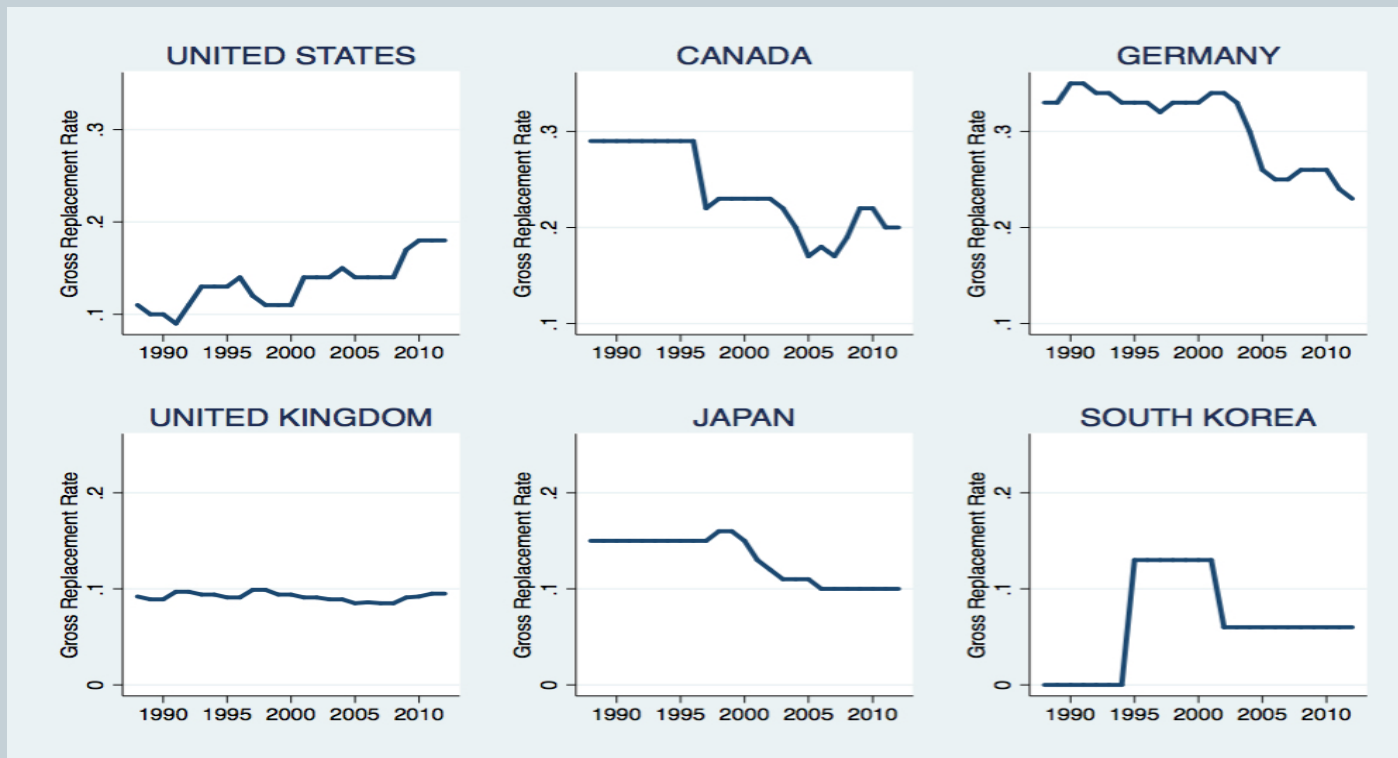
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- To measure country-level unemployment insurance provided by social security system (“unemployment security”), we rely on the **gross replacement rate**:
  - ratio of unemployment insurance benefits received by a worker in the first 2 years of unemployment to his/her last gross wage
  - measured yearly by identifying regulatory changes in various sources: ILO, OECD and national agencies, as in Aleksynska and Schindler (2011), suitably extended  $\Rightarrow$  time-varying!
- Alternative measure capturing only large and persistent changes in public insurance (“structural unemployment security”)

# Gross replacement rates: examples

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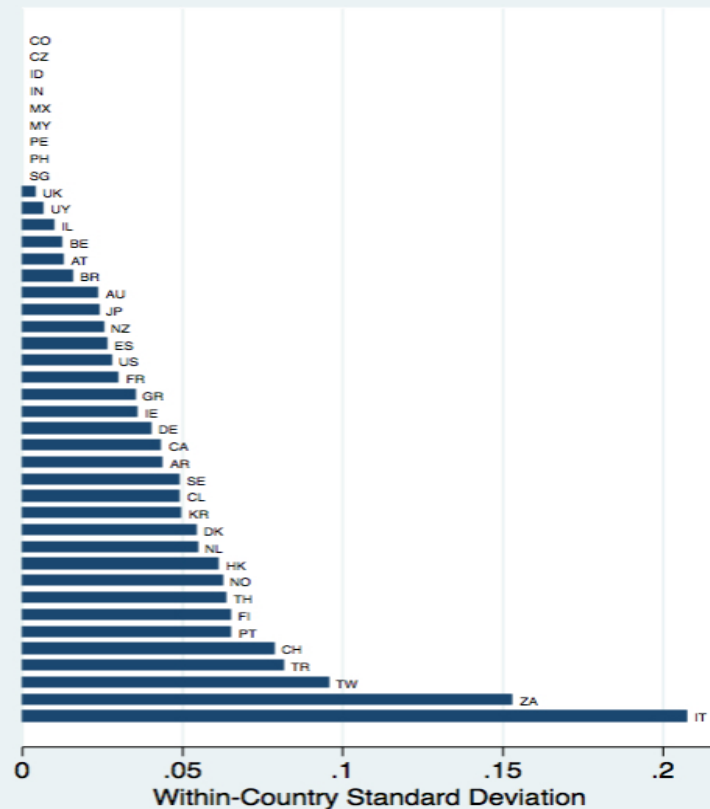
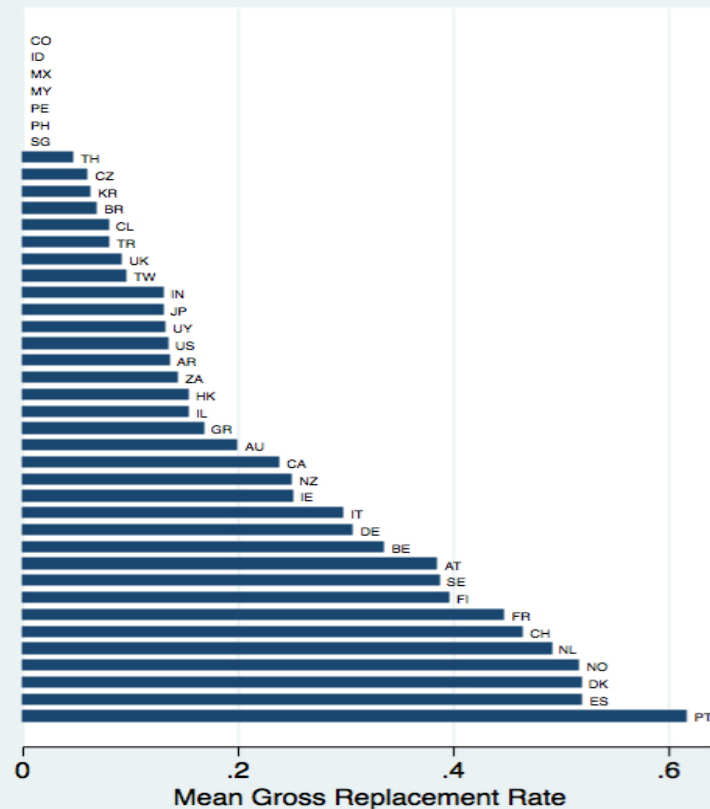
Gross replacement rates differ significantly across countries and over time



# Cross-country and time-series variation

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Gross replacement rates differ significantly across countries and over time



# Empirical methodology

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- Investigate whether firm-level employment and wages respond to sales shocks **differently**
  - in **family** and **non-family** firms
  - in countries with **high** vs. **low** public employment security
- **Diff -in-diff** strategy: do **family** firms give **less** insurance where there is **more** employment security?
- Distinguish between **different types of shocks** to sales:
  - **industry-** and **firm-level**
  - **negative** and **positive**
  - **transitory** and **persistent**
- Distinguish firms **far from distress** from those **close to distress**

# Firm-level international data

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- Financial and accounting data from 41 countries in 1988-2012 from Worldscope and Osiris for non-US firms, Compustat for US firms
- Use firms with **employment data** for at least 5 years: this screen reduces the sample to 7,710 firms , i.e. 115,827 firm-year observations
- **Wage data** is only available for 3,290 firms
- **Ownership data** from same sources used by Ellul, Pagano and Panunzi (2010) identifying a family as the firm's ultimate blockholder

# Employment growth regression

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- Baseline specification:

$$n_{it} = \beta_1 \varepsilon_{it} + \beta_2 \varepsilon_{it} F_{it} + \beta_3 \varepsilon_{it} S_{ct} + \beta_4 \varepsilon_{it} F_{it} S_{ct} + \beta_5 F_{it} + \beta_6 S_{ct} + \beta_7 F_{it} S_{ct} \\ + \gamma' X_{it-1} + \mu_{cj} + \mu_t + u_{it},$$

- $n_{it}$  = growth rate in the employment of firm  $i$  in year  $t$
- $\varepsilon_{it}$  = “shock”: unexpected change in sales of firm  $i$  in year  $t$  (residual from regression of sales on its lag,  $X_{it}$ , industry and country-time effects)
- $F_{it}$  = family-firm dummy: 1 if a family blockholder has at least 25% of cash flow rights and is present in the firm’s management, 0 otherwise
- $S_{ct}$  = replacement rate (measure of the effectiveness of the public employment insurance system) in country  $c$  and year  $t$
- $X_{it}$  = vector of company-specific variables
- $\mu_{cj}$  = country-industry effect
- $\mu_t$  = year effect, in some specifications replaced by  $\mu_{ct}$  = country-year

# Employment growth regression: estimates

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$\beta_1$  = "pass-through" coefficients

	(1)	(2)	(3)
<b>Idiosyncratic Shock</b>	<b>0.281***</b> (3.70)	<b>0.2580***</b> (3.27)	<b>0.301***</b> (3.25)
Family Firms	0.007* (1.71)	0.0051 (1.57)	-
<b>Idiosyncratic Shock × Family Firms</b>	<b>-0.271***</b> (-3.51)	<b>-0.213**</b> (-2.39)	<b>-0.261***</b> (-2.94)
Idiosyncratic Shock × Unemployment Security	0.083** (2.11)	0.061* (1.80)	0.070** (2.05)
<b>Idiosyncratic Shock × Family Firms × Unemployment Security</b>	<b>0.217***</b> (3.51)	<b>0.128***</b> (1.74)	<b>0.192***</b> (2.52)
Family Firms × Unemployment Security	0.016* (1.72)	-0.002 (-0.81)	
Unemployment Security	0.0202 (1.91)	-	-0.016* (1.80)
Control Variables	Yes	Yes	Yes
Fixed Effects	Country-Industry	Country-Time	Firm
Year Dummies	Yes	Yes	Yes
R <sup>2</sup>	0.16	0.24	0.26
Number of observations	115,827	115,827	115,827

$\beta_2$  = family-firm "offset"

$\beta_4$  = social security "amplification"

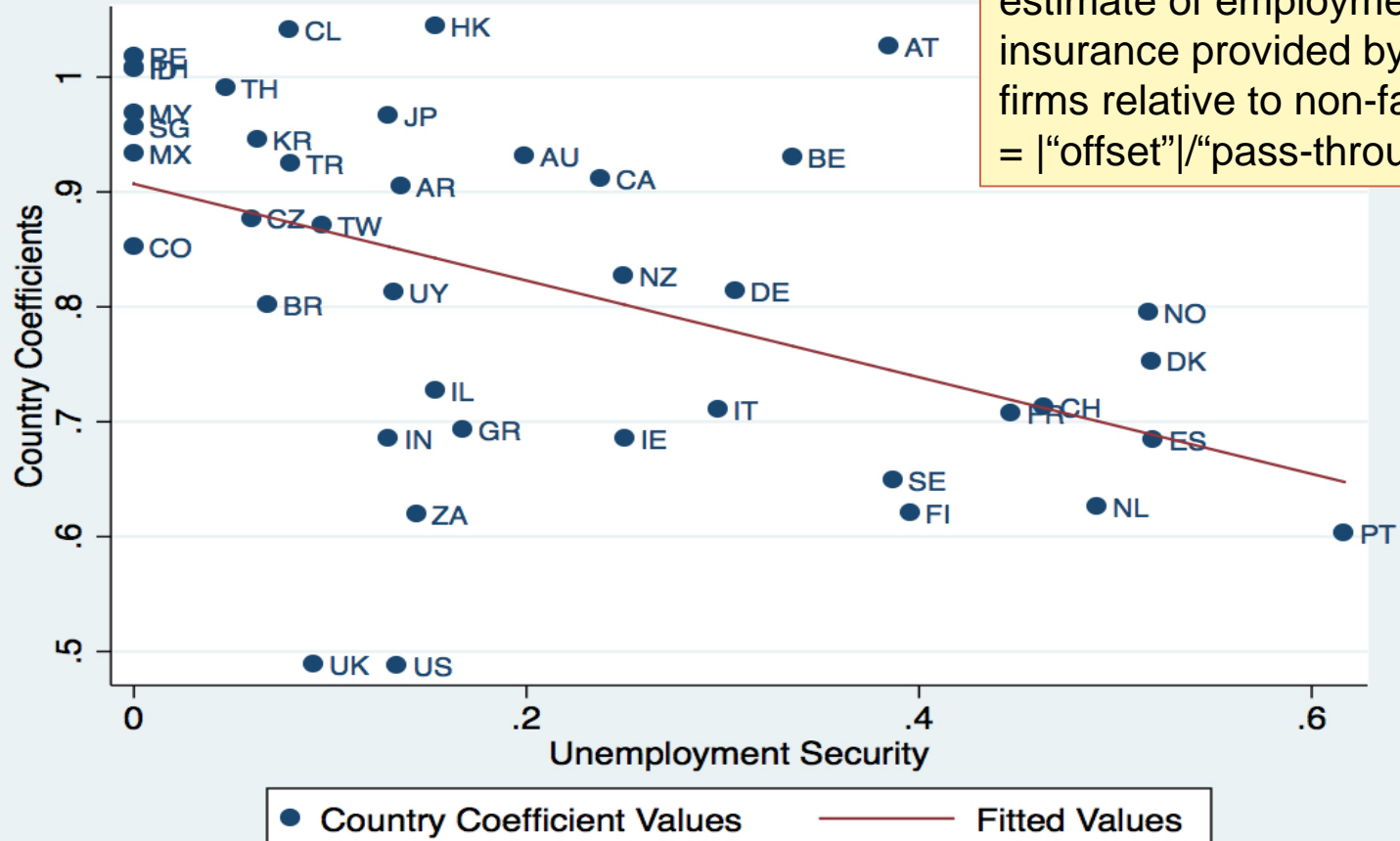
**Note:** interactions with market tightness not significant when included together with unempl. security



# Employment insurance in family firms and social security

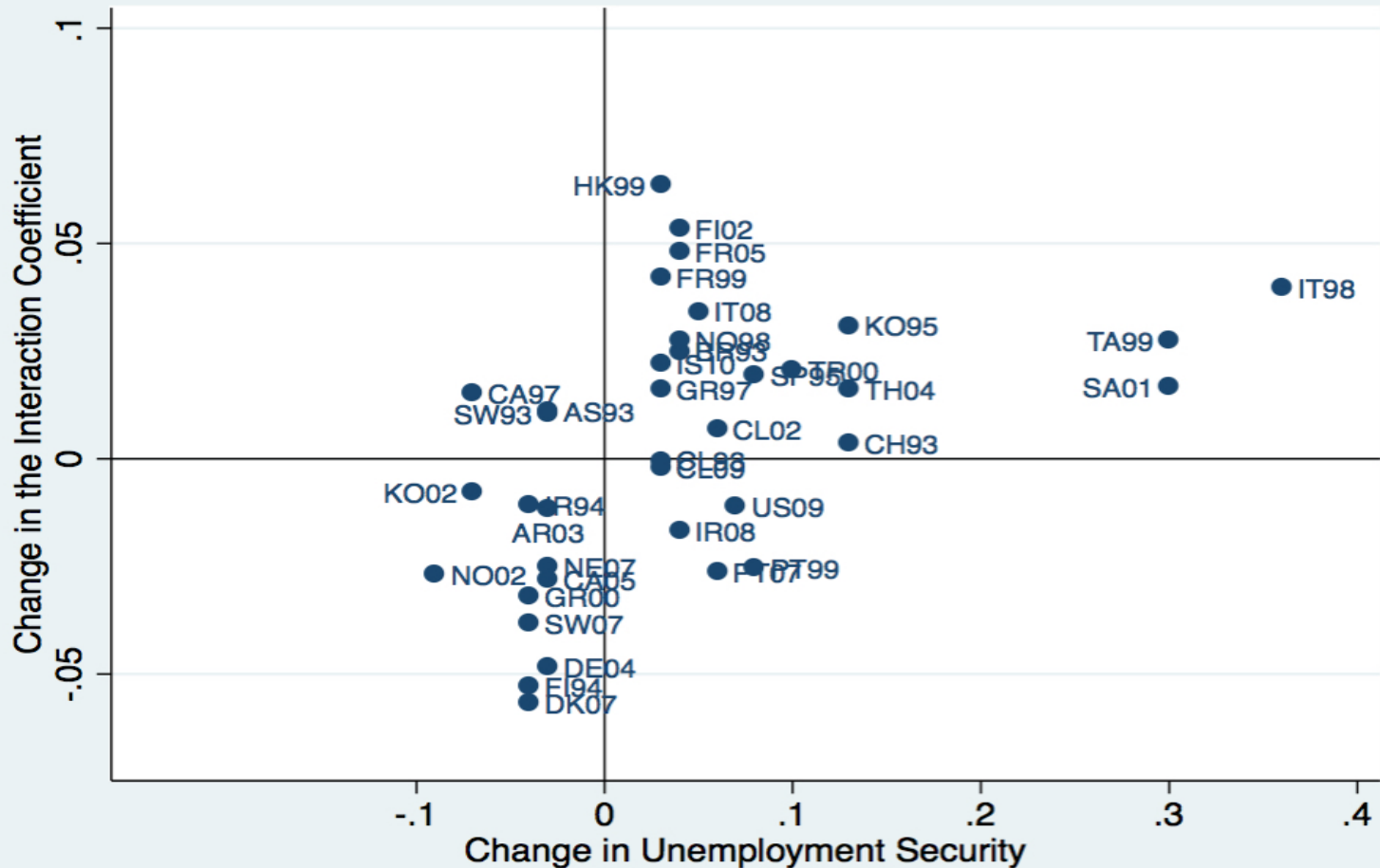
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Vertical axis: country-level estimate of employment insurance provided by family firms relative to non-family firms = |“offset”|/“pass-through”



# Change in “pass-through coefficient” after major changes in social security (increases in repl. rate)

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# Breakdowns of shocks and firms

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- Breakdown of shocks **by sign**: firms should insure employees mainly against **negative shocks** to sales
- Breakdown of shocks **by persistence**: firms should insure workers more against **transitory shocks** than persistent ones (Gamber, 1988)
- Breakdown of firms **by access to funding**: **non-distressed firms** should be able to offer more insurance to workers than distressed ones
- Moreover, the **difference between family and non-family firms** in insurance provision should emerge mainly for
  - negative shocks
  - transitory shocks
  - non-distressed firms

# Positive vs. negative, temporary vs. persistent shocks

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	Negative shock	Positive shock	Transitory shock	Persistent shock
<b>Shock</b>	<b>0.310***</b> <b>(2.99)</b>	<b>0.165**</b> <b>(2.10)</b>	<b>0.186***</b> <b>(3.11)</b>	<b>0.267***</b> <b>(3.07)</b>
Family Firms	0.003 (0.82)	0.002 (0.67)	0.004 (0.97)	0.005 (1.05)
<b>Shock × Family Firms</b>	<b>-0.298***</b> <b>(-2.73)</b>	<b>-0.061</b> <b>(-1.59)</b>	<b>-0.205***</b> <b>(-2.96)</b>	<b>-0.098</b> <b>(-1.57)</b>
Shock × Unemployment Security	0.015 (1.37)	0.010 (0.80)	0.041 (1.12)	0.032 (1.27)
<b>Shock × Family Firms × Unemployment Security</b>	<b>0.1361***</b> <b>(2.84)</b>	<b>0.080*</b> <b>(1.87)</b>	<b>0.122**</b> <b>(2.50)</b>	<b>0.026</b> <b>(1.03)</b>
Family Firms × Unemployment Security	0.008 (1.31)	0.005 (0.84)	0.0095 (1.15)	0.0107 (1.20)
Unemployment Security	0.016 (1.38)	0.011 (0.92)	0.018* (1.70)	0.018 (1.49)
Control Variables	Yes	Yes	Yes	Yes
Fixed Effects	Country-Industry	Country-Industry	Country-Industry-Year	Country-Industry-Year
Year Dummies	Yes	Yes	No	No
R <sup>2</sup>	0.16	0.11	-	-
Number of observations	30,436	85,391	105,725	105,725

# Distressed firms vs. non-distressed firms

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	Top z-score quintile	Bottom z-score quintile
<b>Shock</b>	<b>0.2125***</b> <b>(3.93)</b>	<b>0.3009***</b> <b>(5.26)</b>
Family Firms	-0.0015 (-0.39)	0.0002 (0.20)
<b>Shock × Family Firms</b>	<b>-0.2418***</b> <b>(-4.04)</b>	<b>-0.0311</b> <b>(-0.74)</b>
Shock × Unemployment Security	0.0329* (1.85)	0.0524* (1.90)
<b>Shock × Family Firms × Unemployment Security</b>	<b>0.1380***</b> <b>(3.27)</b>	<b>-0.0215</b> <b>(-1.11)</b>
Family Firms × Unemployment Security	0.0067 (0.69)	0.0065 (0.87)
Unemployment Security	0.0211 (1.19)	0.0191 (1.21)
Control Variables	Yes	Yes
Fixed Effects	Country-Industry	Country-Industry
Year Dummies	Yes	Yes
R <sup>2</sup>	0.21	0.06
Number of observations	24,727	21,562

In distressed firms  
“pass-through” is  
larger...

... family-firm  
“offset” is  
absent ...

... and  
amplification  
due to social  
security is  
also absent

# Wage growth regression

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- **Baseline specification:**

$$w_{it} = \delta_1 \varepsilon_{it} + \delta_2 \varepsilon_{it} F_{it} + \delta_3 \varepsilon_{it} S_{ct} + \delta_4 \varepsilon_{it} F_{it} S_{ct} + \delta_5 F_{it} + \delta_6 S_{ct} + \delta_7 F_{it} S_{ct} \\ + \phi' X_{it-1} + \mu_{cj} + \mu_t + u_{it},$$

- $w_{it}$  = growth rate of the average real wage of firm  $i$  in year  $t$
- $\varepsilon_{it}$  = “shock”: same as above
- $F_{it}$  = family-firm dummy variable: 1 for family firms, 0 otherwise
- $S_{ct}$  = replacement rate (measure of the effectiveness of the public employment insurance system) in country  $c$  and year  $t$
- $X_{it}$  = vector of company-specific variables
- $\mu_{cj}$  = country-industry effect
- $\mu_t$  = year effect

# Wage growth regression: estimates

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	(1)	(2)
<b>Shock</b>	<b>0.063***</b> (3.52)	<b>0.068***</b> (3.61)
Family Firms	-0.007 (-1.57)	-
<b>Shock × Family Firms</b>	<b>0.042**</b> (2.65)	<b>0.032**</b> (2.47)
Shock × Unemployment Security	-0.025** (-2.26)	-0.027** (-1.78)
<b>Shock × Family Firms × Unemployment Security</b>	<b>0.038**</b> (2.34)	<b>0.025**</b> (2.11)
Family Firms × Unemployment Security	-0.009 (-1.18)	-0.008 (-1.91)
Unemployment Security	0.013 (1.20)	0.013 (1.23)
Control Variables	Yes	Yes
Fixed Effects	Country-Industry	Firm
Year Dummies	Yes	Yes
R <sup>2</sup>	0.14	0.20
Number of observations	40,280	40,280

**for wages,  
family-firm  
“amplification”  
instead of offset:  
more wage  
flexibility  
(renegotiation  
hypothesis)**

**... in exchange  
for more  
employment  
stability?**

# Is employment insurance within firms priced?

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	(1)	(2)	(3)
<b>Family Firms</b>	<b>-0.094***</b> <b>(-3.25)</b>	<b>-0.068**</b> <b>(-2.54)</b>	-
<b>Unemployment Security × Family Firms</b>	<b>0.005**</b> <b>(2.53)</b>	<b>0.005**</b> <b>(2.29)</b>	<b>0.006**</b> <b>(2.49)</b>
Unemployment Security	0.009 (0.91)	0.008 (0.91)	0.012 (1.24)
Firm Control Variables	No	Yes	Yes
Fixed Effects	Country- Industry	Country- Industry	Firm
Year Dummies	Yes	Yes	Yes
R <sup>2</sup>	0.09	0.11	0.16
Number of observations	40,280	40,280	40,280



# Has insurance within firms changed over time?

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Re-estimate a simpler variant of the employment growth regression with **time-varying “pass-through”**:

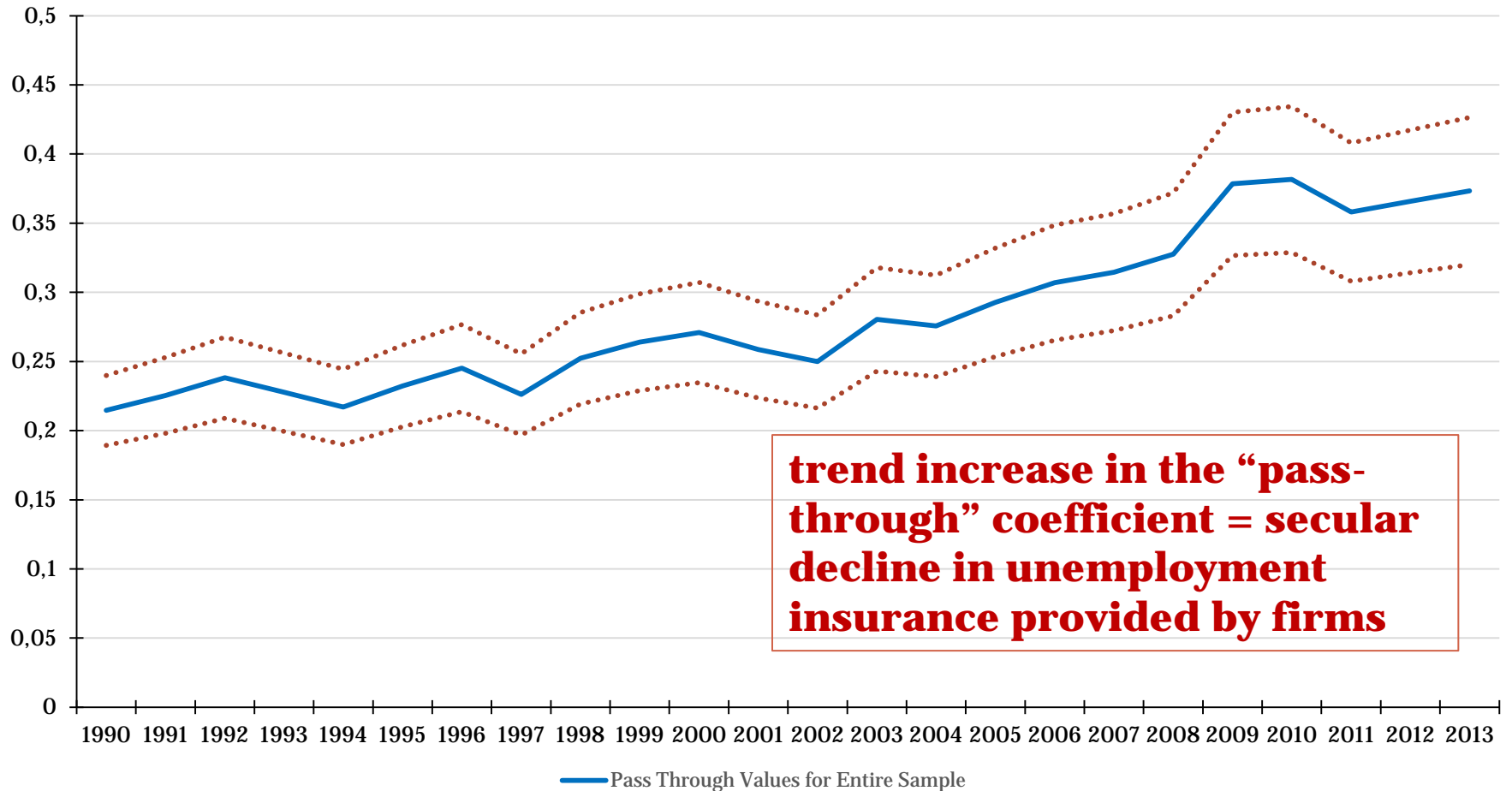
$$n_{it} = \beta_{1t} (\mu_t \times \varepsilon_{it}) + \gamma' X_{it-1} + \phi' Z_{it} + \mu_t + u_{it}$$

where

- $\beta_{1t}$  = “**pass-through coefficient**” in year  $t$ : the higher  $\beta_{1t}$ , the less employment insurance in that year
- $n_{it}$  = growth rate in the employment of firm  $i$  in year  $t$
- $\varepsilon_{it}$  = “shock”
- $X_{it}$  = company-level controls (size, RoA, asset tangibility, leverage)
- $Z_{ct}$  = country-level controls (GDP growth, unemployment, etc.)
- $\mu_t$  = year effect

# Estimated “pass-through” coefficient over time

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# Possible explanations

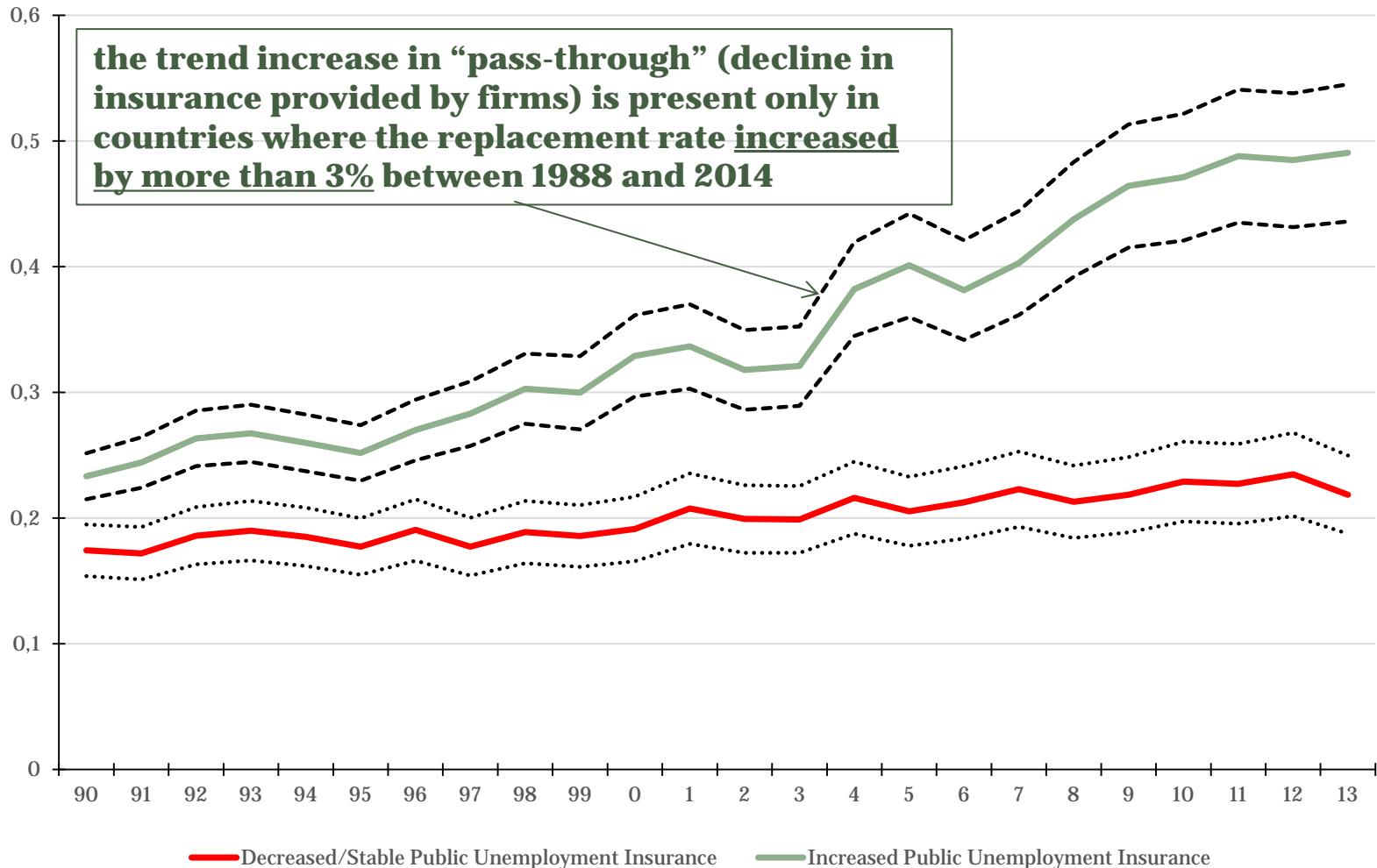
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1. Governments have provided **more public unemployment insurance**, consistently with the “substitutability relationship” documented above
2. Firms have become **less solid financially** (e.g. due to global competition and/or more frequent financial crises), hence had to cut back on implicit employment insurance, consistently with the evidence on distressed firms shown above
3. There has been a **widespread reduction in the degree of employee protection and in the power of the trade unions**, so that firms could vary employment more freely

Of these three explanations, the last is the only one that deviates from a risk-sharing rationale for employment stability.

# Is it more public unemployment insurance?

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## ... or crises limiting risk sharing within firms?

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- Define a “crisis period” as financial crisis year plus the subsequent year (to capture the persistence of the disruption in access to funding for firms)
- Regress employment growth on the shock and on an interaction between the shock and the “crisis period” dummy
- Non-crisis-period pass-through coefficient = 0.27
- Crisis-period pass-through coefficient = 0.33
- Statistically significant difference at the 10% level
- Consistent with the idea that the reduction in firm employment insurance is (also) due to financial crises limiting access of firms to external finance

# Conclusions

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- The protection of employees against **employment** shocks varies both **across firms and over time**
- It is greater in **family** firms, especially
  - if shocks are negative and transitory
  - the firm is financially solid rather than close to distress
  - in countries with **low employment security**
- **Family** firms offer **less wage insurance** than non-family firms
- Insurance is **priced** in wages, and the “premium” is larger in countries with **low employment security**
- Employment insurance within firms features a trend decrease, especially in countries that increased public unemployment insurance