The role of institutions and firm heterogeneity for labor market adjustment: cross-country firm-level evidence

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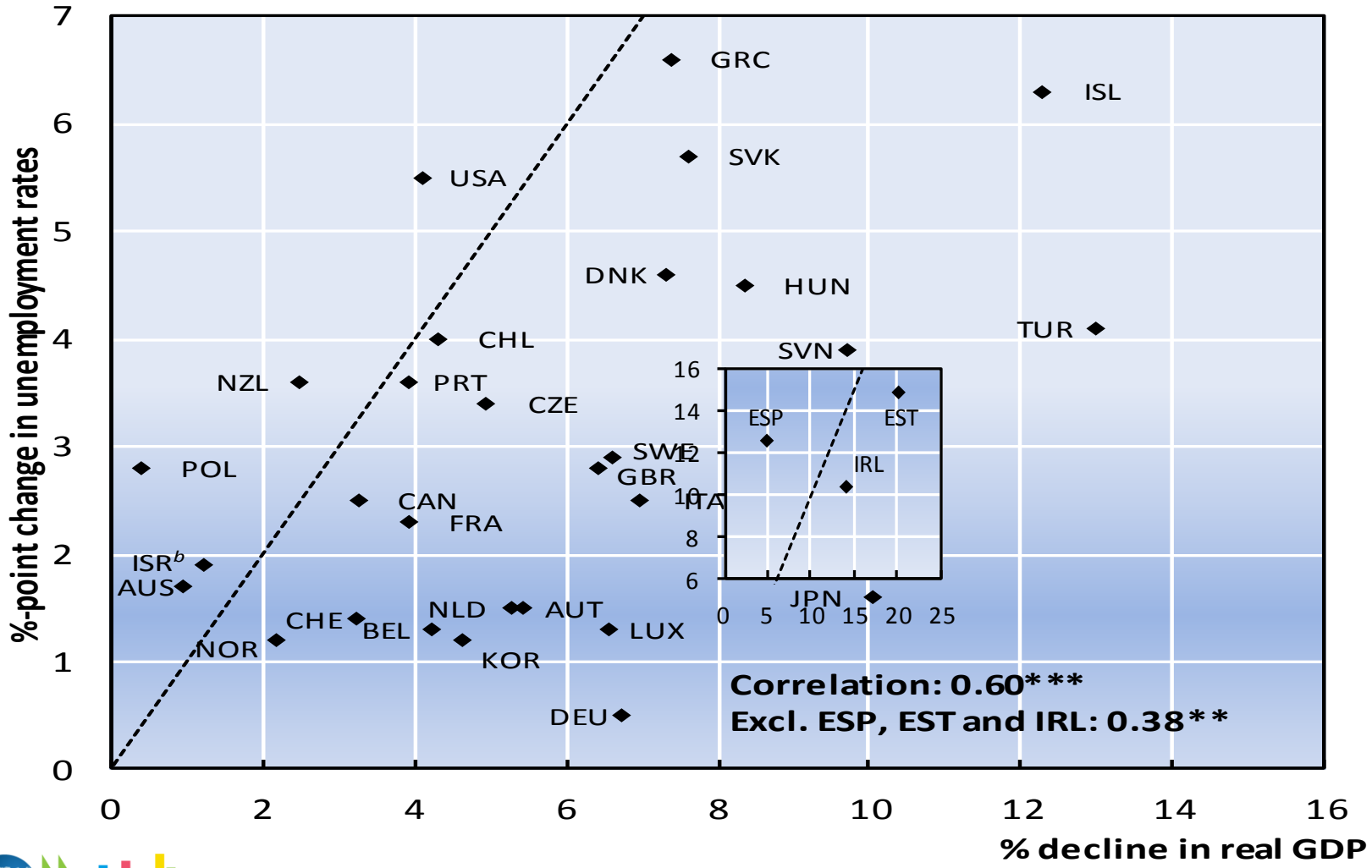
Large differences in the unemployment response to the Great Recession



Source: OECD Employment Outlook 2011.

Stylized facts

- **Large cross-country differences**
- **Why? Differences in**
  - economic structure (structure heterogeneity)
  - distribution of shocks (shock heterogeneity)
  - labor adjustment (response heterogeneity)
- **Effect of insitutions**
  - Horizon of analysis
  - What measure to use

Earlier studies of institutions…

- Analyzed aggregate effects across countries (Bassanini and Duval, 2006; Duval et al., 2007; Bassanini, 2011)
- Firms' labor adjustment within a country (or a single firm across countries á la Lafontaine and Sivadasan (2009))
- Aggregation: (Caballero et al., 1993, 1997; Davis et al., 2006, 2011)
- Our contribution: firm-level information in a cross-country context

What we do

- Characterize cross-country variation in aggregate employment growth during the crisis in terms of impulse (shock) and response heterogeneity
- Analyze labor adjustment at the firm-level ("response heterogeneity")
  - Across different types of firms
  - According to different institutional settings
- Quantify the effect of different sources of response heterogeneity: institutional settings

How we do it

- Generate semi-aggregate dataset by firmsize, industry and country to capture response heterogeneity (output elasticities of labour input), structure heterogeneity (employment shares) and shock heterogeneity (output changes during crisis)

- Decompose the variation in the change in aggregate labour market outcomes between 2008-2009 into components that can be attributed to response, shock and structure heterogeneity
  - Take the contribution of response heterogeneity as an upper bound for the role of policies and institutions

- Assess directly the role of institutions for labour demand adjustment, after accounting for the role of shock and structure heterogeneity

Data

- (Harmonized) firm-level data from ORBIS/OECD - income statements & balance sheet accounts
  - 20 OECD countries, 1993-2009, market sector ex agriculture and finance
  - employment (E), sales (Y), wage bill (W), no info on hours or skills)
- Cells:
  - 3 firmsize groups: “small” (<20 E), “medium” (21-250), “large” (251<)
  - 3 industries: industry (mainly manuf.), services, construction

Stage 1 - labour demand elasticities

- Response heterogeneity: variation in the responsiveness of labour inputs to output shocks
  - *E.g.* is manufacturing more responsive in country A than country B?

- Stage 1: partial adjustment model of labour input demand for each cell using ORBIS:

$$l_{it} = \gamma l_{it-1} + \beta y_{it} + \eta_i + \varepsilon_{it},$$

- Two labour input types:
  - Extensive margin: employment
  - Intensive margin: earnings-per-worker (i.e. hours and wages)

Structure (w) and shock heterogeneity (Δlny): measuring employment shares and output changes

- Structure heterogeneity: differences in the share of various groups of firms in aggregate employment

- Employment shares are measured using information on the number of firms and mean employment in each cell
  - Information on the number of firms is obtained from SDBS (time-invariant)
  - Information on mean employment by industry from STAN and firmsize from ORBIS (time-varying)

- Shock heterogeneity: distribution of output shocks across groups of firms
  - *E.g.* did small firms experience larger output declines in country A than country B?

Variance decomposition

- Decompose cross-country variation in labour outcome changes between 2008 and 2009 into components that can be attributed to response, shock and structure heterogeneity

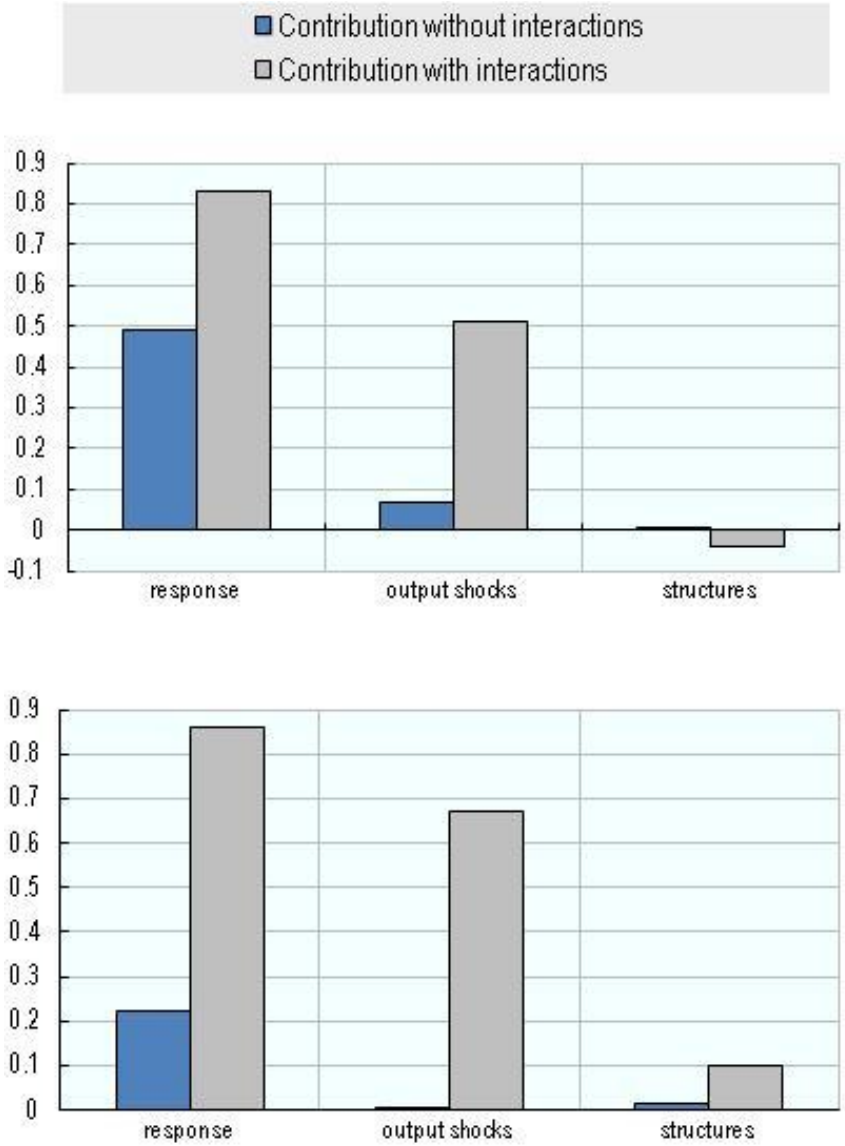
- The contribution of each component is calculated in two different ways:

  - **Switching off covariance:** set 2 of 3 dimensions at sample (cross country) average, ignore covariance with other two dimensions

  - **Sample covariance:** leave 2 dimensions at sample values

- why: highlights the role of distributions!

Decomposition of cross-country variation in labor input growth



Stage 2: effect of institutions

- Focus on within-country variation in institutions for identification
- Estimate output elasticities to maximize within-country variation in institutions
  - Exploit firmsize exemptions with regard to employment protection provisions for individual and collective dismissals

$$\ddot{\beta}_{cis} = \alpha_1 EPR_{cs} + \alpha_2 EPC_{cs} + \mu_c + \eta_i + \varepsilon_{cis},$$

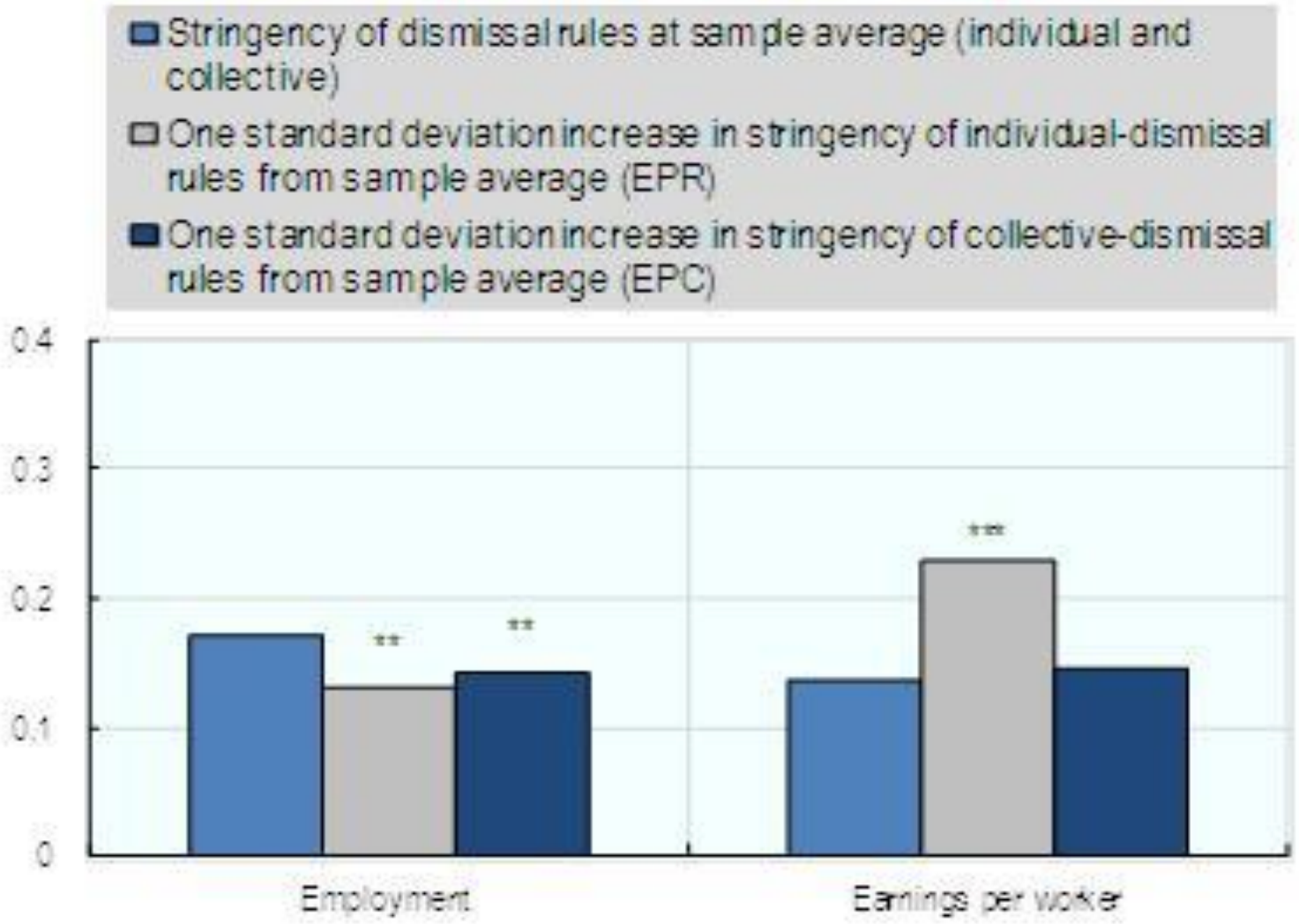
  - Incidence of temporary work

$$\hat{\beta}_{cis} = \alpha_1 TEMP_{cis} + \mu_k + \eta_c + \varepsilon_{kc}$$

Incidence of collective-bargaining coverage and by level of centralisation

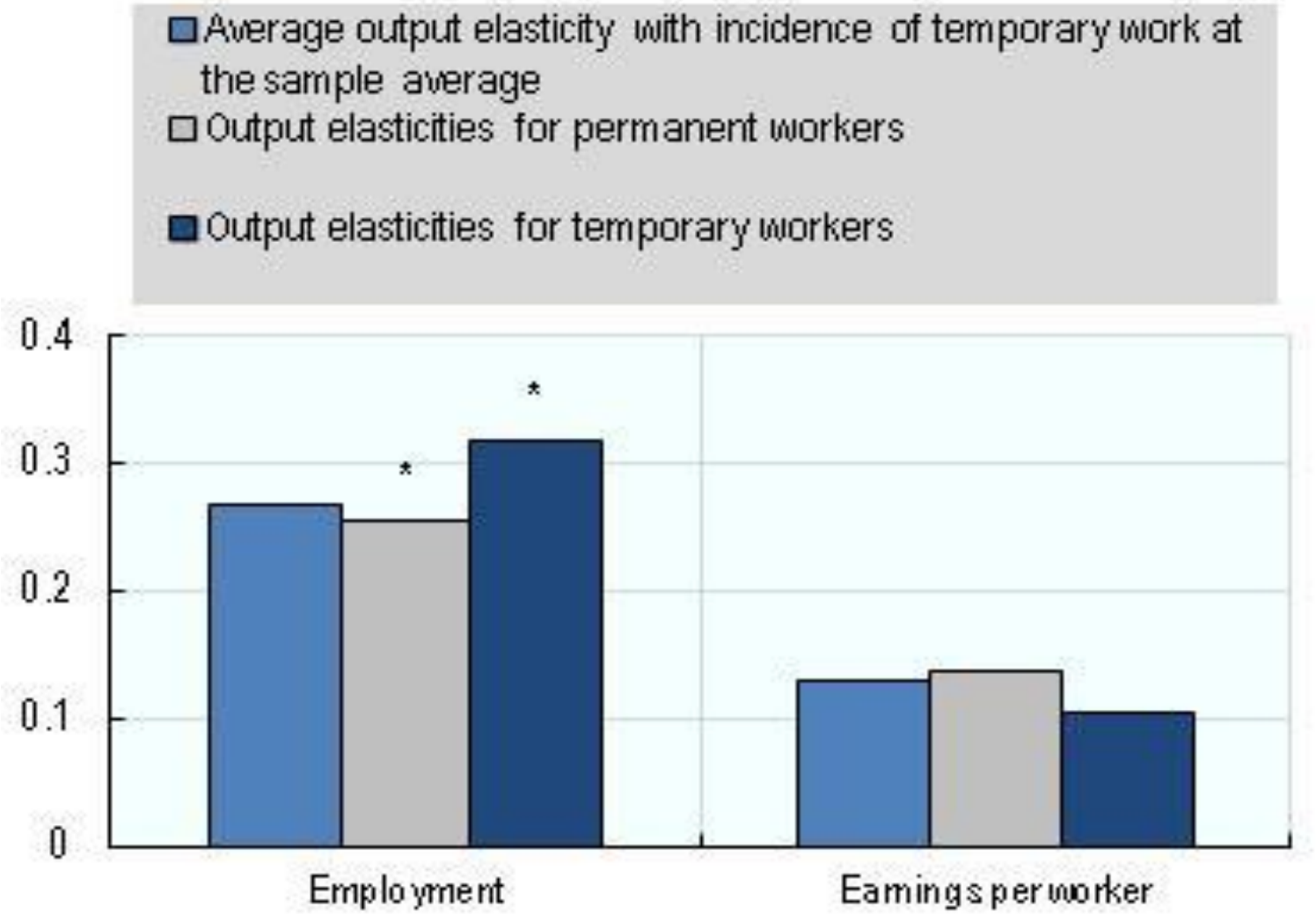
$$(10)\ \hat{\beta}_{cis} = (\alpha_1 + \alpha_2 D_{Group\ 1}) CWB_{cis}^{firm} + (\alpha_3 + \alpha_4 D_{Group\ 1}) CWB_{cis}^{higher} + \mu_c + \eta_{is} + \varepsilon_{kc}$$

EPL reduces responsiveness of employment but increases that of earnings-per-worker



*, **, ***: statistically significant at the 10%, 5% and 1% level, respectively.

Incidence of temporary work reduces responsiveness of employment but increases that of earnings-per-worker



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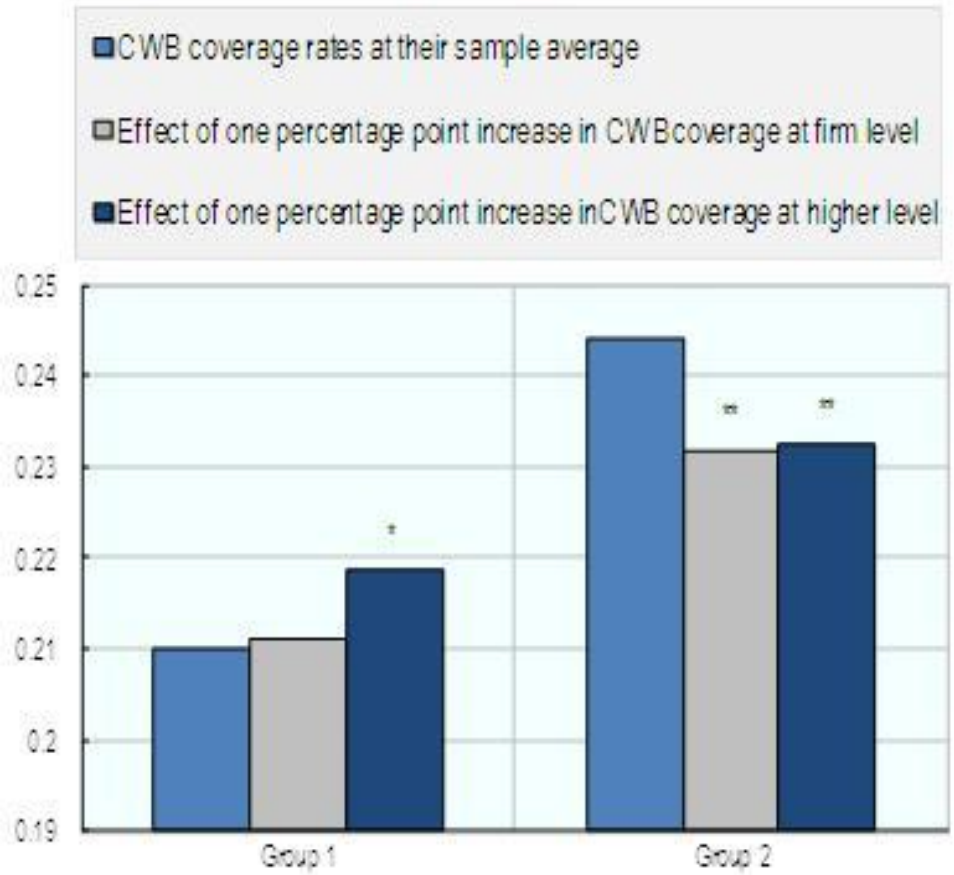
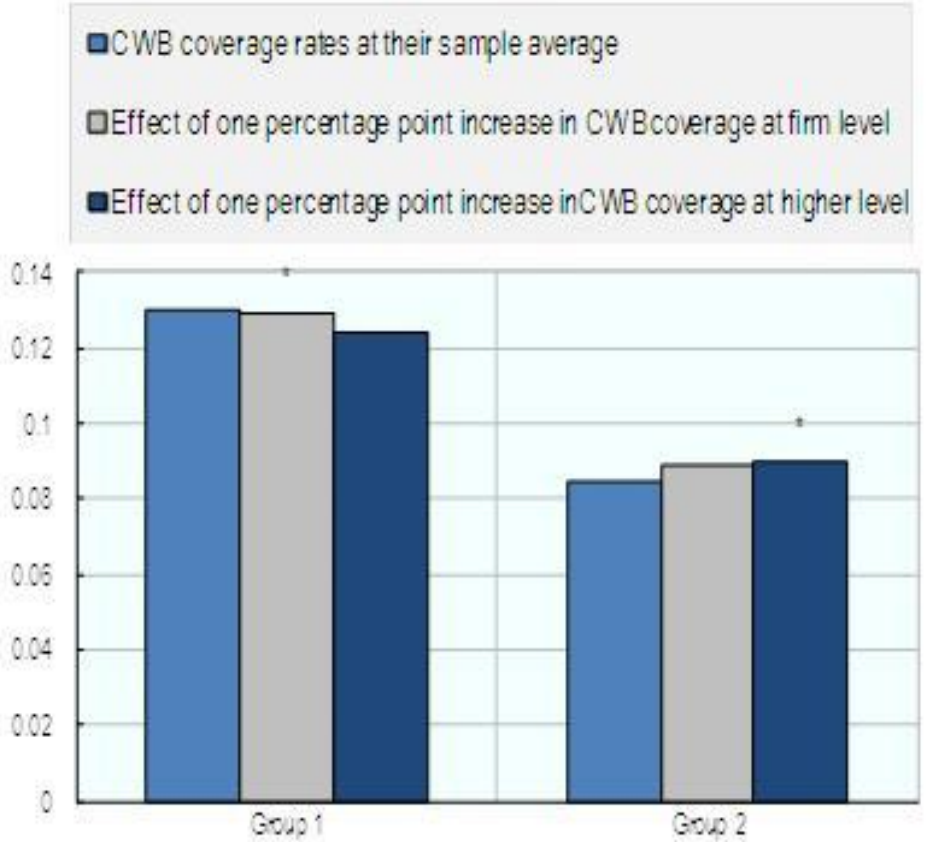
Effect of CWB coverage

Employment



Earnings per worker



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a) Group1: Estonia, Poland and the UK; Group 2: Belgium, France, Italy and Spain.

(Tentative) Conclusions

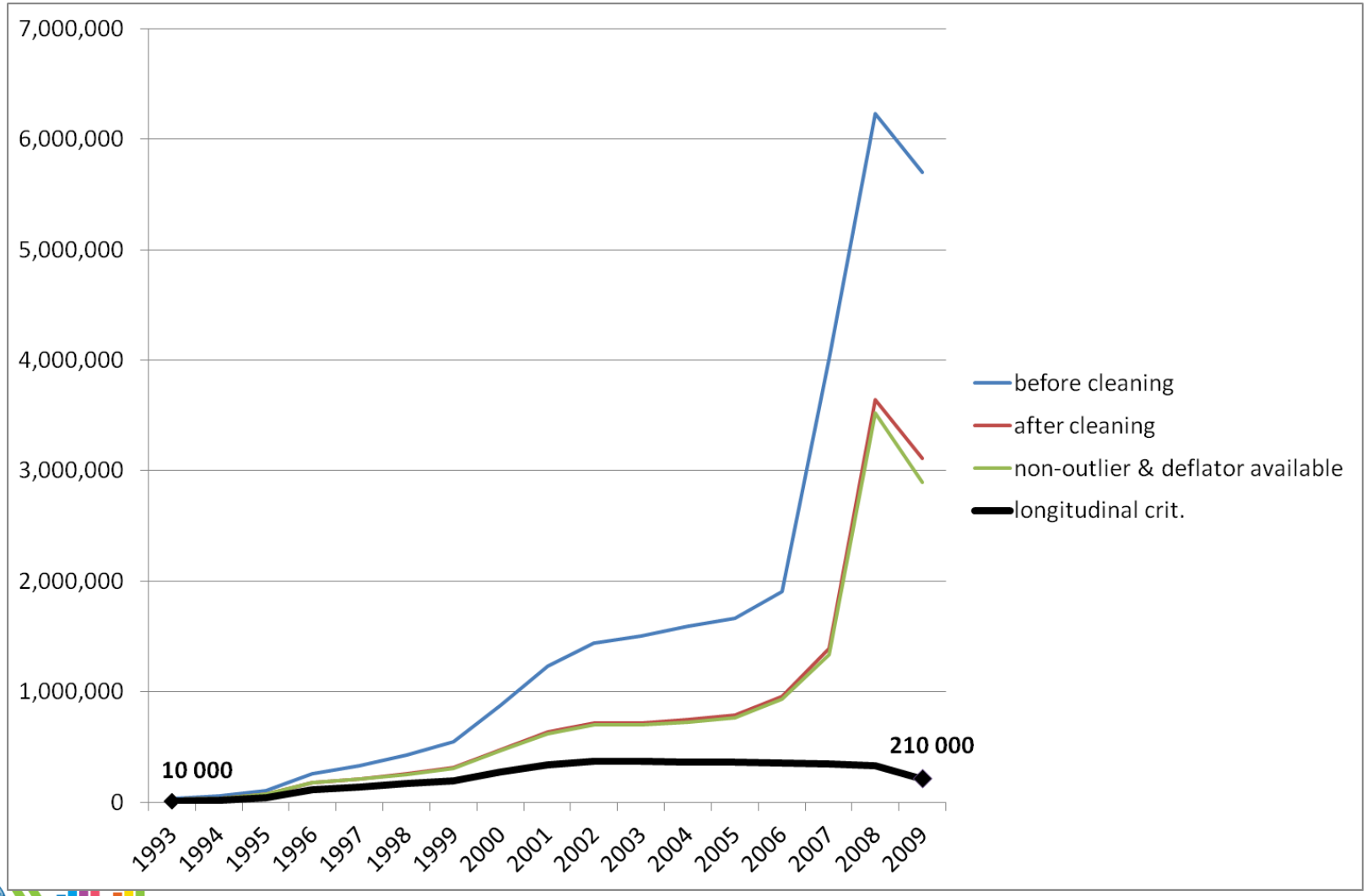
- During the crisis, response heterogeneity accounted for the bulk of the cross-country variation in labour market dynamics

- Differences in institutions matter for response heterogeneity
  - EPL influences the extensive and intensive margins (?how much?)
  - CWB: group 1 (RTM) and group 2 (EB) are different

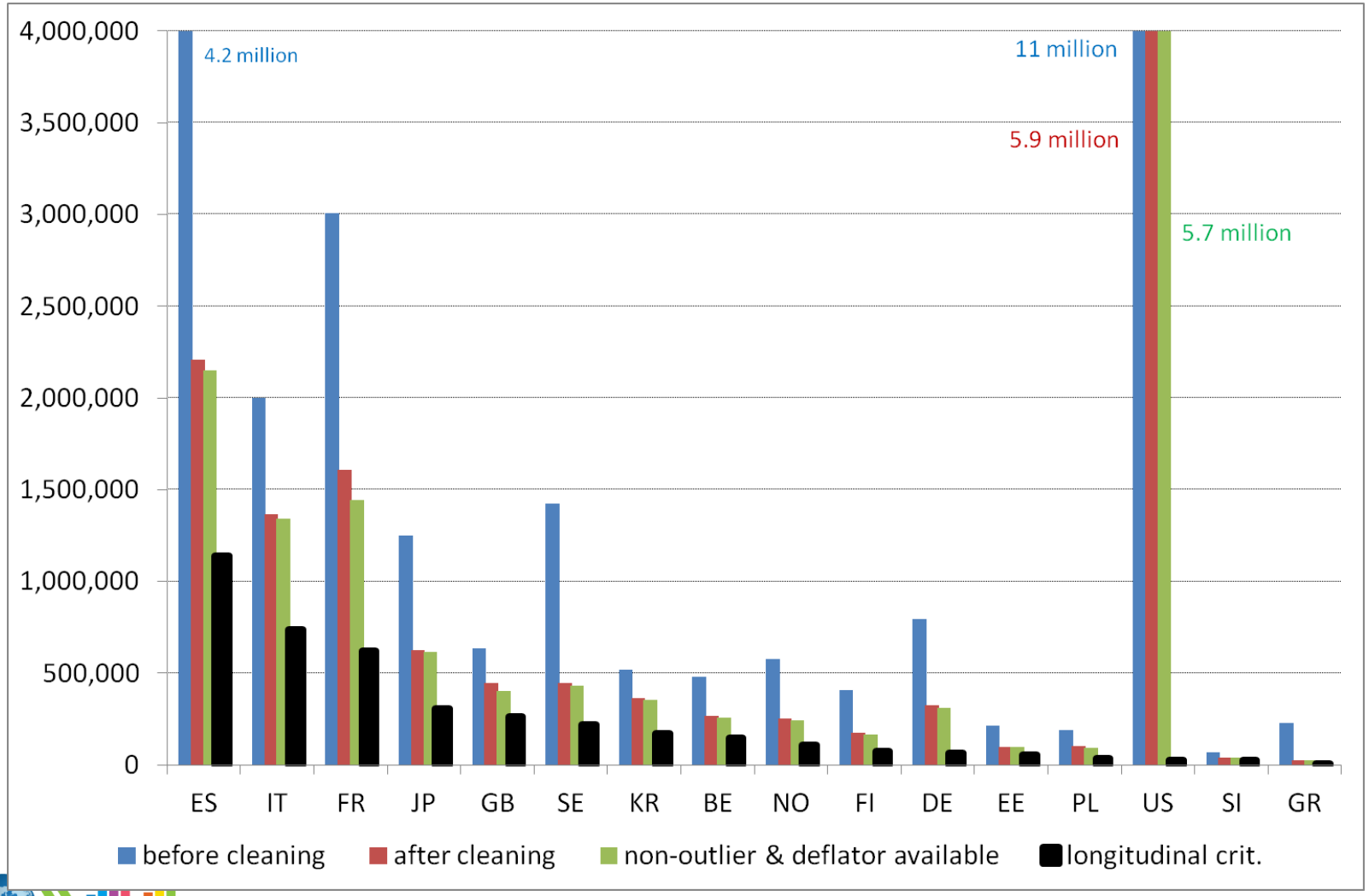
Coverage and representativeness

- Data on population: OECD's Structural and Demographic Business Statistics (SDBS)
- Average firm-population structure for the period 2006-09
  - Coverage within cells
  - Cell weights
- Implicit assumption: data is representative within cells (representative of behavior, not of firm-numbers!)

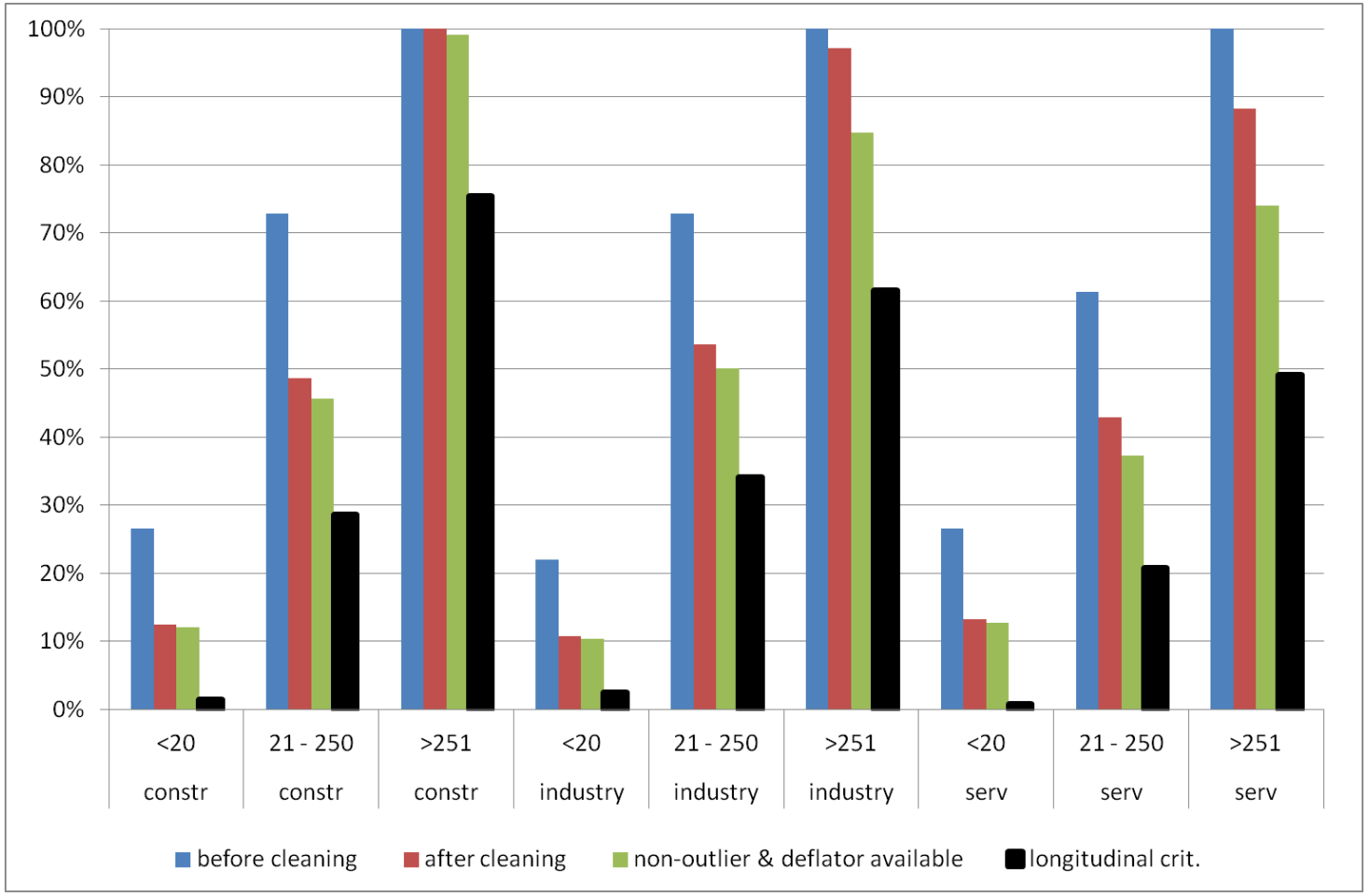
Observations over time and over data preparation steps



Number of observations per country over data preparation steps



Coverage by industry and firmsize cells



The ratio of the number of firms in ORBIS and SDBS, both averaged over the period 2006-09