



EUROPEAN CENTRAL BANK
EUROSYSTEM

**Directorate General Research
Competitiveness Research Network**

The CompNet database 2.0: Some preliminary results

CompNet workshop
13-14 March 2014, Rome

P. Lopez-Garcia, V. Demian, I. Schott and N. Benatti

Aims of the presentation

- Show the enormous potential of the new data
 - We show (very) few graphs, although covering all modules...not even 10% of what can be done!
- Discuss some of the problems encountered, and possible solutions
- Serve as an (inspiring, hopefully) introduction to the discussions within each research module to take place right afterwards
 - The coordinators of each of the research modules are:
Trade: Antoine Berthou and Emmanuel Dhyne
Finance: Annalisa Ferrando
Labour: Benedicta Marzinotto and Roberta Serafini
Mark-ups: Jose Manuel Montero, Catherine Fuss and Joao Amador

Thanks!!!!!!

Special thanks to Nico, Vlad, Immo and the excellent trainees from Bocconi for their amazing work

Thanks to Annalisa, Antoine, Emmanuel, Jose Manuel, Joao, Kamil, Carlo, Eric...and all co-authors of the codes

Thanks to Jaanika and Peter for running the pilot and co-suffering with us

Thanks to Filippo and Julia for their support

Thanks to all for your patience and understanding!!

Content of the presentation

1. The country samples
2. Productivity distributions
3. Exporting and non-exporting firms
4. Credit constrained firms
5. Employment transition matrices
6. Determinants of the capacity of firms to adjust their size
7. Discussion

Country samples – Full sample

Sample description

country	Average number of firms	Year coverage	Coverage vis-avis Eurostat			Percentage of high growth firms	Exporting status		Sector Coverage		
			Average number of firms	Labor	Turnover		Exporters	Non-exporters	Mining and quarrying	Manufacturing	Services
Belgium	118367	1996-2011	29%	72%	86%	0.9%	29%	71%	1 of 5	23 of 24	36 of 38
Estonia	24027	1995-2012	68%	77%	89%	1.6%			2 of 5	20 of 24	32 of 38
Finland	117558	2000-2011	28%	62%	57%				1 of 5	21 of 24	28 of 38
Germany	56560	1997-2011	2%	53%	71%				2 of 5	21 of 24	35 of 38
Portugal	236380	2006-2011	29%	75%	87%				1 of 5	22 of 24	36 of 38
Slovakia	5242	2000-2011	5%	66%	47%	4.7%	76%	24%	2 of 5	20 of 24	32 of 38
Slovenia	27637	1995-2012	28%	79%	74%	1.1%	49%	51%	1 of 5	22 of 24	33 of 38

Descriptive statistics

country	Firm size			Turnover in thousands			Labor costs in thousands			Real capital per labor (in thousands)		
	p10	p50	p90	p10	p50	p90	p10	p50	p90	p10	p50	p90
Belgium	0	3	20	107	540	5201	11	78	779	3	27	223
Estonia	1	4	25	11	103	1185	2	14	143	0	1	11
Finland	0	1	8	17	84	880	0	14	287	0	10	82
Germany	4	34	253	728	7318	63103	155	1340	11070	53	399	3745
Portugal	1	3	16	23	141	1359	6	32	232	0	5	40
Slovakia	17	50	247	221	1632	11822	88	375	2086	2	10	51
Slovenia	1	3	20	23	170	2047	8	31	322	1	5	36

Country samples – Restricted sample (20+ firms)

Sample description

country	Average number of firms per year	Year coverage	Coverage vis-avis Eurostat			Percentage of high growth firms	Exporting status		Sector Coverage			Overlapping years with Eurostat
			Firms	Labor	Turnover		Exporters	Non-exporters	Mining and quarrying	Manufacturing	Services	
Belgium	12324	2001-2011	40%			4%	68%	32%	1 of 5	21 of 24	29 of 38	2001-2011
Estonia	2964	2001-2011	43%	68%	71%	6%			1 of 5	16 of 24	17 of 38	2001-2011
Germany	36581	2001-2011	12%	61%	68%				5 of 5	24 of 24	35 of 38	2001-2011
Poland	30337	2005-2011	69%			5%	65%	35%	2 of 5	23 of 24	27 of 38	2005-2011
Slovakia	4801	2001-2011	36%	91%	76%	5%	79%	21%	2 of 5	20 of 24	20 of 38	2001-2009
Slovenia	2500	2001-2011	35%			5%	85%	15%	0 of 5	18 of 24	18 of 38	2001-2011

Descriptive Statistics

country	Firm size			Turnover in thousands			Labor costs in thousands			Real capital per labor (in thousands)		
	p10	p50	p90	p10	p50	p90	p10	p50	p90	p10	p50	p90
Belgium	22	37	154	2045	7445	50287	744	1575	7948	2	19	90
Estonia	21	38	142	403	1789	12396	117	341	1420	0	2	15
Germany	23	41	191	1695	7706	50221	585	1620	8110	68	318	581
Poland	23	46	207	730	2797	18709	562	1710	9315	1	12	71
Slovenia	25	51	244	439	1935	13391	156	440	2323	2	10	45
Slovakia	24	44	205	992	4072	24860	373	852	3870	1	11	45

Content of the presentation

1. The country samples

2. Productivity distributions

3. Exporting and non-exporting firms

4. Credit constrained firms

5. Employment transition matrices

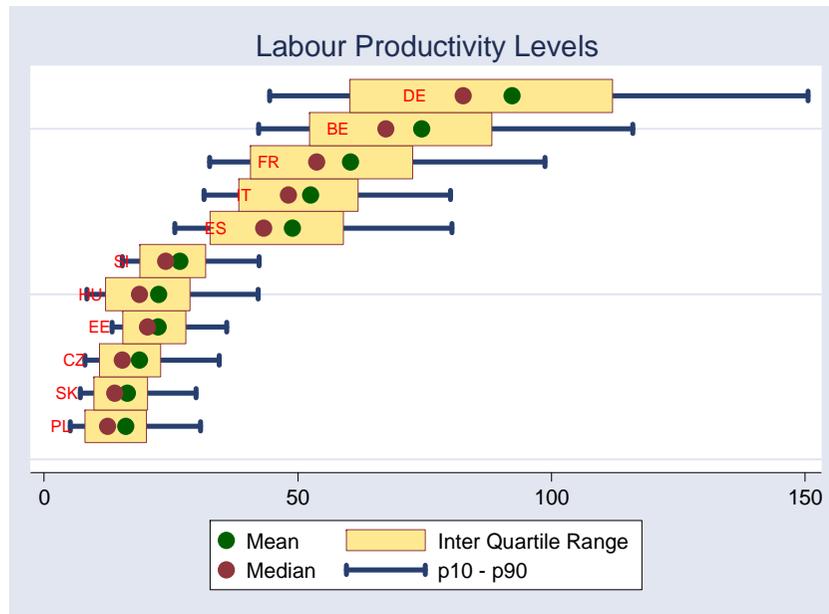
6. Determinants of the capacity of firms to adjust their size

7. Discussion

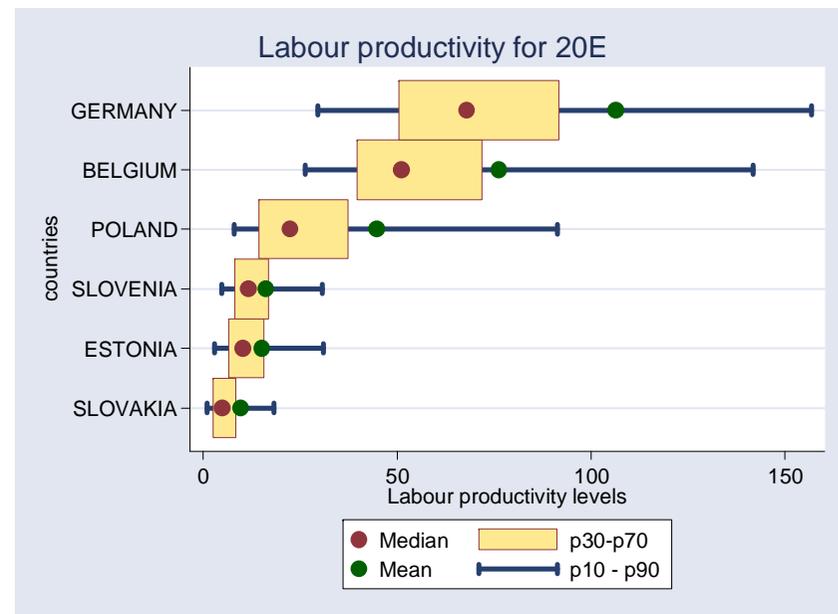
Productivity boxplots: Comparing previous and current data

- Productivity distributions in v1 and v2 of the database
 - Restricted sample
 - In v2 we apply population weights and PPPs
 - The productivity distribution in v2 is nation-wide (not sector average)
 - Note that box-plot in v2 drawn for p30-p70 (instead of p25-p75)
 - Different outlier treatment in v2

Database v1



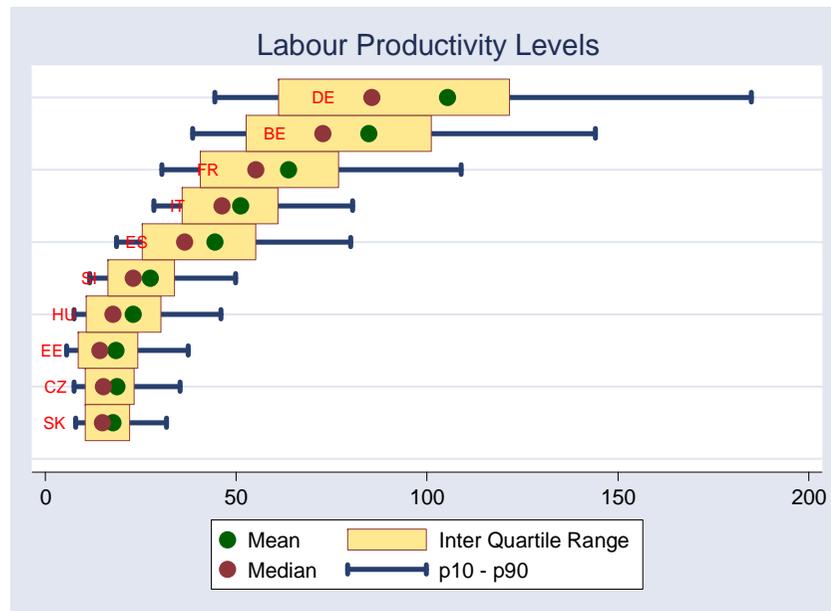
Database v2



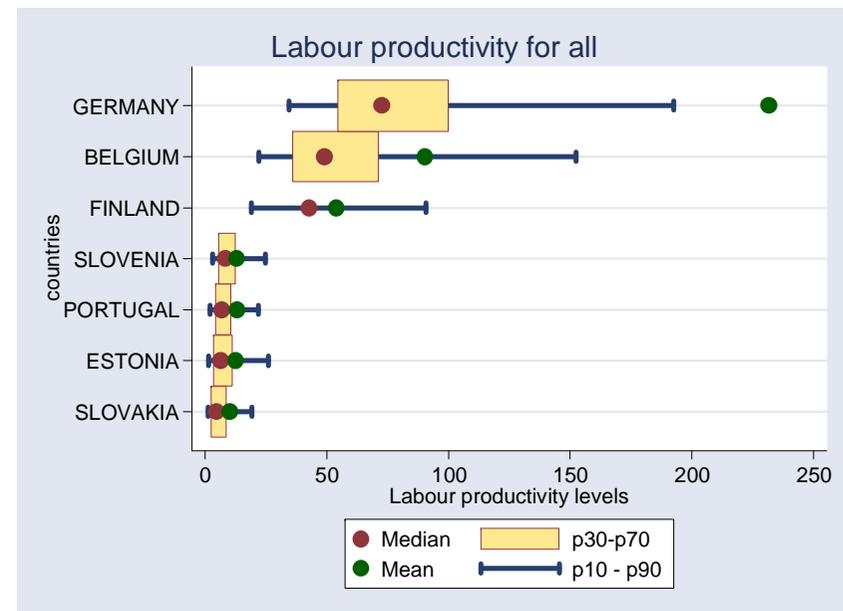
Productivity boxplots: Full sample of firms (I)

- In v2 we apply PPPs to the full sample, but NOT population weights
- Finland and Portugal are now included!
- Something strange with average productivity of smallest size classes in Germany...to be continued

Database v1



Database v2



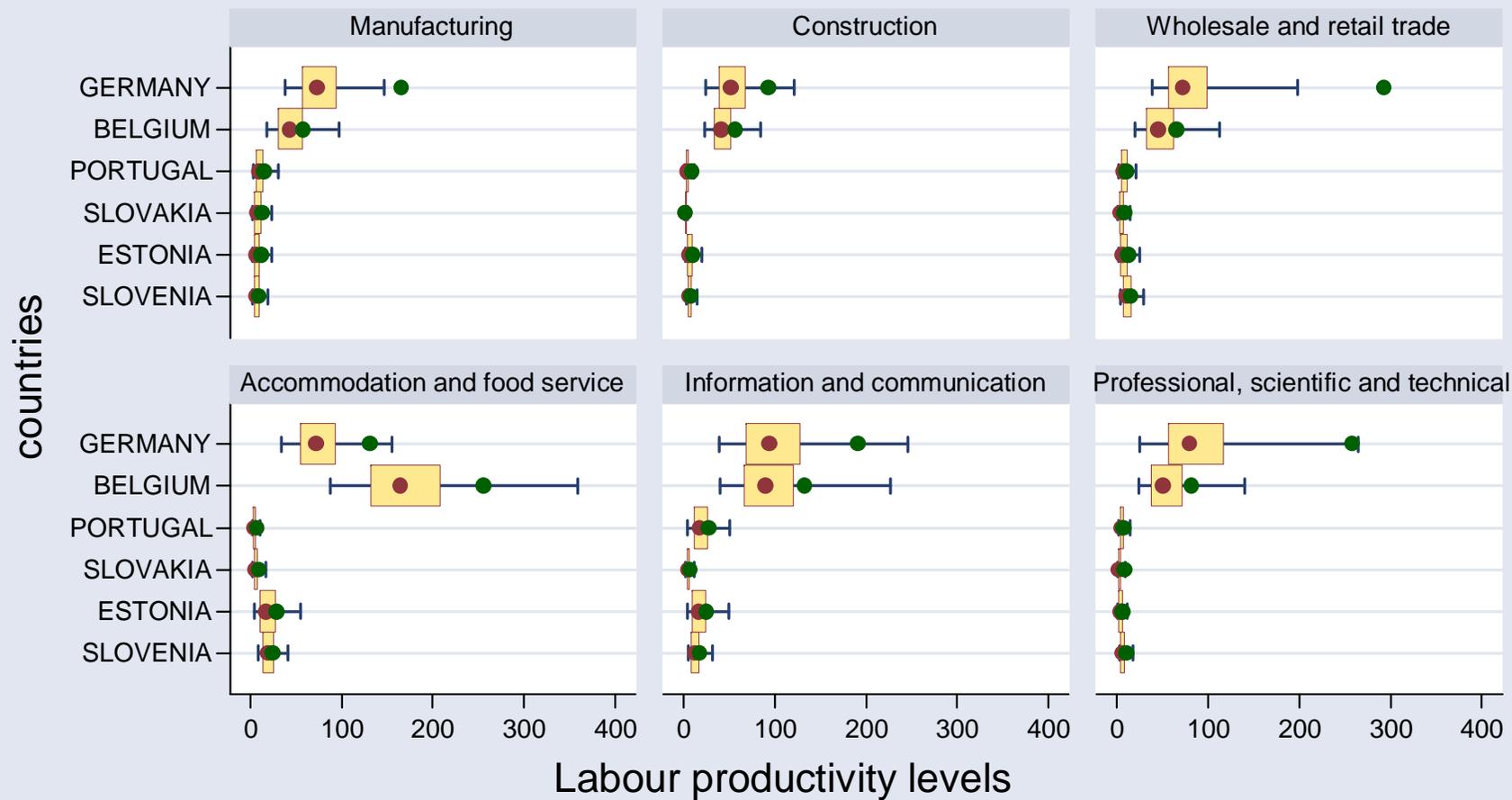
Productivity boxplots: Full sample of firms (II)

- Mean labour productivity per size class

country/Size class	1-9	10-19	20-49	50-250	>250
BELGIUM	94.917	69.586	72.781	80.338	91.842
ESTONIA	12.319	12.730	13.384	15.377	15.579
FINLAND	53.939	51.333	53.929	61.057	71.759
GERMANY	785.396	154.466	99.250	99.932	99.705
PORTUGAL	12.795	13.134	16.135	20.903	29.932
SLOVAKIA	50.585	11.684	8.158	8.634	11.513
SLOVENIA	12.668	14.365	13.696	13.277	16.206

Productivity boxplots - Sector differences, restricted sample

Labour productivity levels for all



Graphs by mac_sector

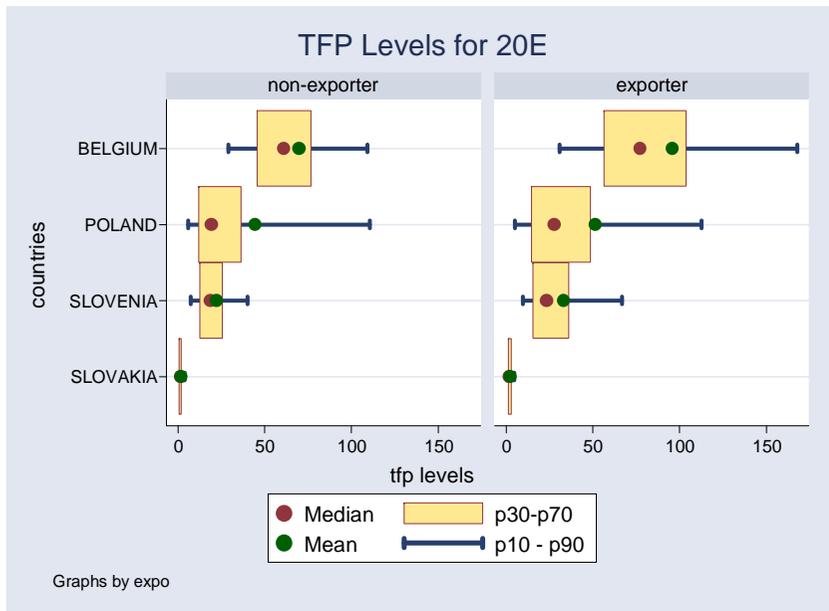
Content of the presentation

1. The country samples
2. Productivity distributions
3. Exporting and non-exporting firms
4. Credit constrained firms
5. Employment transition matrices
6. Determinants of the capacity of firms to adjust their size
7. Discussion

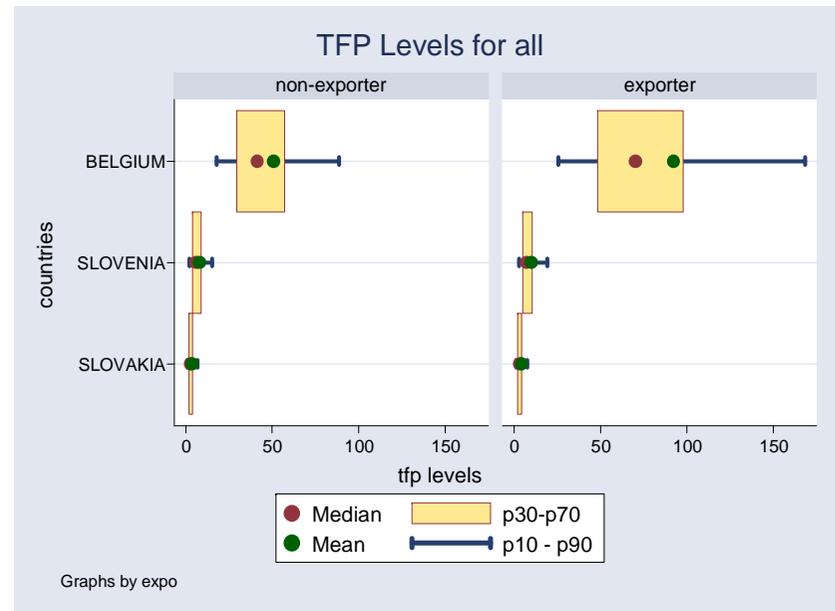
Exporting and non-exporting firms

- TFP distribution for exporting and non-exporting firms
 - Only data so far for BE-PL-SK-SL
- The good news is that levels look now much better
- But..
 - Long right tail of distribution of Polish firms
 - Slovakia – Unit problem?

Restricted sample



Full sample



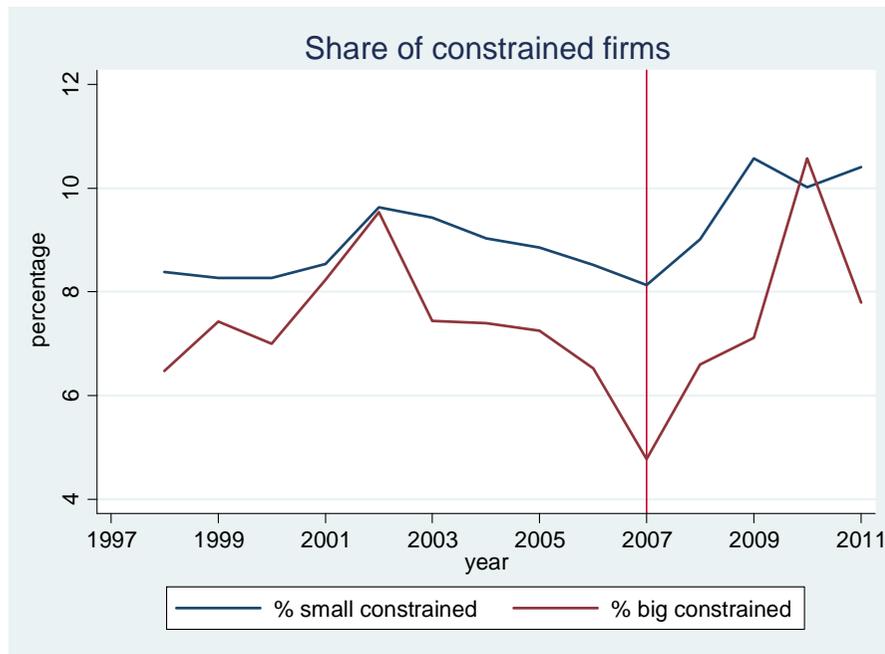
Content of the presentation

1. The country samples
2. Productivity distributions
3. Exporting and non-exporting firms
4. Credit constrained firms
5. Employment transition matrices
6. Determinants of the capacity of firms to adjust their size
7. Discussion

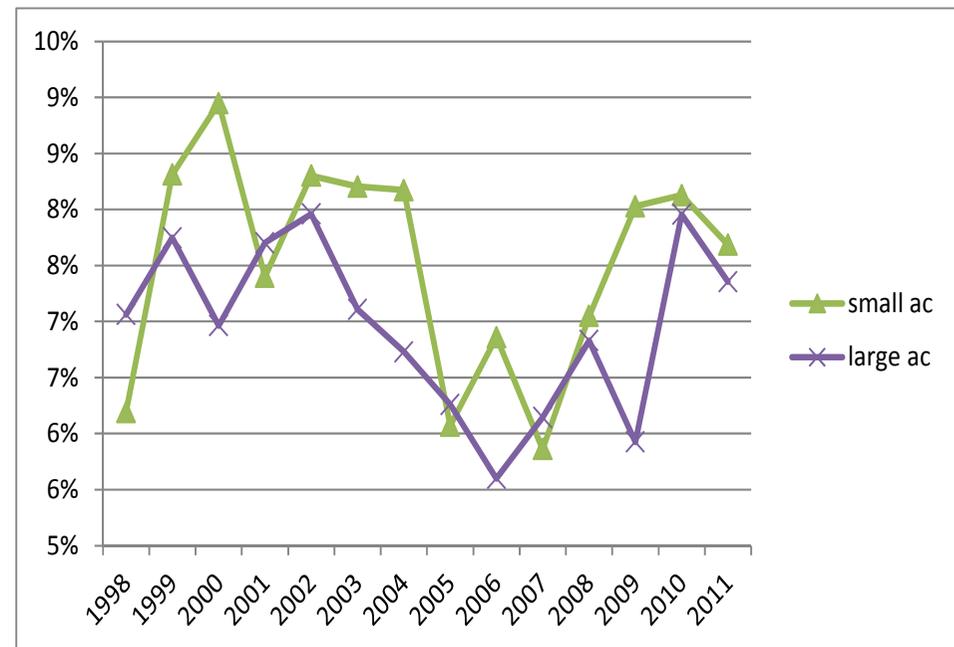
Credit constrained firms – Belgian full sample

- Share of constrained small and large firms, FR definition
- Poland, Estonia, Slovenia and Slovakia had not absolutely constrained firms – could the indicator be too demanding?
- Very few absolutely constrained firms, above all among large firms
- Consistent with results using Amadeus

Full economy – CompNet data

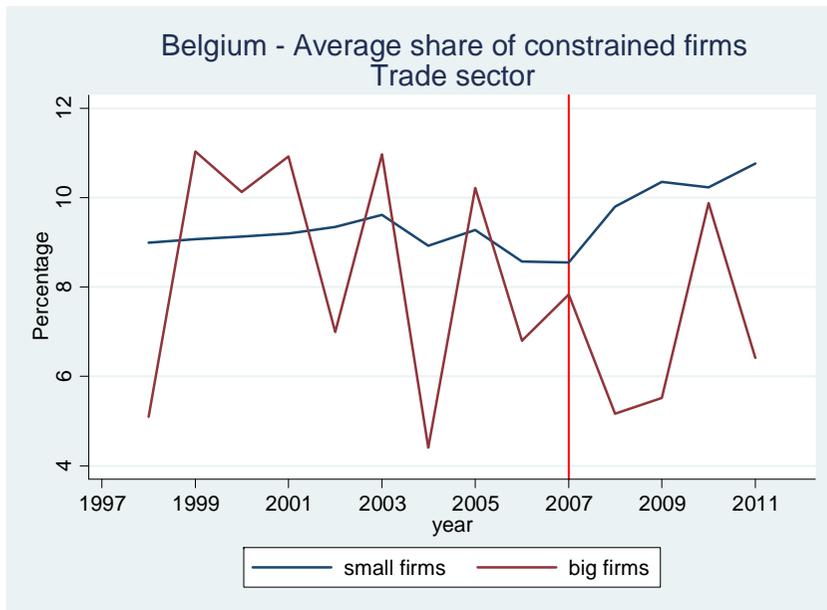
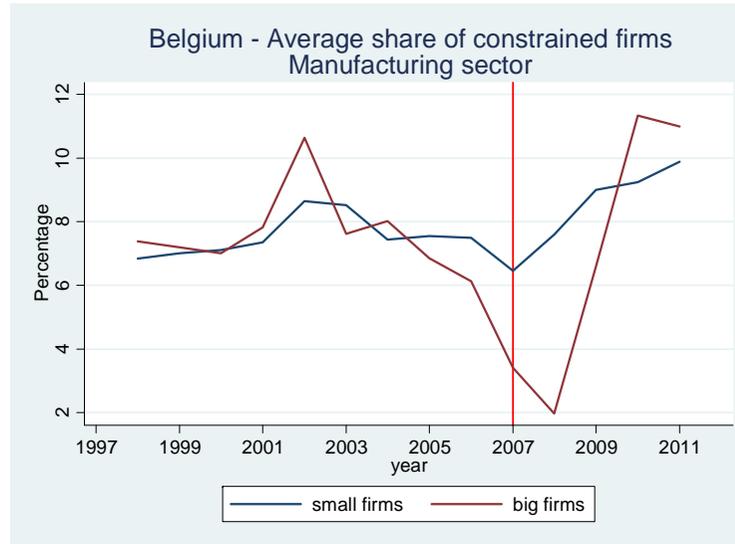


Full economy - Amadeus

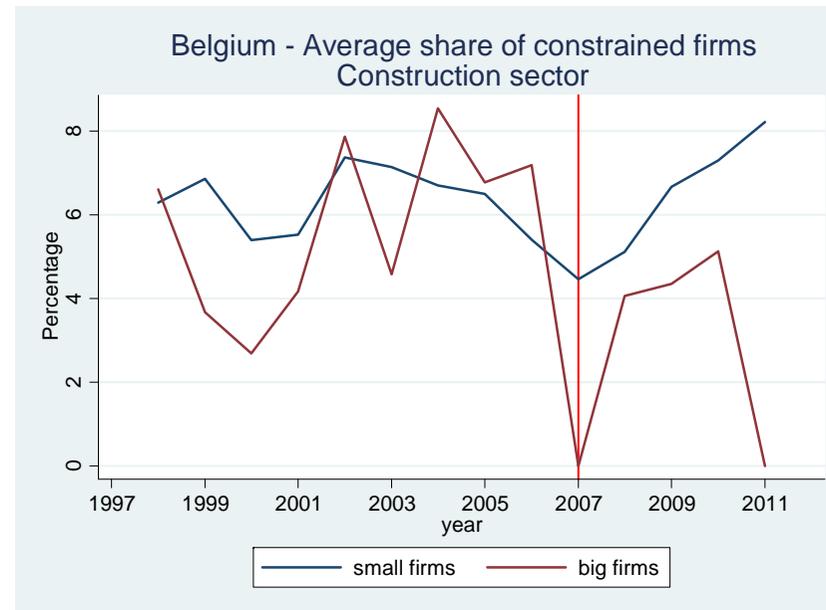


Share of small and large CC firms, sector details – FR index

Manufacturing



Trade

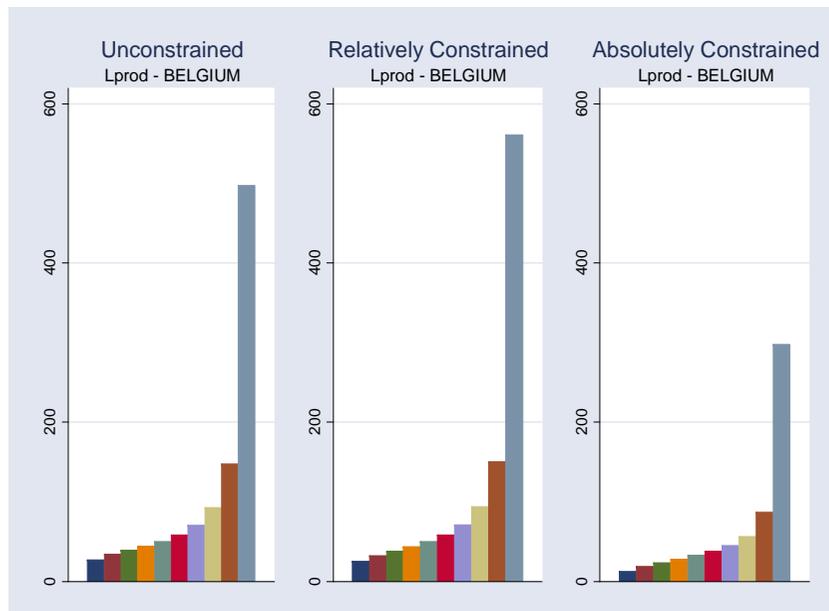


16 Construction

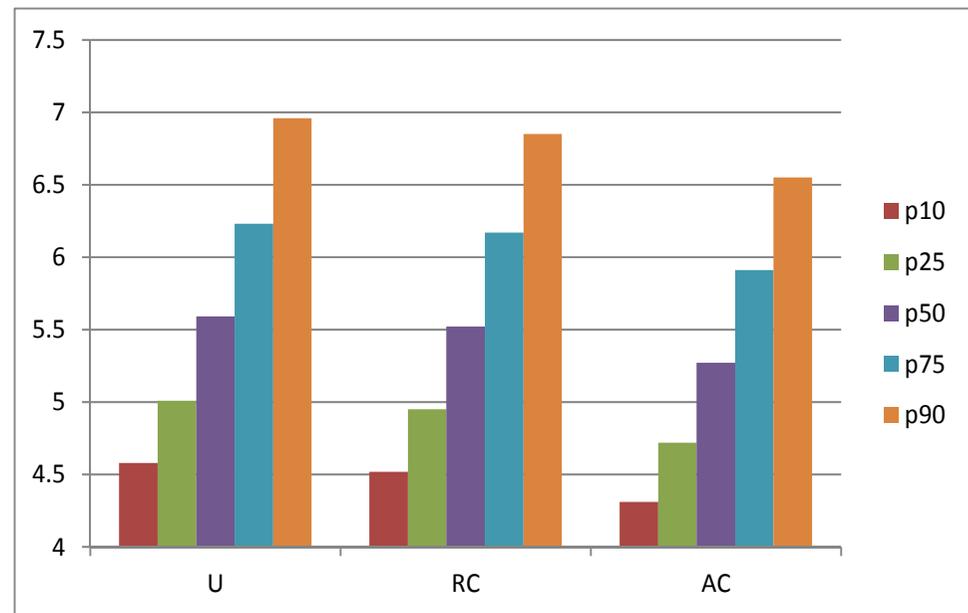
Productivity distribution of unconstrained and CC firms

- Data from Belgium, full sample, average of period
- Note that most firms are relatively constrained (about 80%)
- As expected absolutely constrained firms feature a productivity distribution to the left of that of unconstrained firms
 - Although very productive firms in the extreme of the distribution of relative c.

Full economy – CompNet data



Full economy - Amadeus



Content of the presentation

1. The country samples
2. Productivity distributions
3. Exporting and non-exporting firms
4. Credit constrained firms
5. Employment transition matrices
6. Determinants of the capacity of firms to adjust their size
7. Discussion

Employment transition matrixes – to be completed

- Employment transition matrixes (5 year rolling windows) referring to firms in the sample both in t and $t+5$
 - Very large persistence: about 80% of firms do not change of size class in 5 years
 - This persistence is higher in a mature country like Belgium
 - Medium firms have a larger probability of downsizing than of expanding

Belgium

size class	20-49	50-249	250 or more
20-49	87.0%	12.8%	0.1%
50-249	12.8%	83.0%	4.3%
250 or more	0.9%	11.2%	88.0%

Slovenia

size class	20-49	50-249	250 or more
20-49	78.3%	21.5%	0.2%
50-249	13.6%	82.8%	3.6%
250 or more	0.8%	18.4%	80.8%

Poland

size class	20-49	50-249	250 or more
20-49	80.5%	19.2%	0.2%
50-249	12.5%	81.8%	5.7%
250 or more	1.3%	17.0%	81.7%

Estonia

size class	20-49	50-249	250 or more
20-49	83.0%	16.8%	0.2%
50-249	21.0%	75.5%	3.5%
250 or more	2.9%	22.1%	76.2%

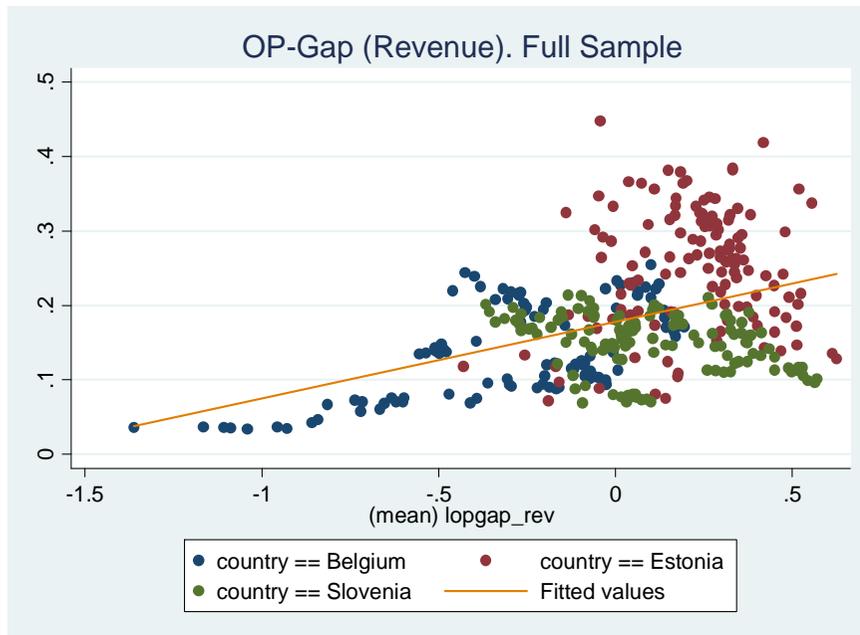
Content of the presentation

1. The country samples
2. Productivity distributions
3. Exporting and non-exporting firms
4. Credit constrained firms
5. Employment transition matrices
6. Determinants of the capacity of firms to adjust their size
7. Discussion

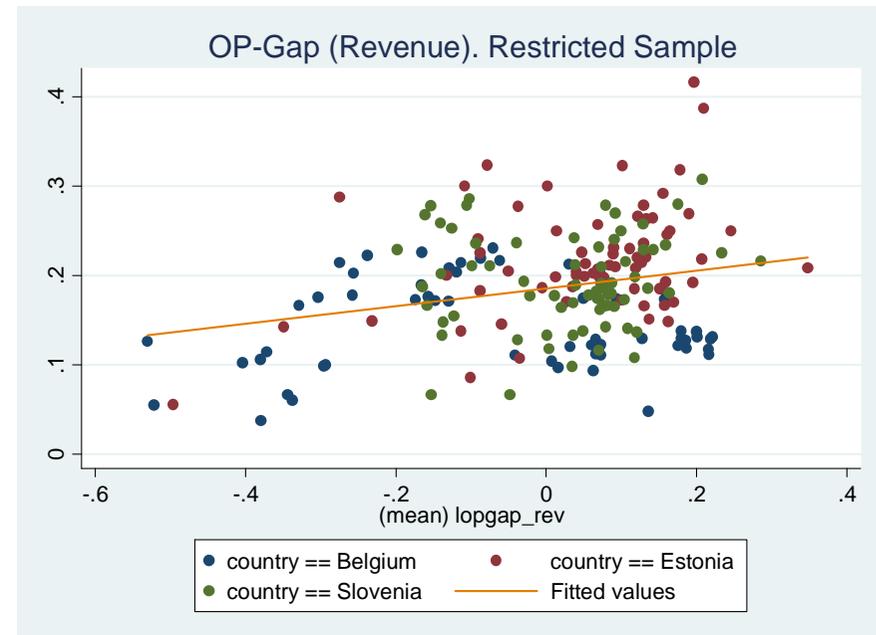
Determinants of size' adjustment capacity (SAC)– AE

- Share of firms in a given size class in t that move to another size class (up or down) in $t+5$
 - It relates with the capacity of firms to expand if productive and to downsize of unproductive
- The SAC is related to the allocation efficiency of the sector

Full sample, BE-EE-SL



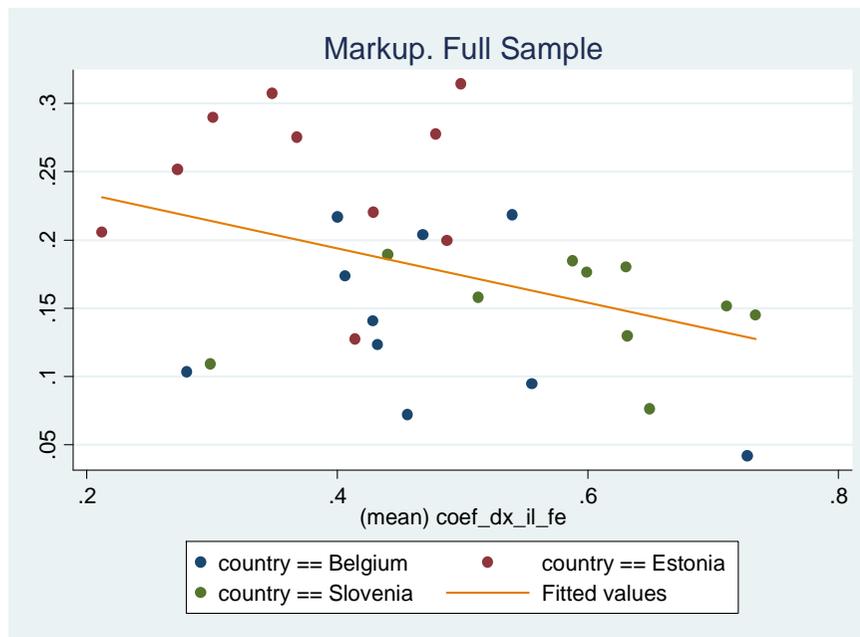
Restricted sample, BE-EE-SL



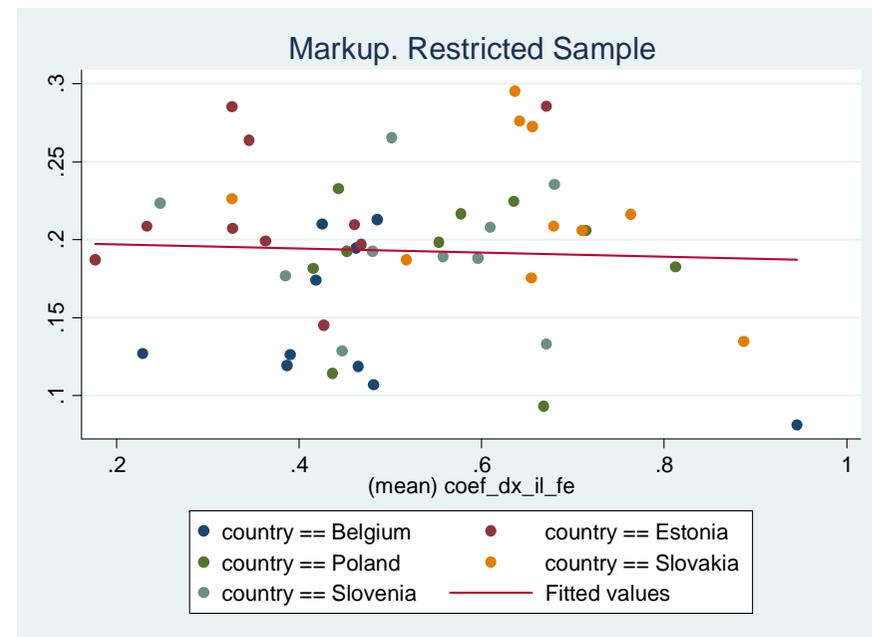
Determinants of SAC– product market competition

- The size adjustment capacity of firms is negatively related to the estimated sector mark-up – i.e. to market competition
 - Above all among small firms (using the full sample)

Full sample, BE-EE-SL



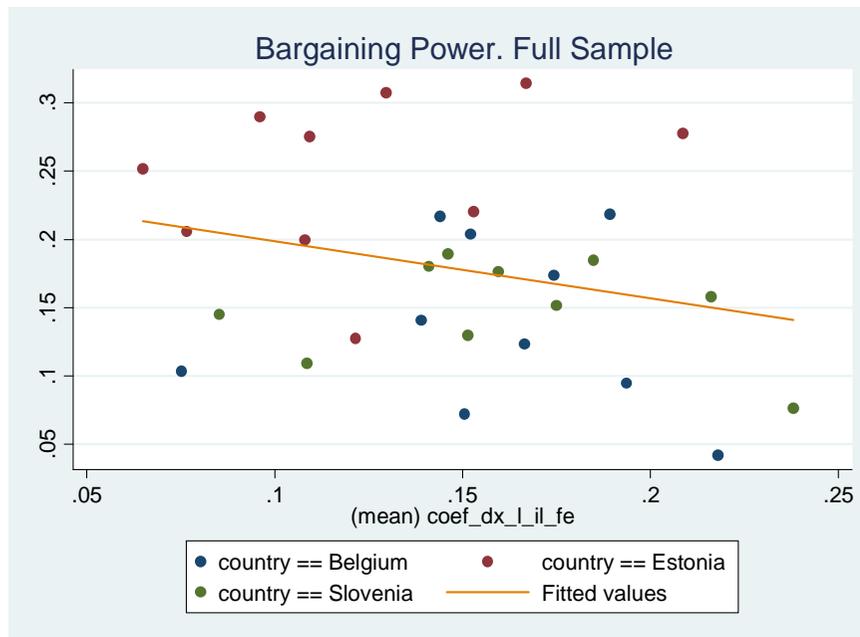
Restricted sample, BE-EE-SL-PL-SK



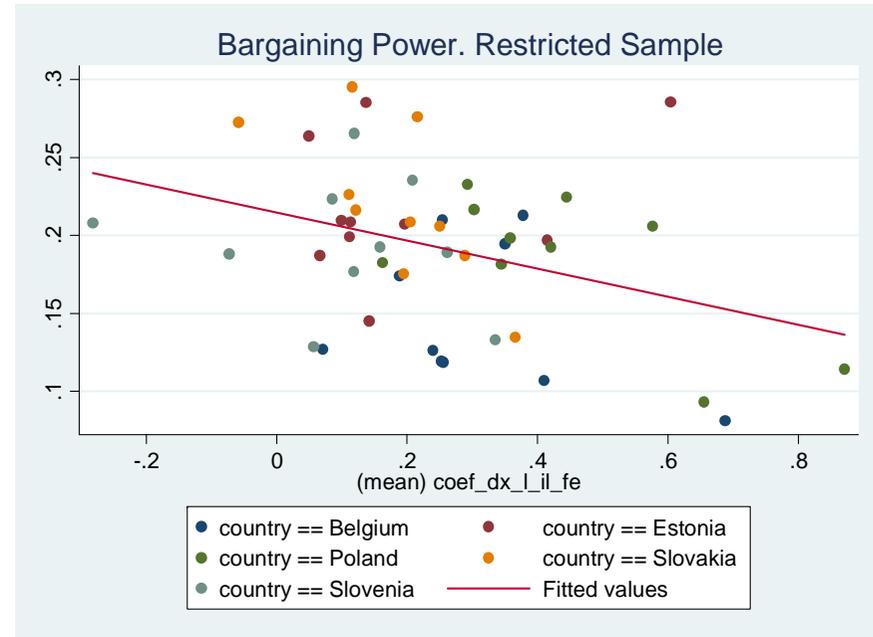
Determinants of SAC– labour market competition

- The size adjustment capacity is negatively related to the estimated sector collective bargaining power
 - The relation is stronger if only large firms are considered

Full sample, BE-EE-SL

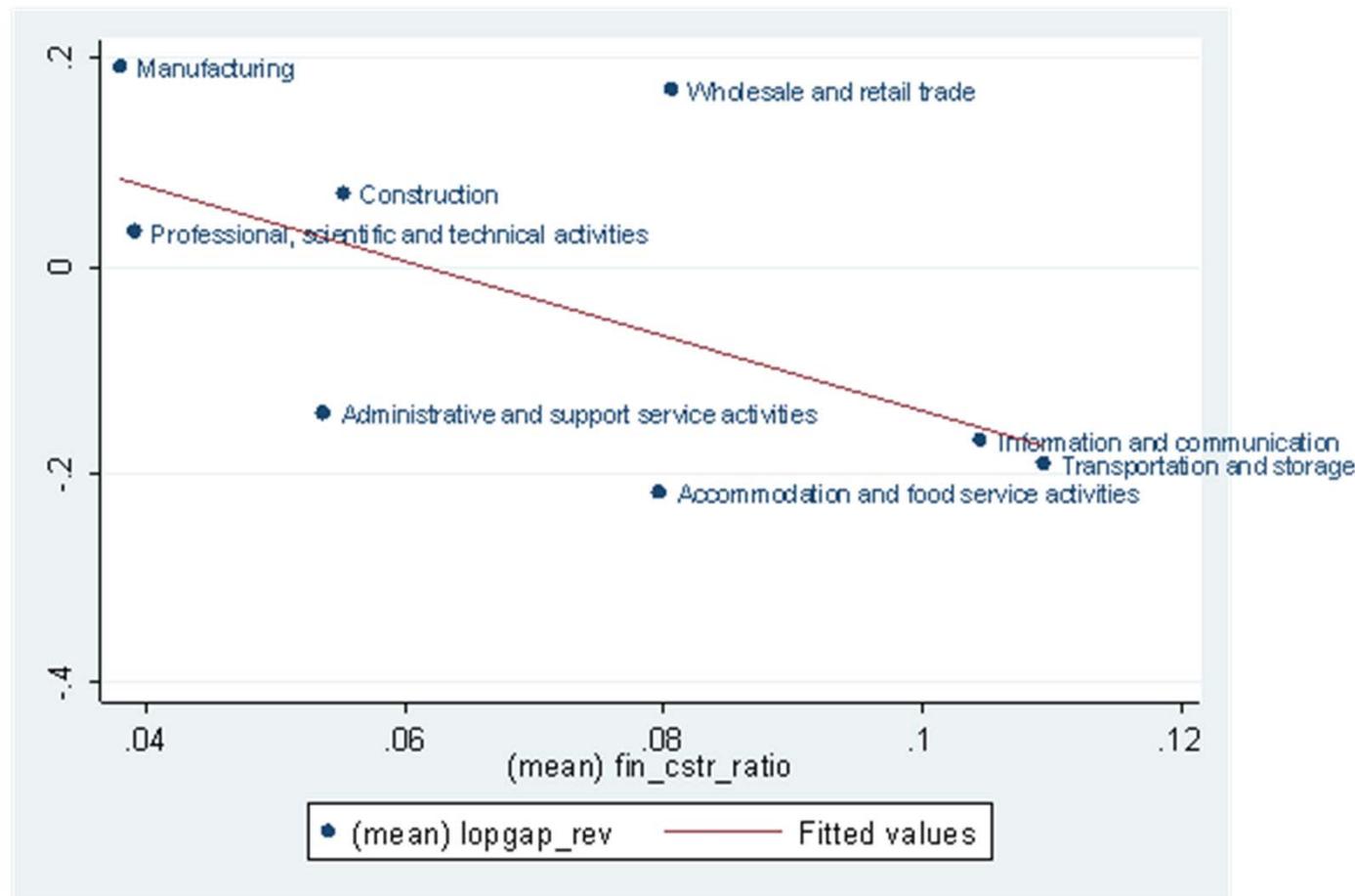


Restricted sample, BE-EE-SL-PL-SK



Determinants of SAC– credit constraints

- The capacity of firms to adjust their size is negatively related to the share of credit constrained firms in the sector
 - Data only for Belgium!



Content of the presentation

1. The country samples
2. Productivity distributions
3. Exporting and non-exporting firms
4. Credit constrained firms
5. Employment transition matrices
6. Determinants of the capacity of firms to adjust their size
7. Discussion

Discussion

Given the potential of the data, and the problems encountered so far (nothing compared with the extension and complexity of the code!)

...I would like to ask you to re-run the new set of corrected codes we will send after the workshop

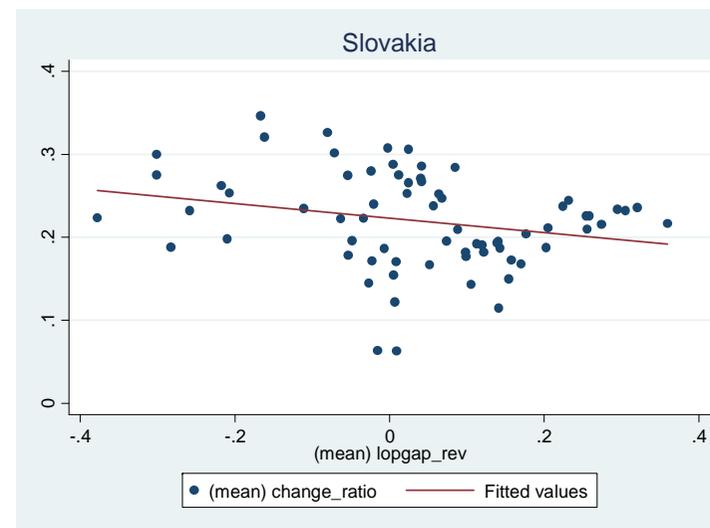
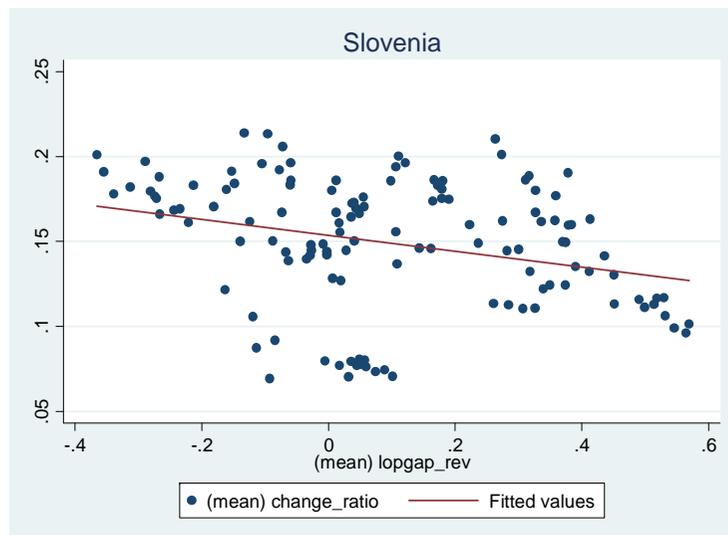
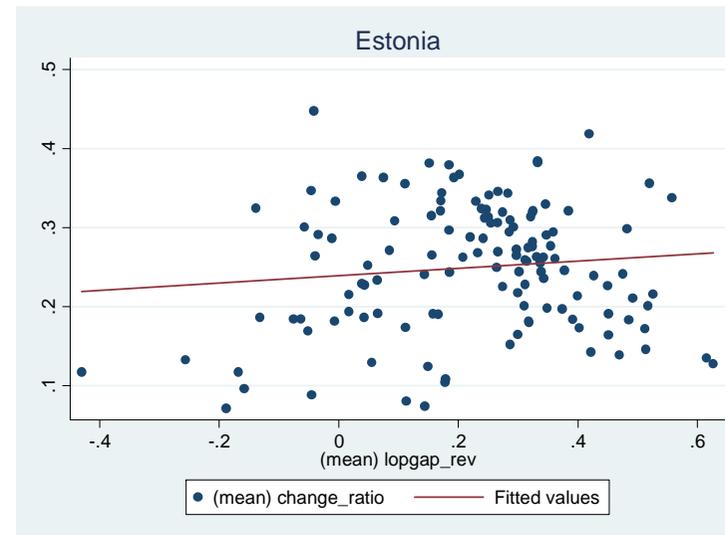
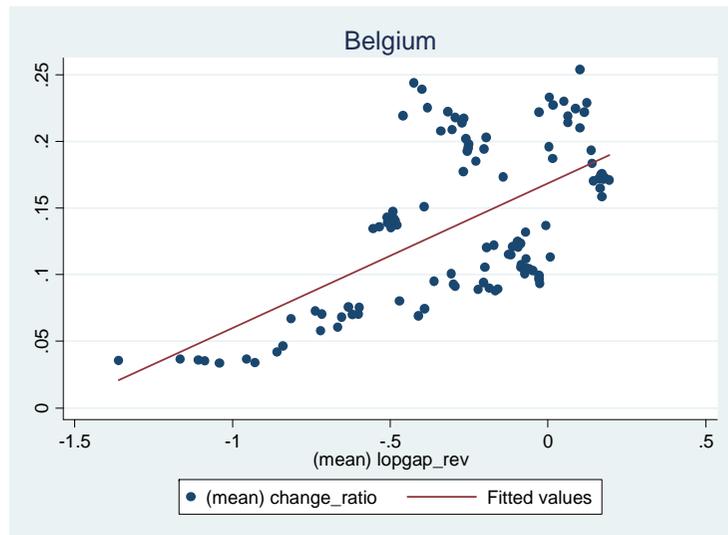
For the codes to be perfect, we would need that all teams who have run the code send us a list of code mistakes/errors

We will fix the codes, and send them again, if you agree

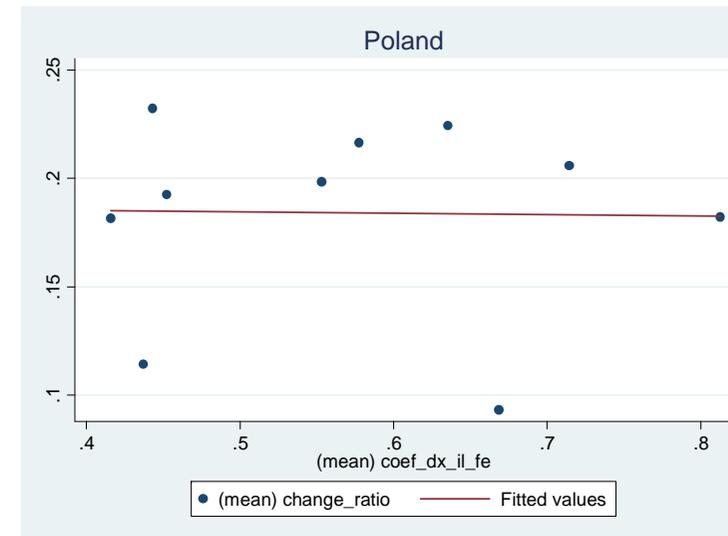
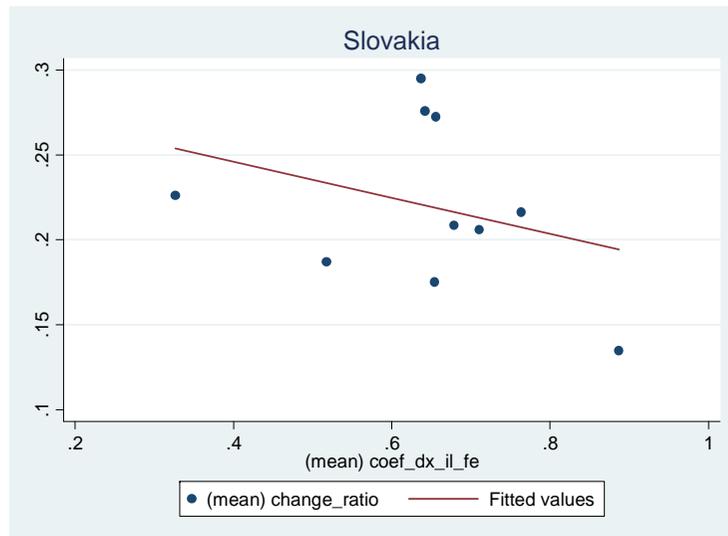
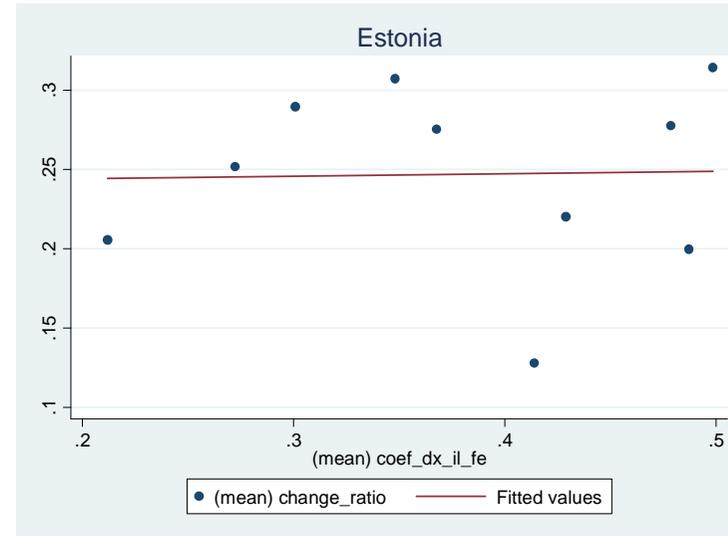
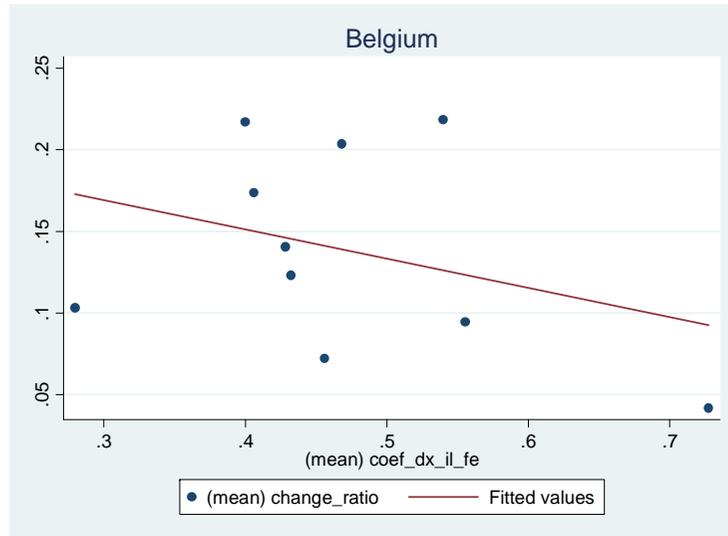


The floor is yours!

Back-up slides – SAC and OP gap by country



Back-up slides – SAC and mark-ups



Back-up slides – SAC and collective bargaining

