



THE DYNAMICS OF EMPLOYMENT GROWTH: NEW EVIDENCE FROM 17 COUNTRIES

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*ECB CompNet Workshop
Frankfurt, 12-13 December 2013*

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Disclaimer

Preliminary results from the ***DynEmp Express*** project

- 17 Participating countries: Austria, Belgium, Brazil, Canada, Finland, France, Hungary, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden and United States.
 - United Kingdom data will be included shortly.
- Manufacturing, construction and services (except for financial services).
 - Data for Japan cover only manufacturing sector.
- The latest available year is mostly 2011, except:
 - 2010: for Brazil, Spain, Italy, Luxembourg and Sweden,
 - 2009: for Canada, Japan and New Zealand
 - 2007: France
- The unit of observation is enterprise - except for Japan, where it is establishment
- Data for Canada are calculated by Statistics Canada and refer only to organic employment changes, and abstract from merger and acquisition activity. For all other countries, but the US, data do not account for mergers and acquisitions in the determination of firm age and firm exit.
- Due to methodological differences, figures may deviate from officially published national statistics.



Roadmap

- Motivation
- Results
 1. Young and small firms' role in job creation
 2. Growth potential of young firms
 3. Impacts of the crisis
- Next steps:
 - *DynEmp v. 2*
 - *Multiprod*



Motivation

Existing evidence

- **Young firms** (Kane, 2010; Haltiwanger, 2011; Haltiwanger, Jarmin and Miranda, 2013):
 - Key drivers of job creation
 - “Up-or-out” dynamics: high rates of job creation and destruction
 - However, secular decline in start-up rates
- **Impact of Great Recession** (US: Fort, Haltiwanger, Jarmin and Miranda, 2013; UK: Butcher and Bursnall, 2013; Ireland: Lawless, 2012)
 - Decoupling of job creation and job destruction
 - Different reaction of old and young firms



Motivation

- Increasing policy interest in:
 - job creation/destruction
 - creative destruction, allocative efficiency
 - productivity growth
- Lack cross-country harmonized and timely data
 - Seminal work of Bartelsman, Haltiwanger and Scarpetta (1990s)
 - Nesta-Fora database
 - ESSLait
 - EFIGE
 - CompNet



What is *DynEmp*?

The process

- Ongoing Project :
 - Led by the OECD WPIA delegates
 - Coordinated by the DynEmp-team at the OECD
 - Questionnaires on data characteristics
 - 17 countries + UK shortly + others interested
- Aim:
 - Provide new cross-country evidence on employment dynamics
- Methodology:
 - Using confidential national business registers
 - Microaggregated to non-confidential aggregates using a distributed microdata (DMD) approach.
 - By running a single, thoroughly tested Stata routine
 - Flexible to adapt to differences in data setup



DynEmp Express

The outcome

- Annual panel data on
 - job flows (creation, destruction)
 - employment and number of firms
- By:
 - 17 countries
 - × 3 broad sectors (Manufacturing, construction and non-financial services)
 - × 5 age classes (0; 1-2; 3-5; 6-10; 11+)
 - × 6 size classes (Thresholds: 1, 10, 50, 100, 250, 500)
 - × 11 years (2001-2011)
 - × 3 status (incumbent, entrant, exiting firm)
- Transition matrices across size classes



DYNEMP EXPRESS: PRELIMINARY RESULTS



Main results

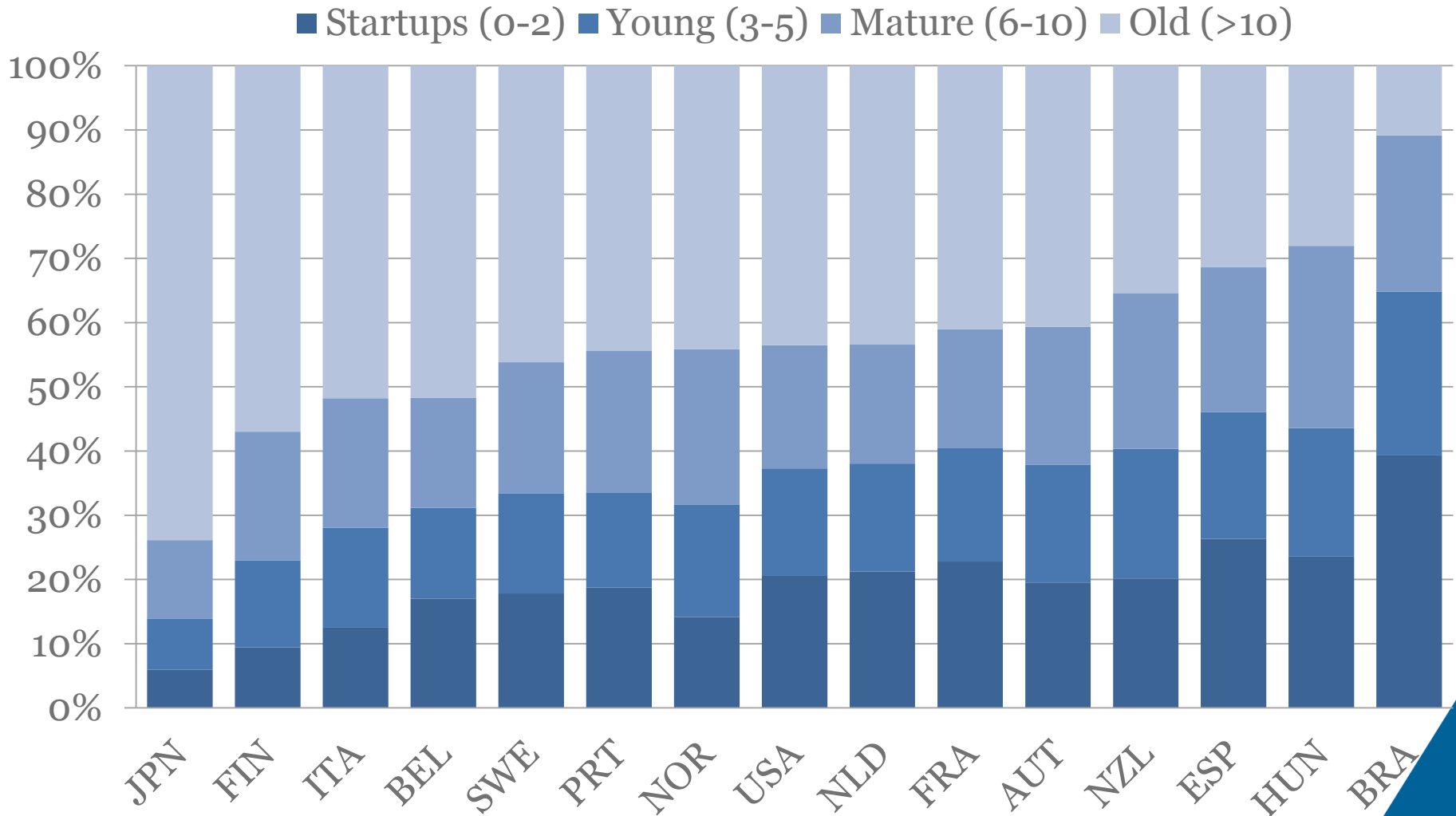
- 1. Young and small firms' contribution to job creation**
2. Growth potential of young firms
- 3. Impacts of the financial crisis**



**DYNEMP EXPRESS (1)
YOUNG AND SMALL FIRMS'
CONTRIBUTION TO JOB
CREATION**



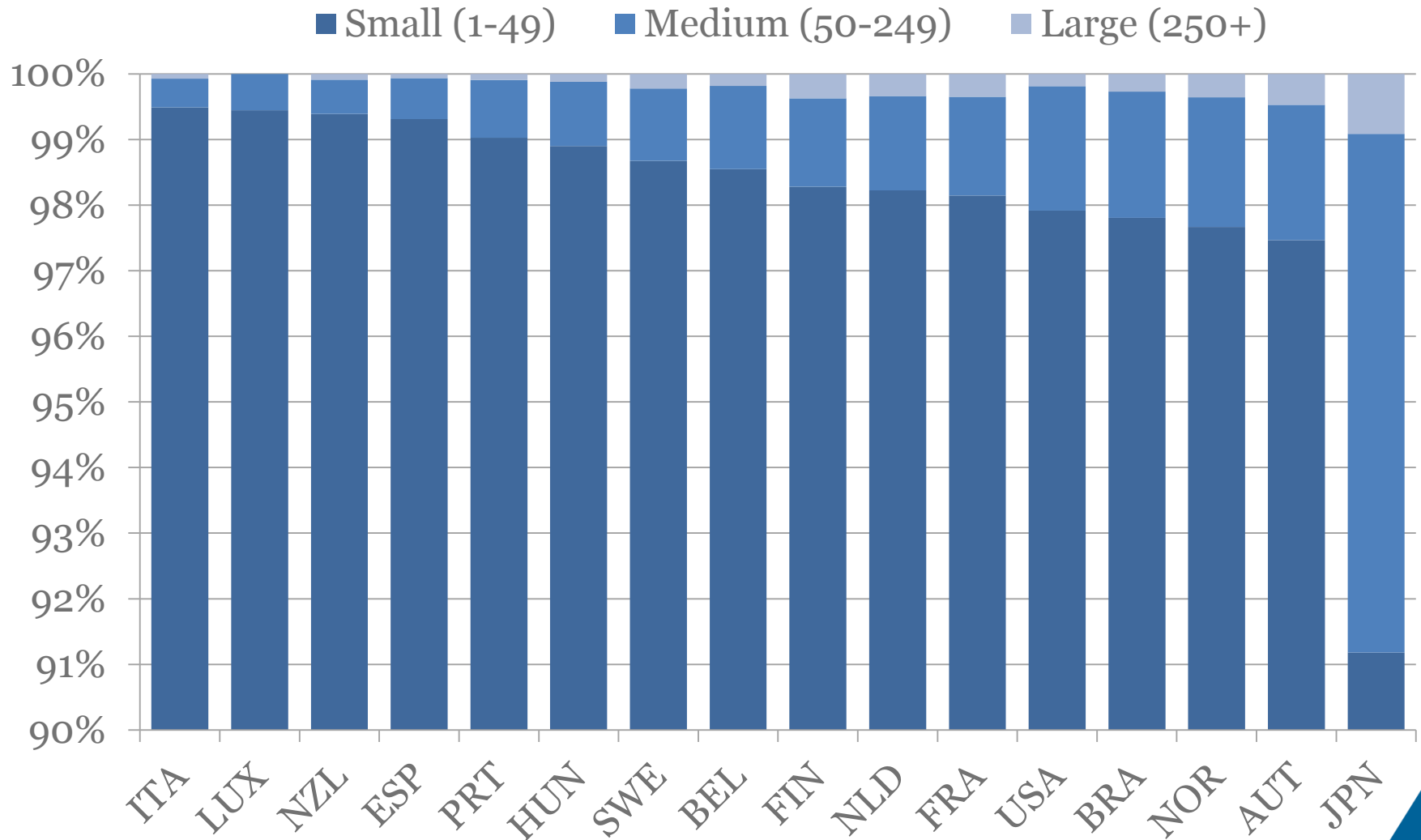
Age profile of small firms across countries



Source: OECD, Dynemp Express – preliminary results.



Size profile of young firms across countries

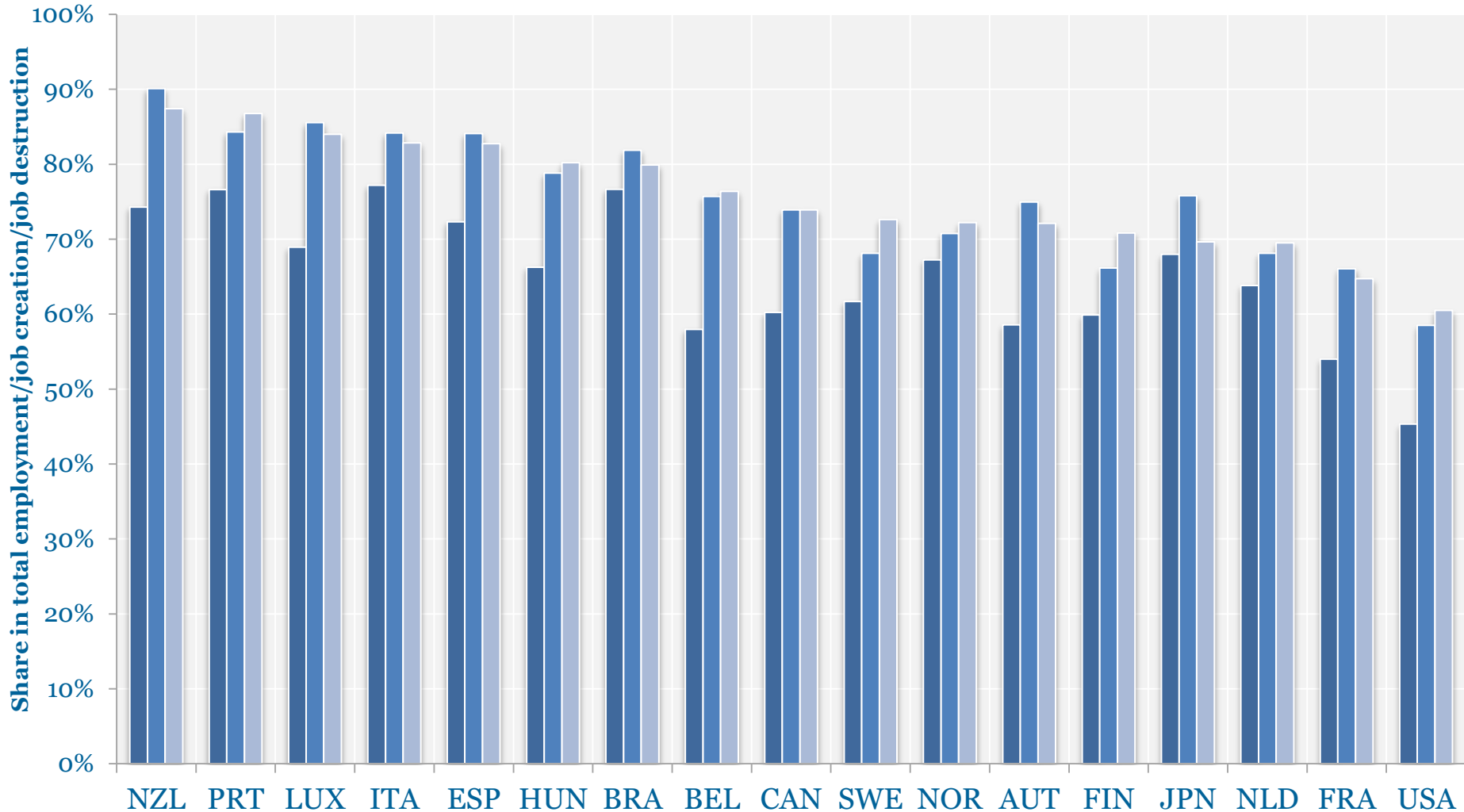


Source: OECD, Dynemp Express – preliminary results.



Job flow and employment shares of small firms

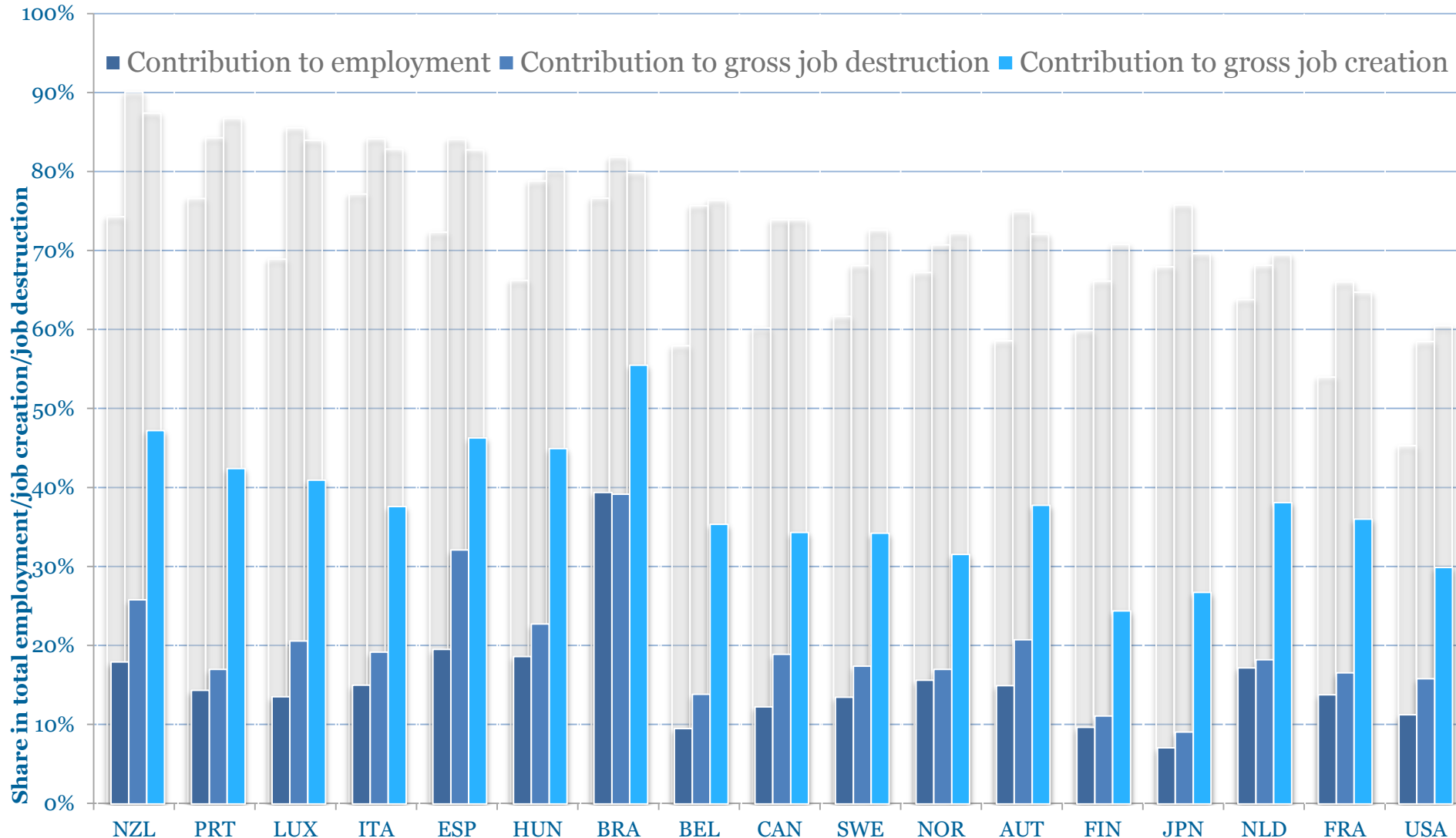
■ Contribution to employment ■ Contribution to gross job destruction ■ Contribution to gross job creation



Source: OECD, Dynemp Express – preliminary results.



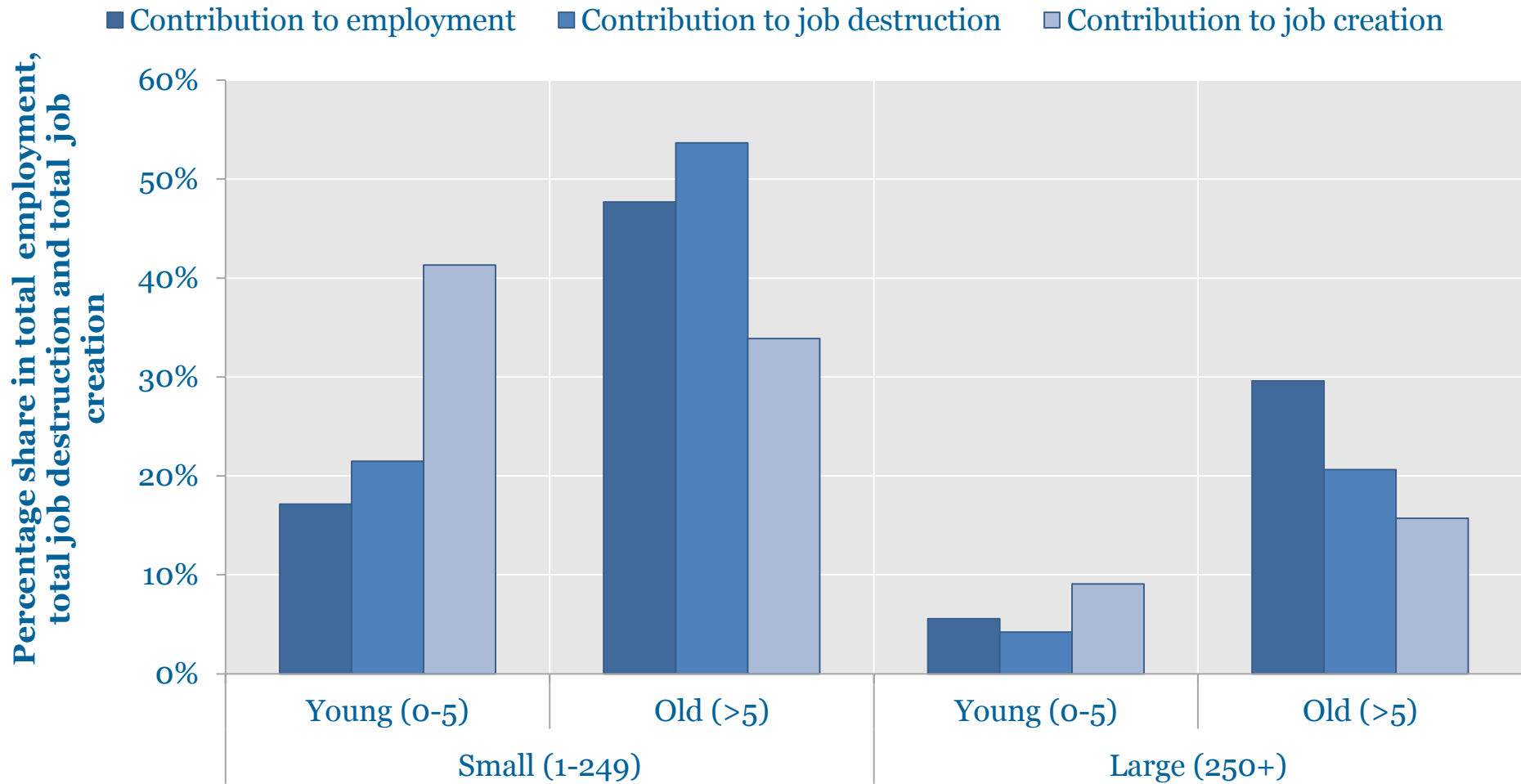
Small and young firms: main sources of job creation



Source: OECD, Dynemp Express – preliminary results.

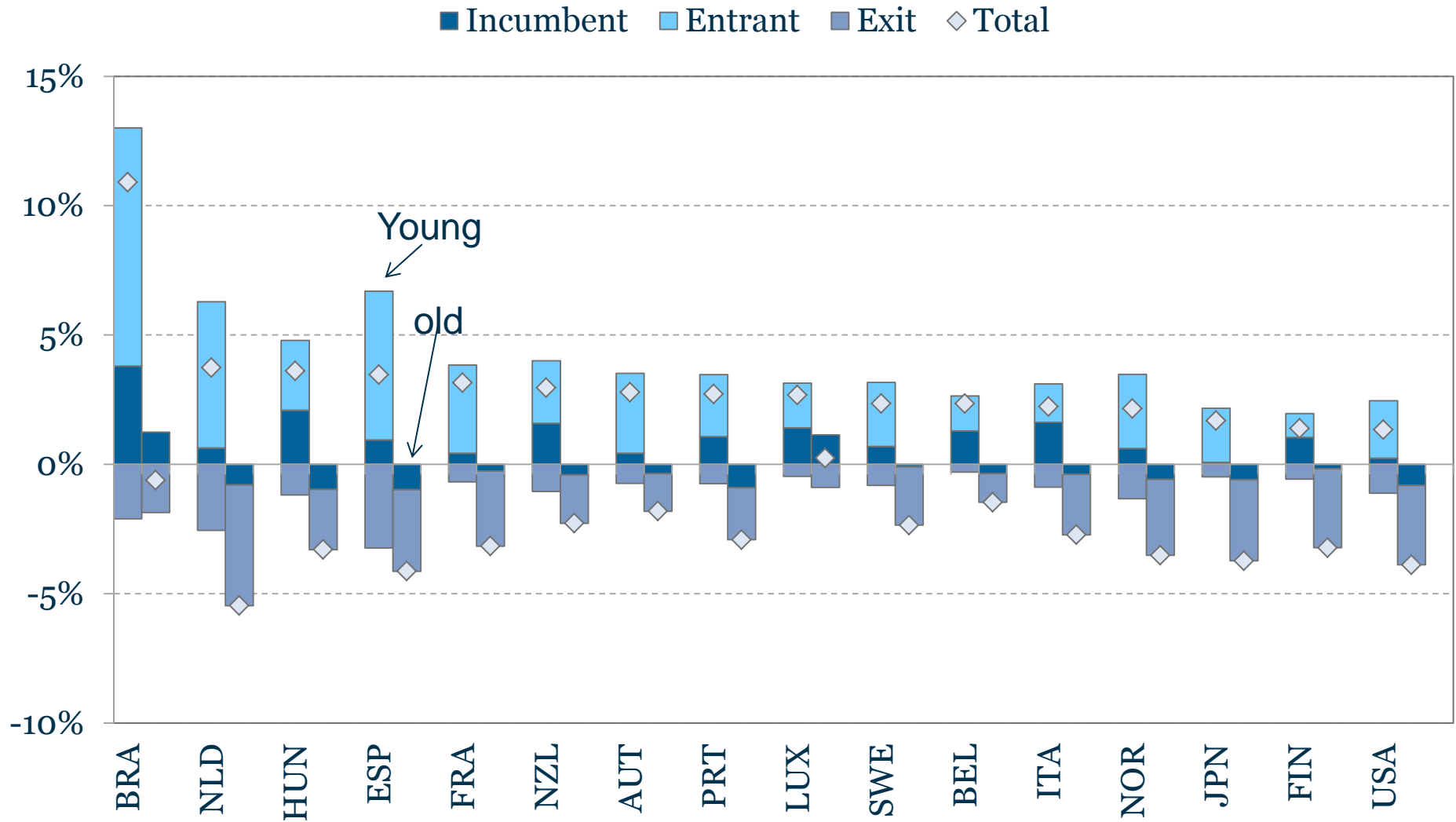


No matter their size, young firms are the ones which create jobs





Entry and exit play an important role in job creation and destruction



Source: OECD, Dynemp Express – preliminary results.



It's young not small firms which are more dynamic

Dependent variable:	Net Growth Rate	Net Growth Rate
Young		0.180***
		(0.003)
Old	<i>Base group</i>	
Small	0.068***	-0.022***
	(0.005)	(0.004)
Medium	0.065***	-0.023***
	(0.005)	(0.004)
Large	<i>Base group</i>	
Macrosector F.E.	YES	YES
Country X year F.E.	YES	YES
Observations	1,885	1,885
R-squared	0.246	0.710



... even when entrants are excluded from the young-group

Dependent variable:	Net Growth Rate	Net Growth Rate
Young		0.047*** (0.003)
Old	<i>Base group</i>	
Small	-0.008** (0.004)	-0.032*** (0.004)
Medium	0.010*** (0.004)	-0.013*** (0.003)
Large	<i>Base group</i>	
Macrosector F.E.	YES	YES
Country X year F.E.	YES	YES
Observations	1,885	1,885
R-squared	0.489	0.567

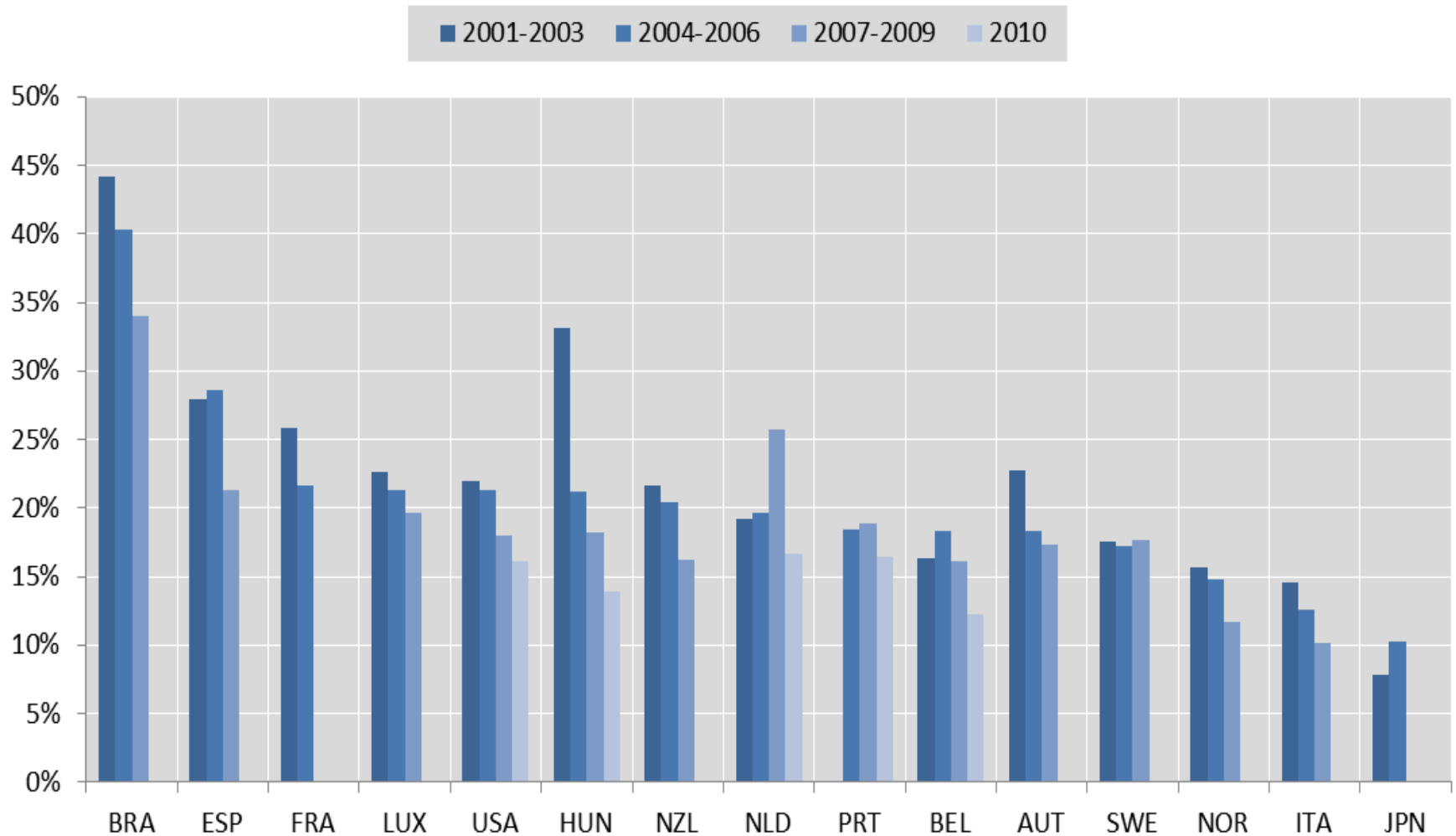


It's the *young and small* group which is the most dynamic

Dependent variable:	Net Growth Rate
Young-Small	0.171*** (0.004)
Young-Medium	0.143*** (0.006)
Old-Small	-0.035*** (0.004)
Old-Medium	-0.009** (0.004)
Old-Large	<i>Base group</i>
Macrosector F.E.	YES
Country X year F.E.	YES
Observations	1,885
R-squared	0.720



However, the share of start-up is declining in most countries



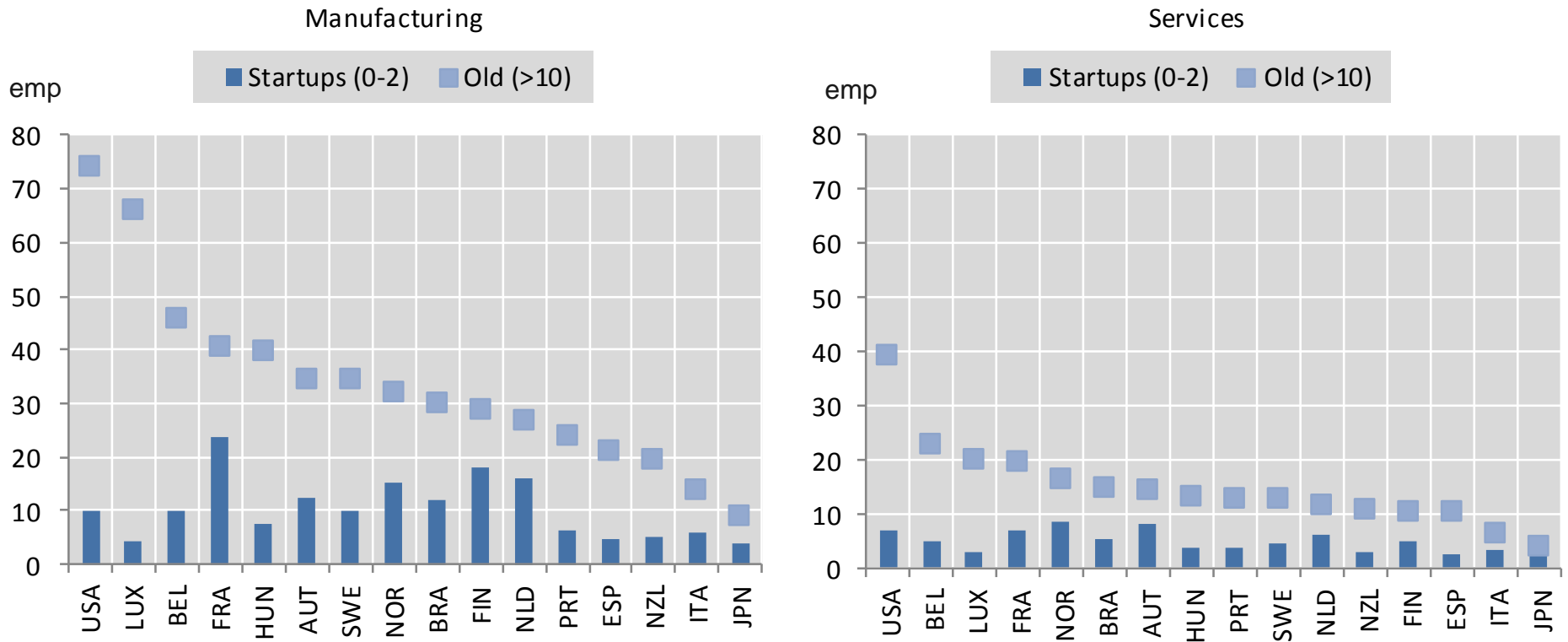


DYNEMP EXPRESS (2)
GROWTH POTENTIAL OF
YOUNG FIRMS



Growth of young firms is a challenge

Average firm size of young and old firms



Source: OECD, Dynemp Express – preliminary results.

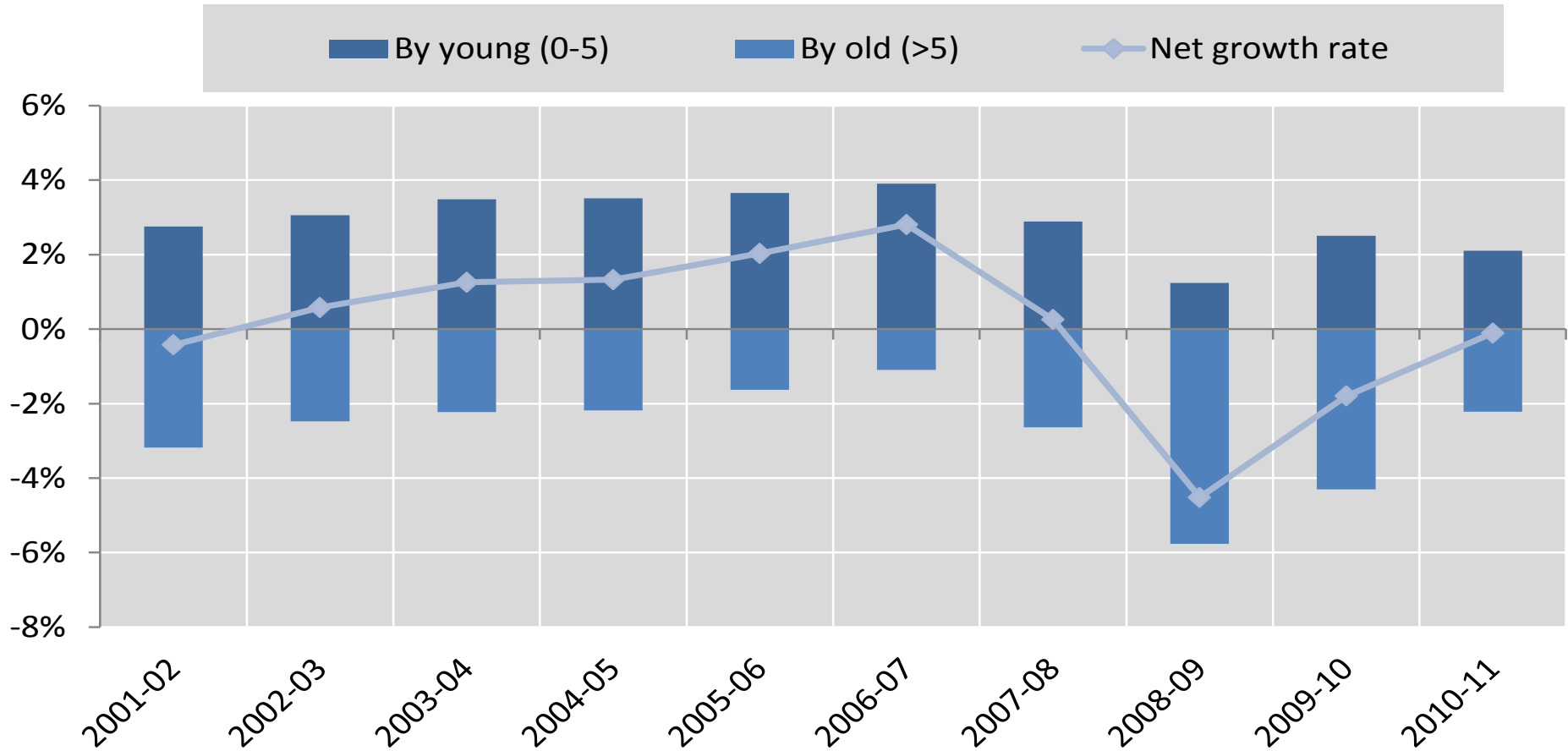


DYNEMP EXPRESS (3)

**IMPACTS OF THE
FINANCIAL CRISIS**



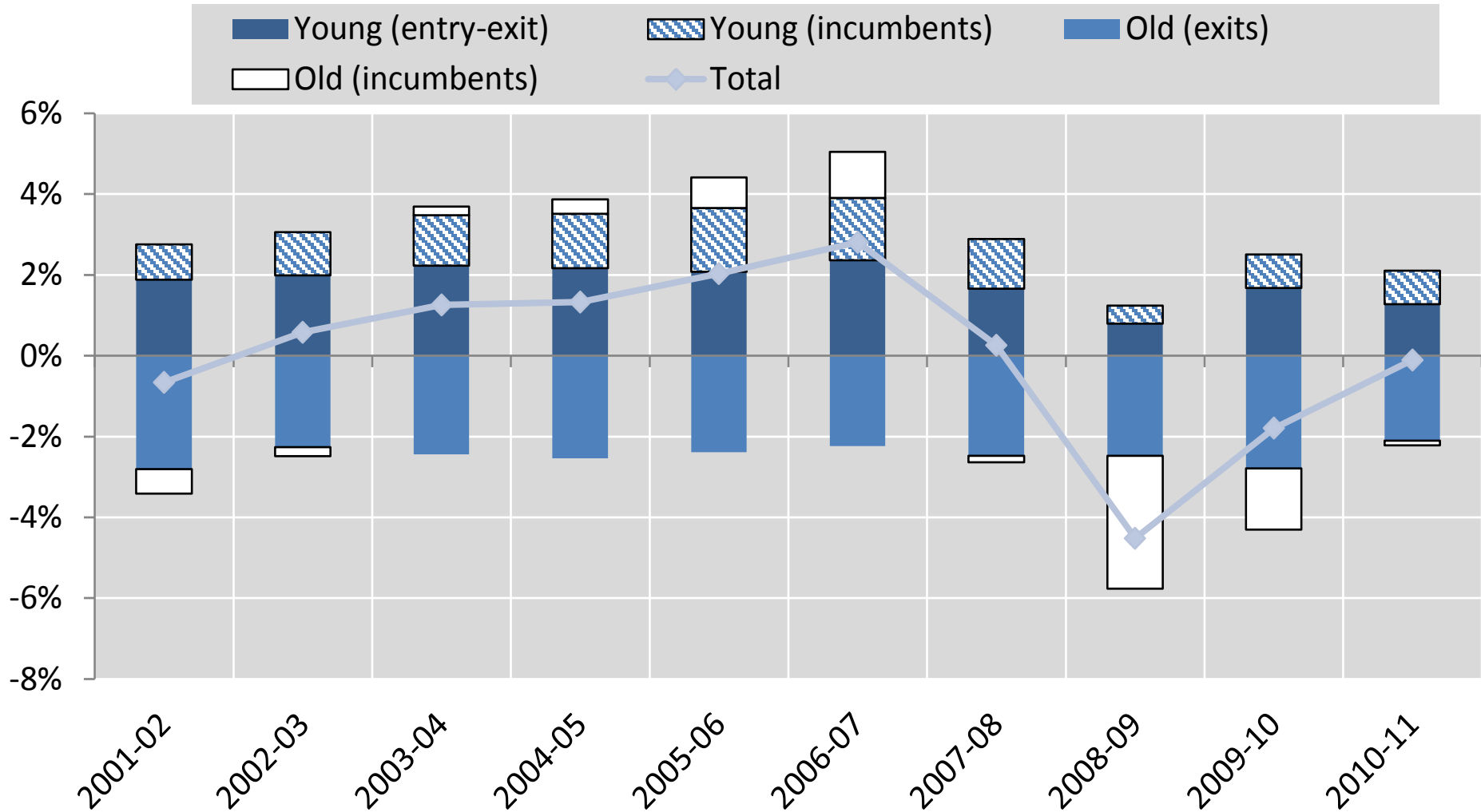
Young and old firms alike created fewer jobs



Source: OECD, Dynemp Express – preliminary results.



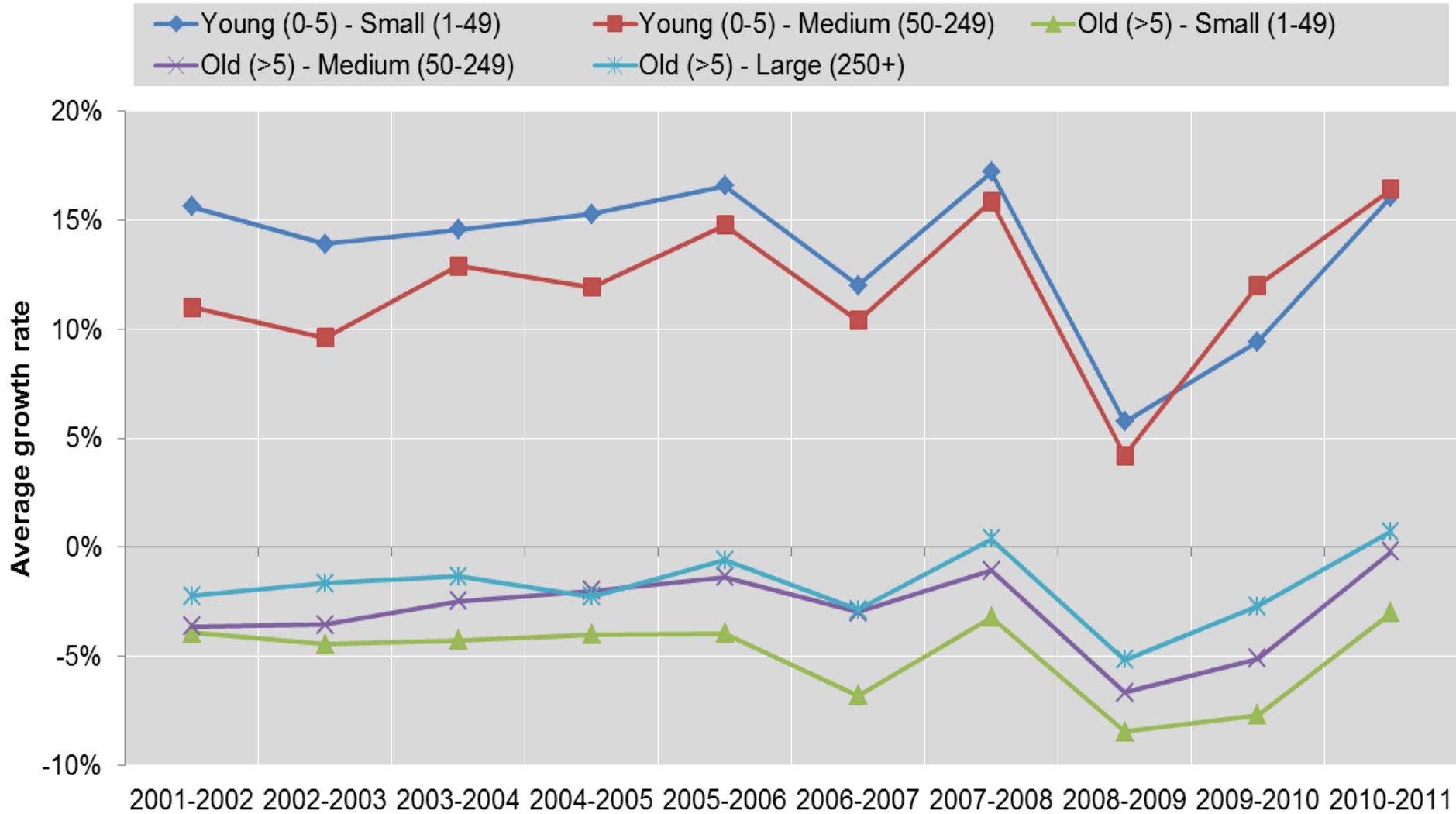
But most jobs were destroyed by old incumbents



Source: OECD, Dynemp Express – preliminary results.



And the dynamics of young firms were more affected



Source: OECD, Dynemp Express – preliminary results.



The financial crisis hit hardest young and small firms

“Normal
times”

Dependent variable	Net Growth Rate
Young-Small	0.182*** (0.005)
Young-Medium	0.153*** (0.007)
Old-Small	-0.031*** (0.004)
Old-Medium	-0.007* (0.004)
Old-Large	<i>Base group</i>
Country X year F.E.	YES
Macrosector F.E.	YES
Observations	1,885
R-squared	0.732



The financial crisis hit hardest young and small firms

“Normal times”
Impact of crisis (2008-2009)

Dependent variable	Net Growth Rate
Young-Small	0.182*** (0.005)
Young-Medium	0.153*** (0.007)
Old-Small	-0.031*** (0.004)
Old-Medium	-0.007* (0.004)
Old-Large	<i>Base group</i>
Young-Small X Crisis	-0.043*** (0.011)
Young-Medium X Crisis	-0.046*** (0.013)
Old-Small X Crisis	-0.009 (0.008)
Old-Medium X Crisis	-0.005 (0.008)
Country X year F.E.	YES
Macrosector F.E.	YES
Observations	1,885
R-squared	0.732



DYNEMP EXPRESS SUMMARY



Summary

1. Young and small firms' contribution to job creation
 - Net job creators: young rather than small
 - But....declining start-up rates
 - Caveat: start-ups? M&A; multigroup etc.
2. Growth potential of young firms
 - Significant Cross-country differences



Summary

3. Impacts of the financial crisis
 - Young firms affected disproportionately more, both in JC and JD
 - Entry explaining most of the observed drop in job creation by young firms.
 - But contribution to net employment growth of young firms remains positive



THANK YOU!

For any additional information on dynemp

please email: dynemp@oecd.org



Next steps: DynEmp v2 and MultiProd

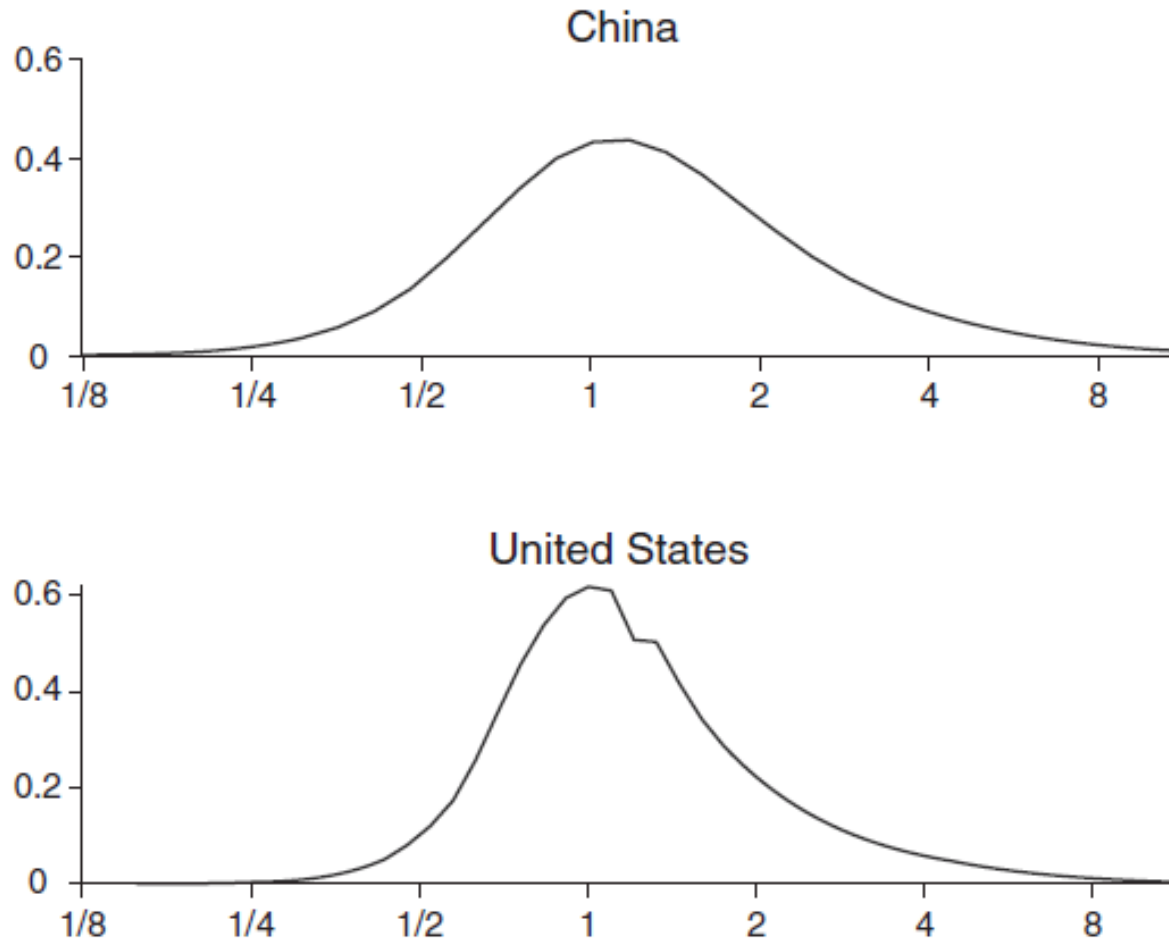
- **DynEmp v2:**
 - Job flows at more disaggregated level
 - Employment growth distribution
 - Employment Volatility
 - Distributed regression
 - Transition matrices 3; 5 and 7 years
- **MultiProd**
 - Productivity distribution (top vs bottom vs median)
 - Allocative efficiency



MULTIPROD MOTIVATION



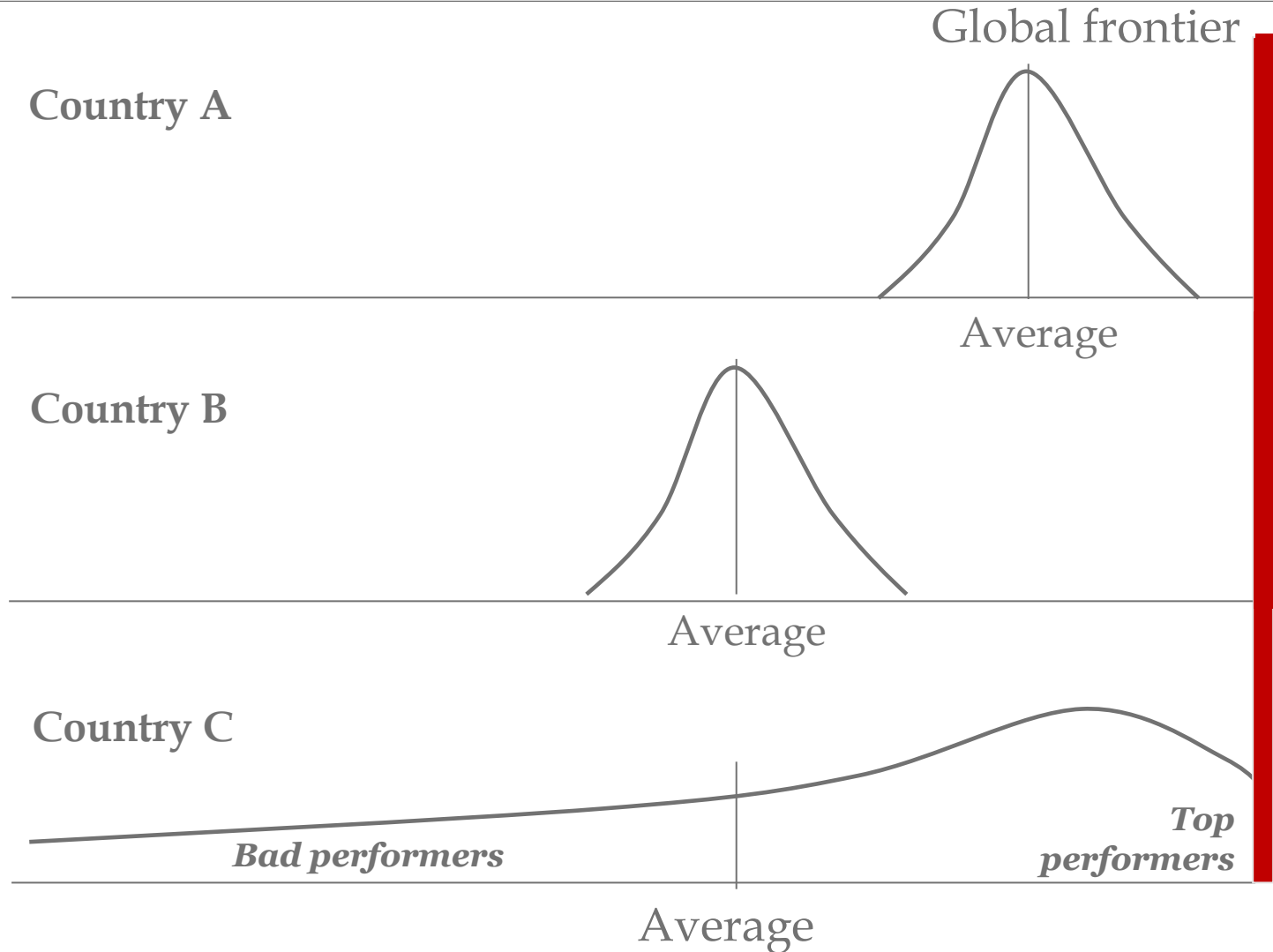
Firm-level distributions of productivity are dispersed



Source: Hsieh and Klenow (2009, QJE). China: 2005; US: 1997



Looking at average productivity may not be enough...



Source: Bartelsman (2006)



MULTIPROD METHODOLOGY



Methodology

- Building on experience with DynEmp, in terms of:
 - coding (in Stata)
 - micro database properties - typically from official sources:
 - business registers (for weighting, see later)
 - production surveys and tax reports
 - network of contacts
 - Mainly from statistical agencies, but not only



Methodology (1)

Measuring productivity levels and growth rates

- 1st step: labour productivity (LP)
 - Value added based
 - More crude alternative: output (e.g. turnover) based
- 2nd step: multi factor productivity (MFP)
 - Index number based:
 - Solow residual, using observed factor shares (simplest)
 - externally sourced (average from OECD STAN)
 - internally sourced (sample median or mean value)
 - uniform shares across countries or different (easier to use STAN)
 - Superlative index
 - average of firm and industry level factor shares (Caves et al. 1982)
 - Estimation based:
 - OLS residual (benchmark)
 - More advanced methods: Wooldridge (2009), building on Levinsohn and Petrin (2003)



Methodology (2)

Characterizing productivity distributions

- Collect key percentiles of the productivity distribution
 - Top
 - Middle range
 - Bottom
- Collect characteristics of the distribution
 - Size
 - Age
 - Employment and output growth
 - Wages



Methodology (3)

Calculating static and dynamic efficiency

- Allocative efficiency
 - Do more productive firms have larger market shares?
 - Olley-Pakes (1996) covariance term
- Dynamic efficiency
 - Do more productive firms grow faster?
(e.g. Foster et al., 2011; Arnold et al. 2008)



Methodology (4)

Variance decomposition using the resulting micro-aggregated data

- What drives cross country variation in
 - aggregate productivity levels
 - aggregate productivity growth rates?
- 1. Which segments of the productivity distribution?
 - Top, medium, bottom
- 2. Which characteristics?
 - Size, age, industry
- 3. Or differences in allocative efficiency?



Methodology (5)

The role of policies

- Framework conditions
 - Regulation in product and labour markets (PMR, EPL)
 - Bankruptcy laws
 - ...
- Targeted policies
 - Innovation (R&D tax credit, direct support, etc.)
 - Size contingent policies (EPL, small business credit, etc.)
 - Using distributed regressions (e.g. RDD) as well as cross-country regressions...



DYNEMP ADDITIONAL FINDINGS

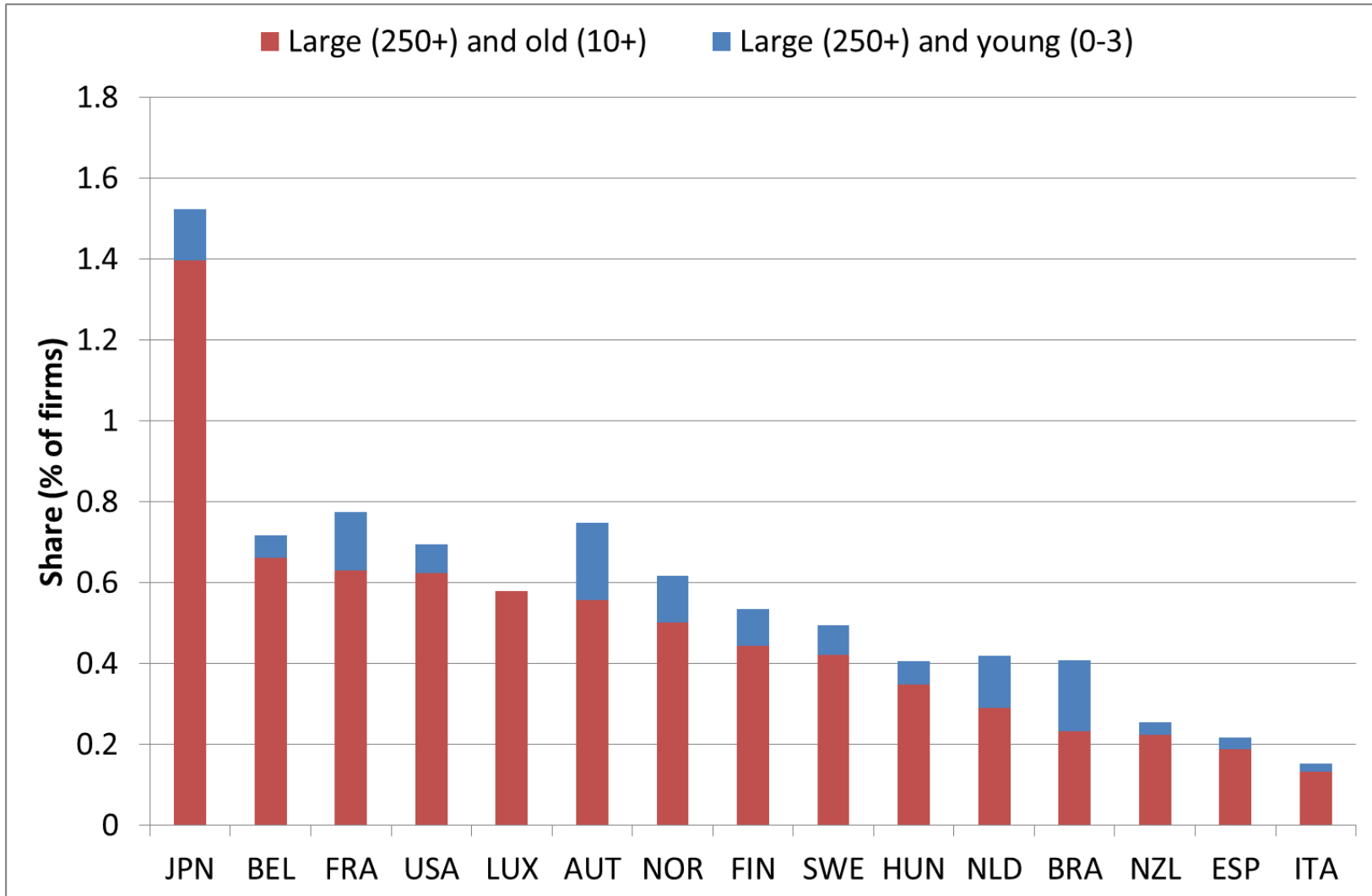


Definition of entry in participating countries

Country	First appearance	Incorporation	Birth	Censoring	Significant breaks in the data
AT				1972	
BE		✓			
BR	✓			1992	
CA		✓			
ES		✓		1993	2008: Changes related to the European legal frame on BR
FI	✓	✓			
FR			✓		
UK	✓			1973	
HU	✓			1992	2004: Change in accounting requirements; employment and turnover thresholds for double bookkeeping lowered
IT	✓				
JP			✓		
LU	✓	✓	✓		
NL	✓			1967-2005	2005: Change in the BR coding
NO			✓	1996	
NZ			✓		
SE		✓			
US				1976	



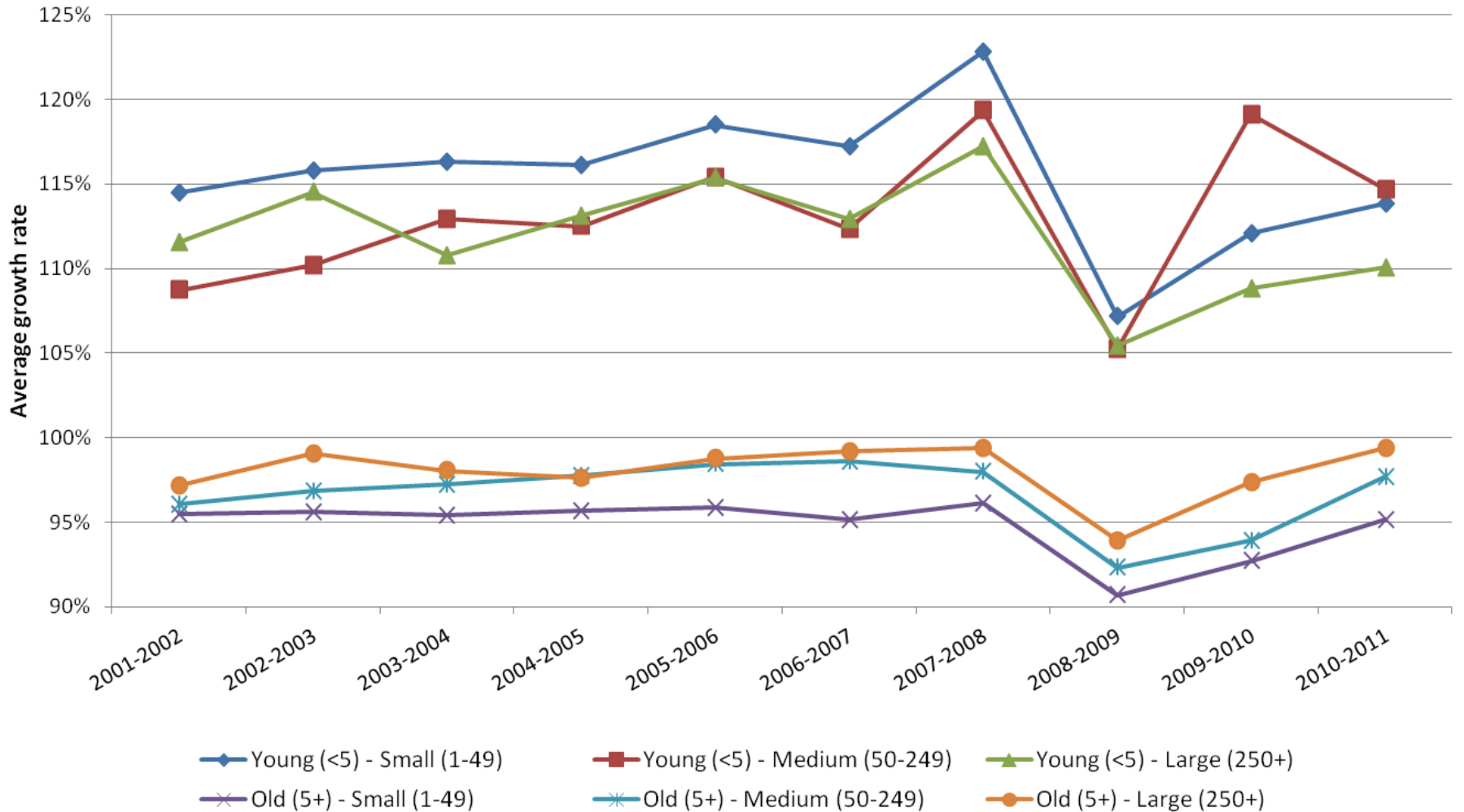
Age profile of large firms across countries



Source: OECD, Dynemp project. Preliminary results.



Young firms suffered more from the crisis, but recovered more quickly no matter their size



Note: Figures do not include data for Canada and France. Net job growth is defined as the ratio of the difference in employment for each group of firm (young and old) in two subsequent years relative to the average employment in the two years considered.

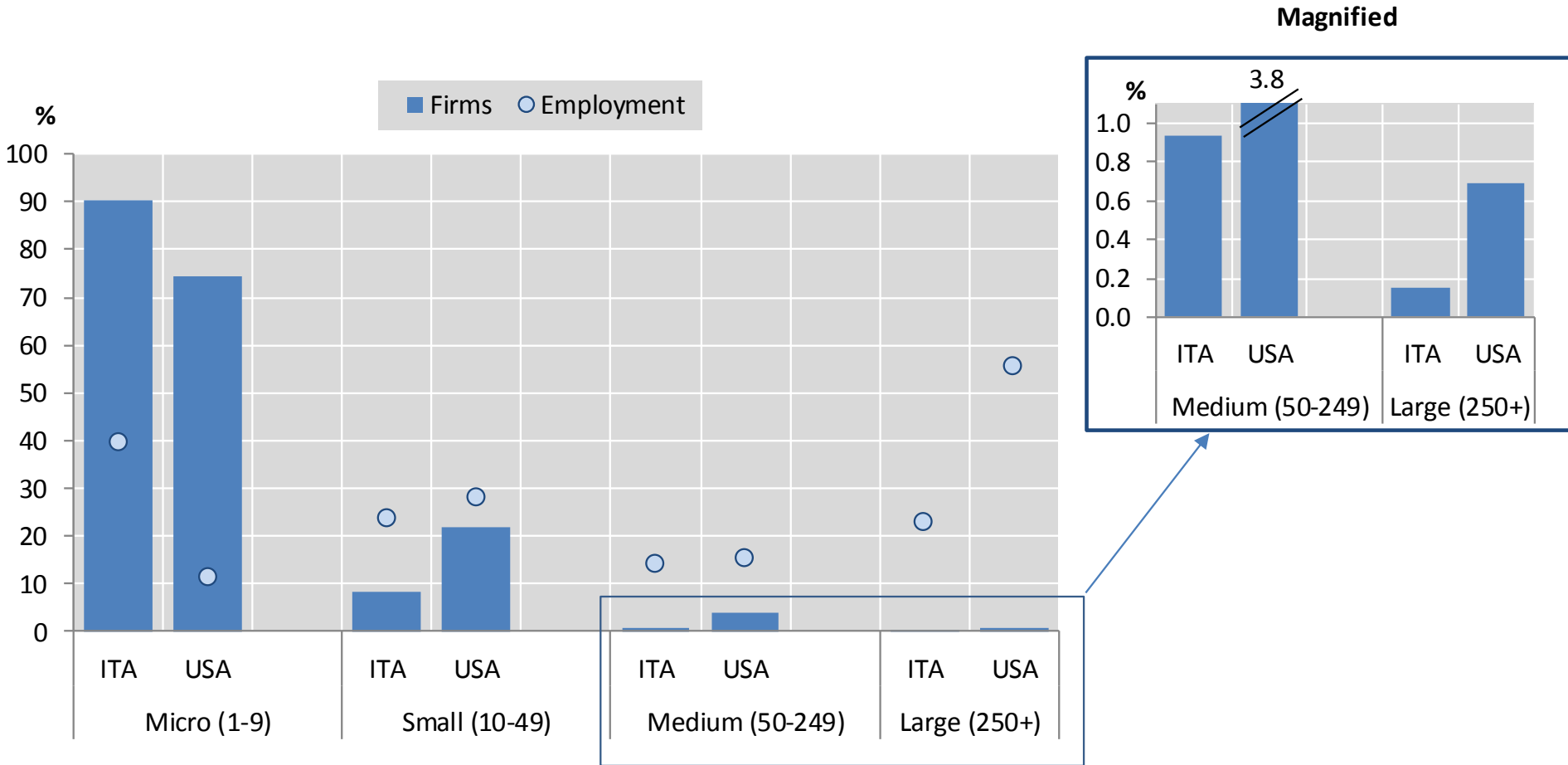
Source: OECD, Dynemp Express – preliminary results.



DYNEMP EXPRESS EMPLOYMENT WEIGHT OF SMALL FIRMS



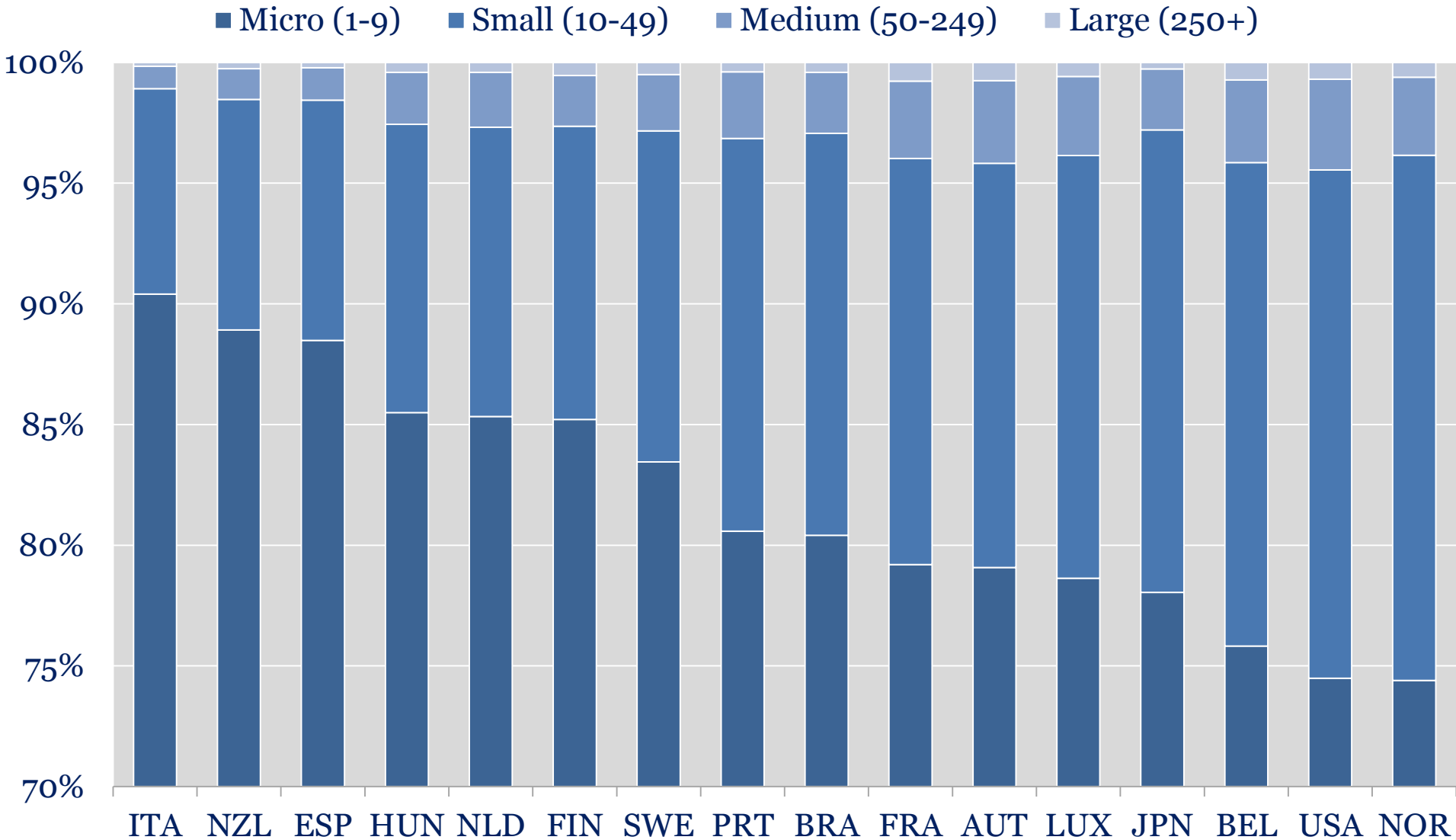
Role of small firms across countries: two polar cases



Source: OECD, Dynemp project. Preliminary results.



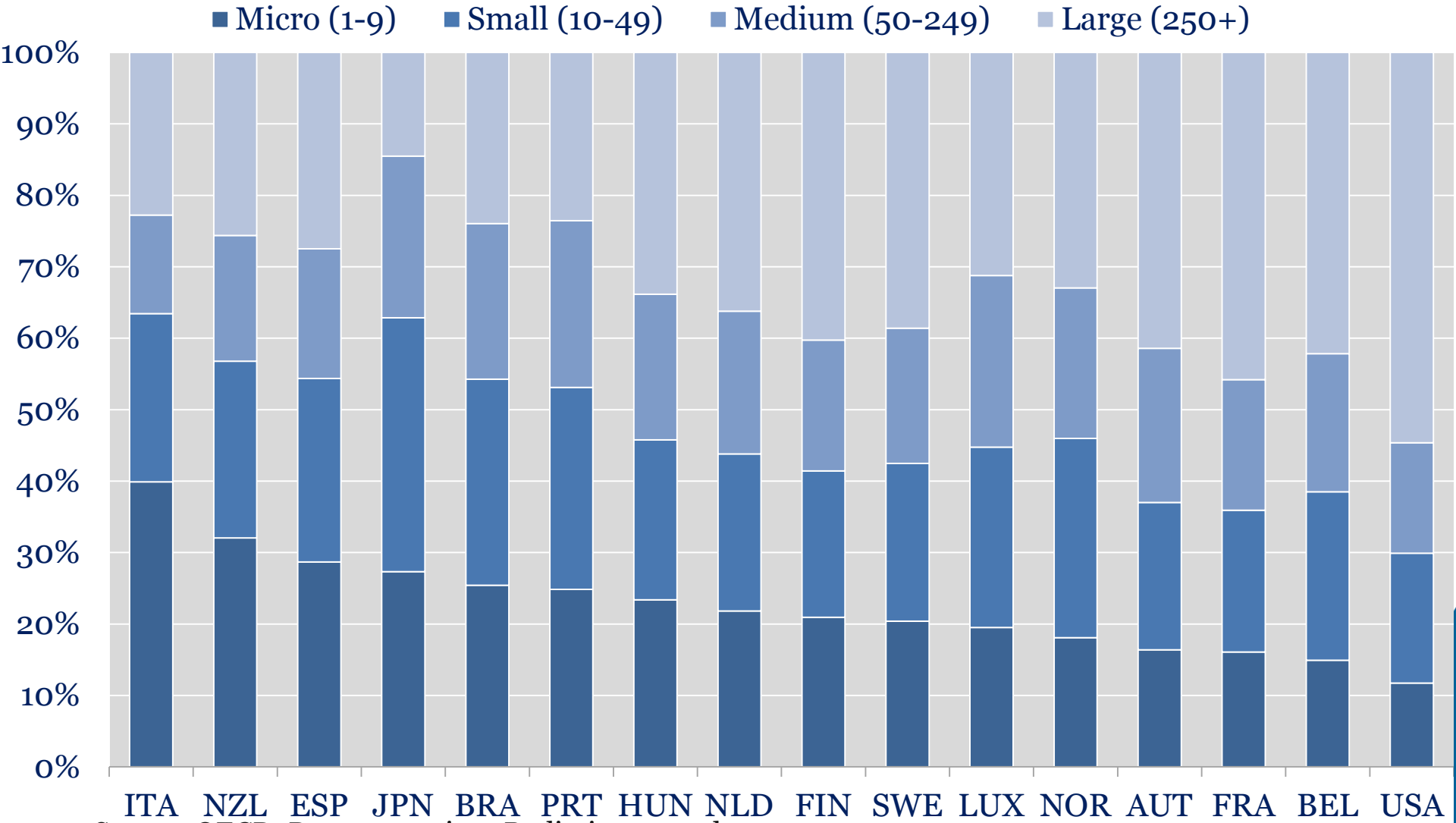
75-90% of firms are small



Source: OECD, Dynemp project. Preliminary results.



... but the majority of employment is usually in large firms



Source: OECD, Dynemp project. Preliminary results.



Policy implications

- Links with...
 - wage inequality (size differentials)
 - productivity performance
 - investment in knowledge based capital

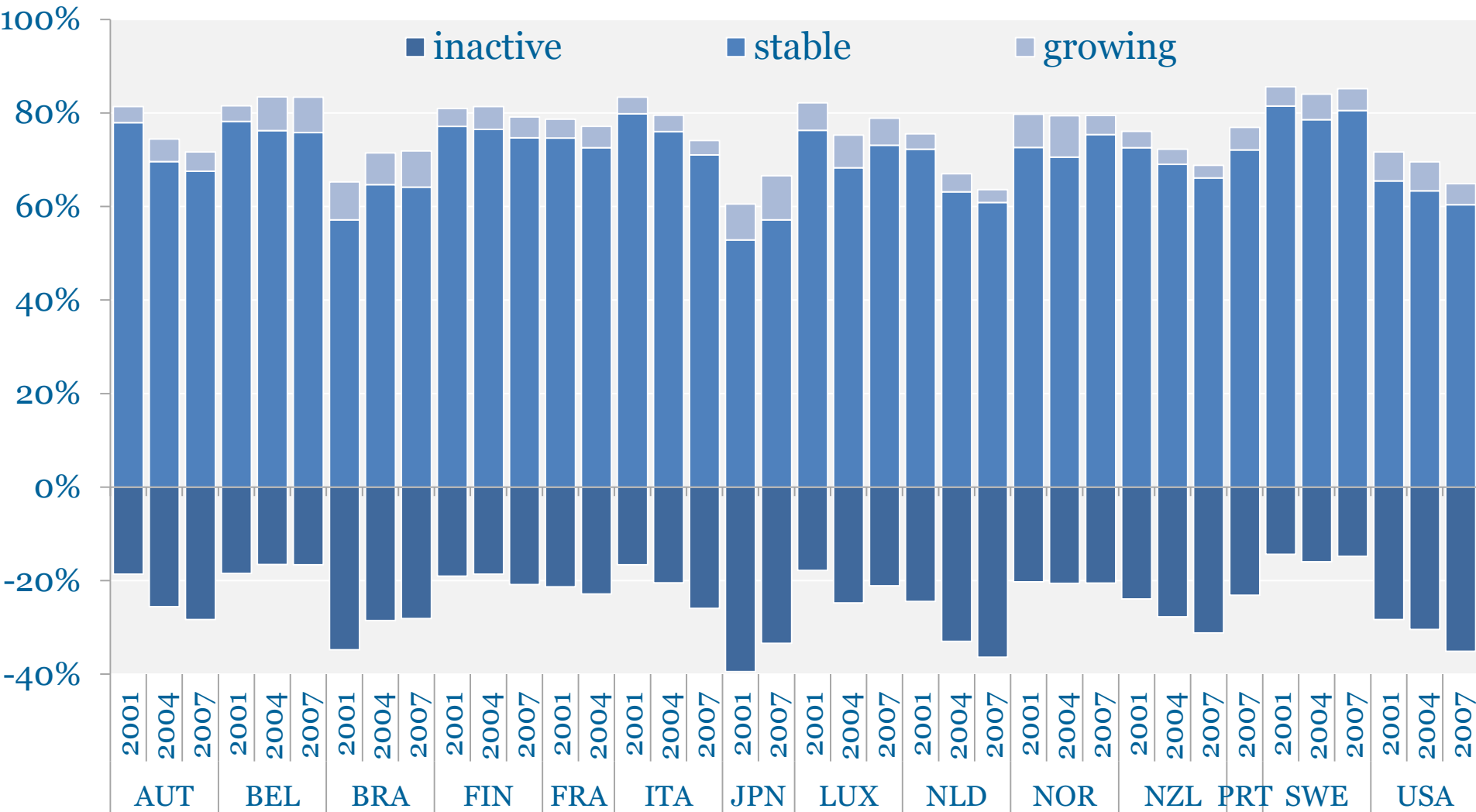
- Policy?
 - Competition
 - Openness
 - Employment protection
 - Size dependent policies



DYNEMP EXPRESS
GROWTH DYNAMICS OF
YOUNG FIRMS



A small share of micro start-ups grow to employ more than 10 employees after 3 years

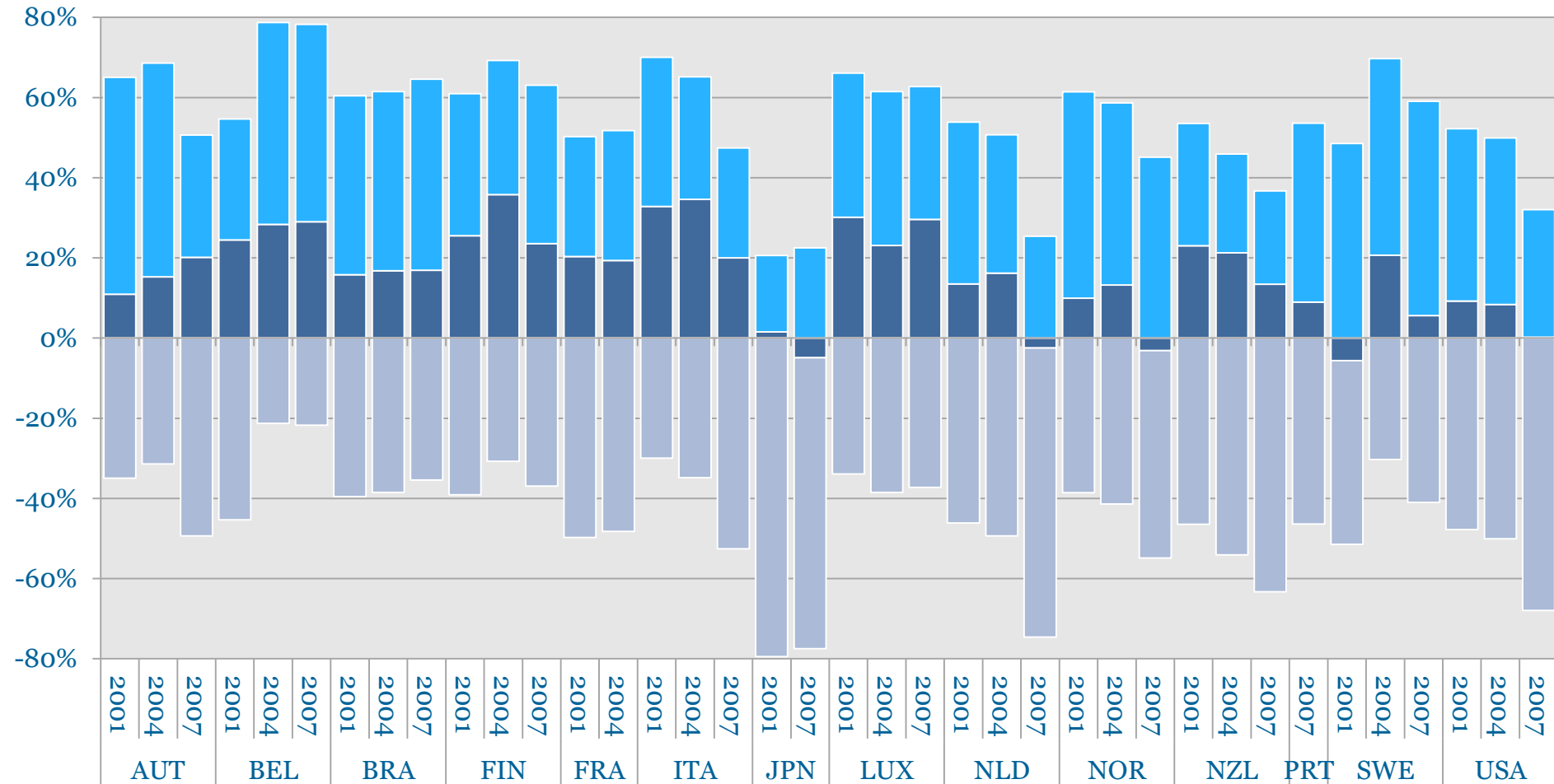


Source: OECD, Dynemp Express – preliminary results.



...but these “high growth” firms accounts for between 23 and 54% of job reallocation by micro startups

■ stable ■ growing ■ inactive



Source: OECD, Dynemp Express – preliminary results.