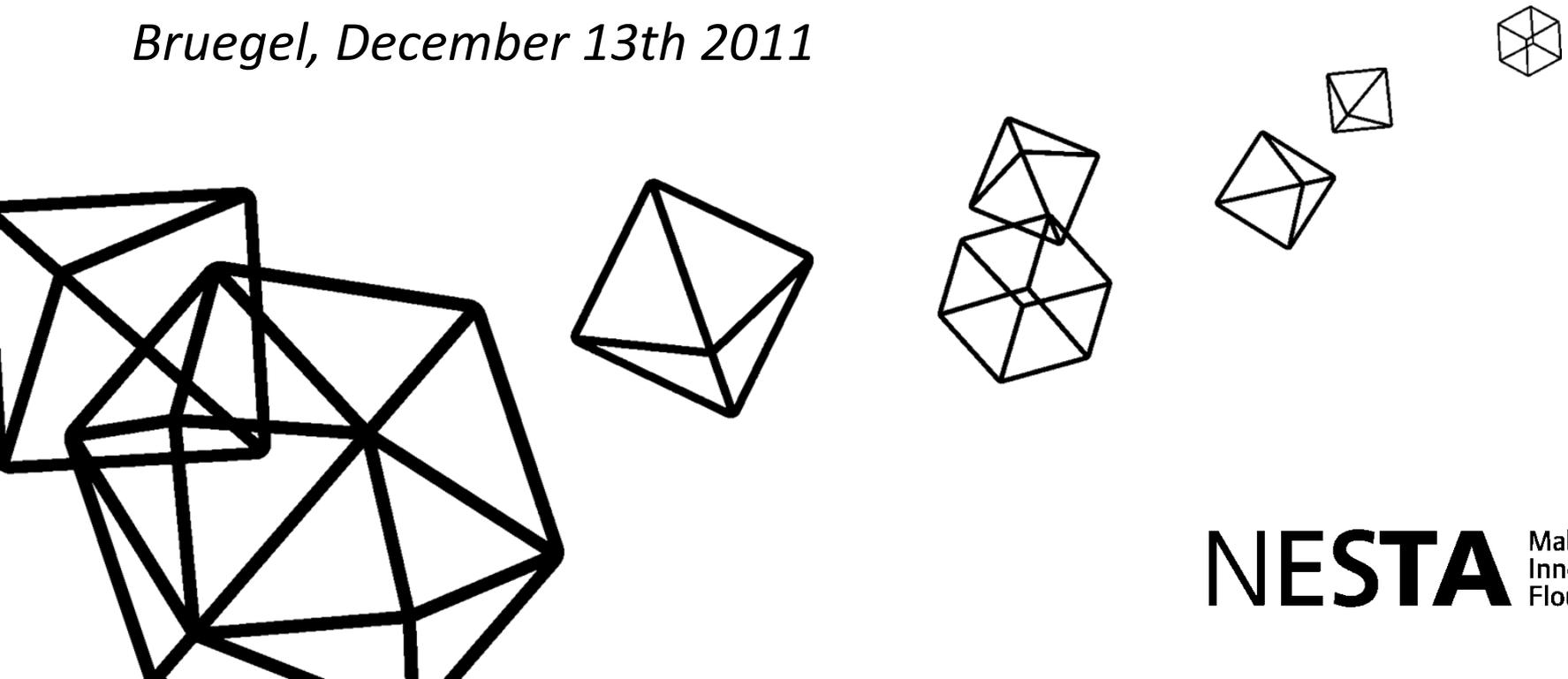


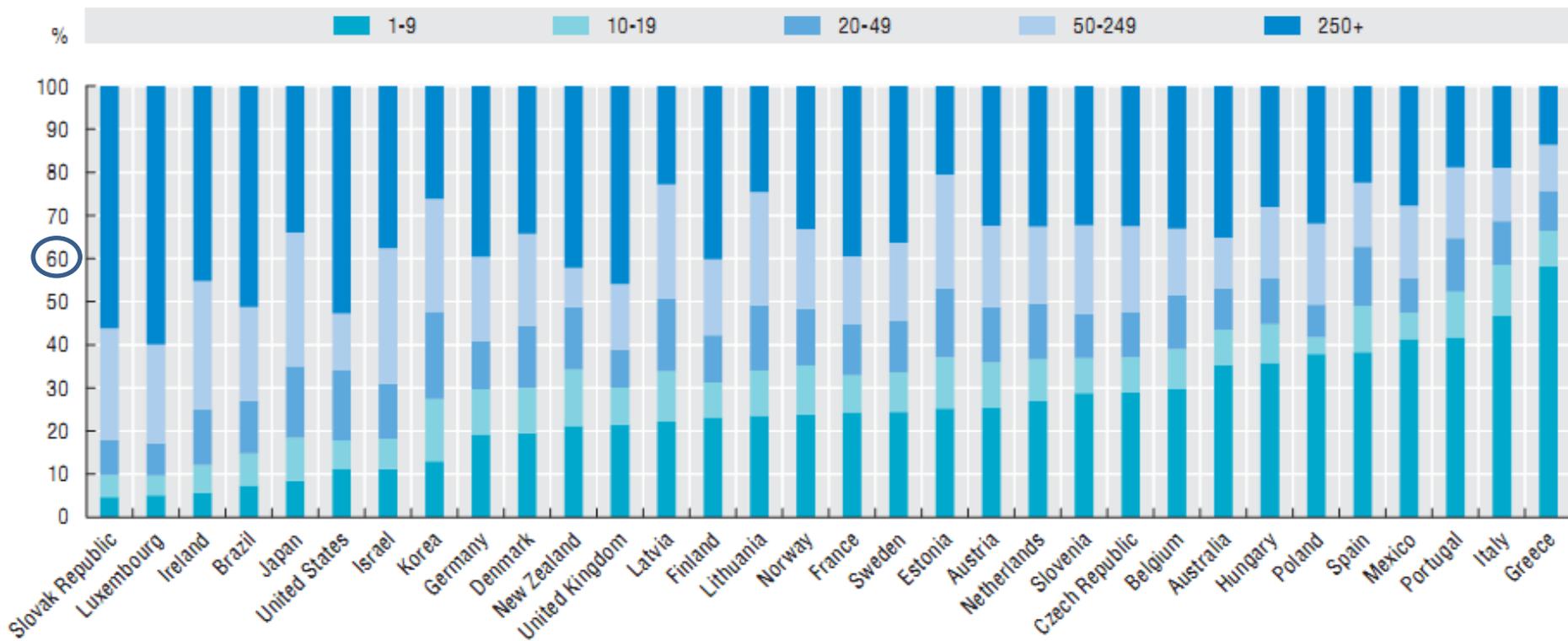
Exploring business growth and contraction in Europe and the US

Albert Bravo-Biosca

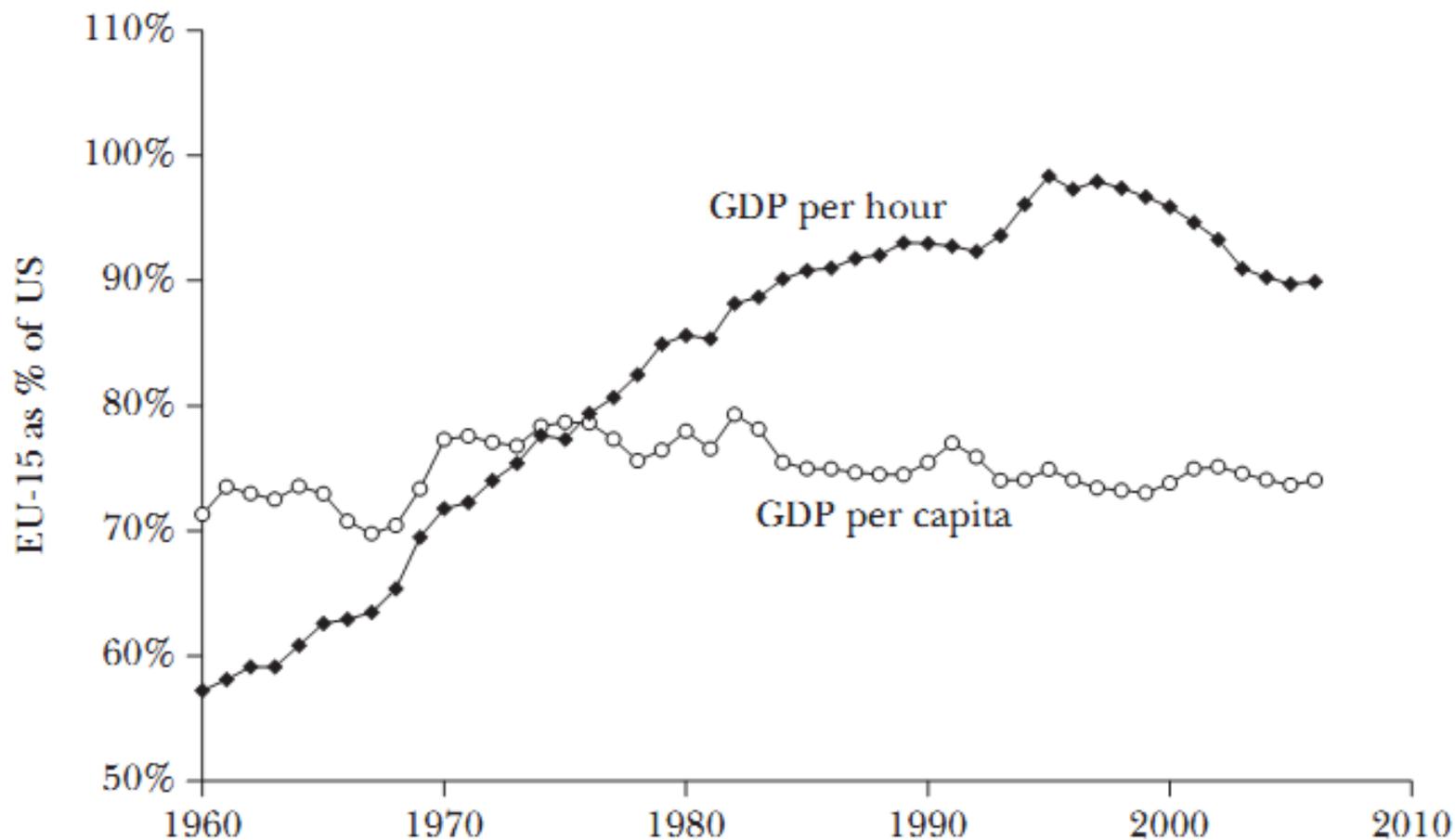
Bruegel, December 13th 2011



Employment by size class in 2007



GDP per hour and per capita in EU-15, 1960-2006 (relative to the US)



Some typical policy questions

- What explains Europe's productivity gap?
 - Rising US-EU15 productivity gap that preceded the financial crisis: 2pp in 1995-> 10pp in 2006. Consistent across many European countries.
- Where is Europe's Google? Or Starbucks?
 - Europe has many 'large successful' companies, but much older. Fortune 500 share of a country's firms founded after 1975: 2% in Europe vs. 16% in the US (Véron 2008)
- Which companies matter most?
 - Small vs. young vs. high-growth vs. high-tech

→ New data on firm growth can help inform the debate

Why look at firm growth across countries?

Why firm growth?

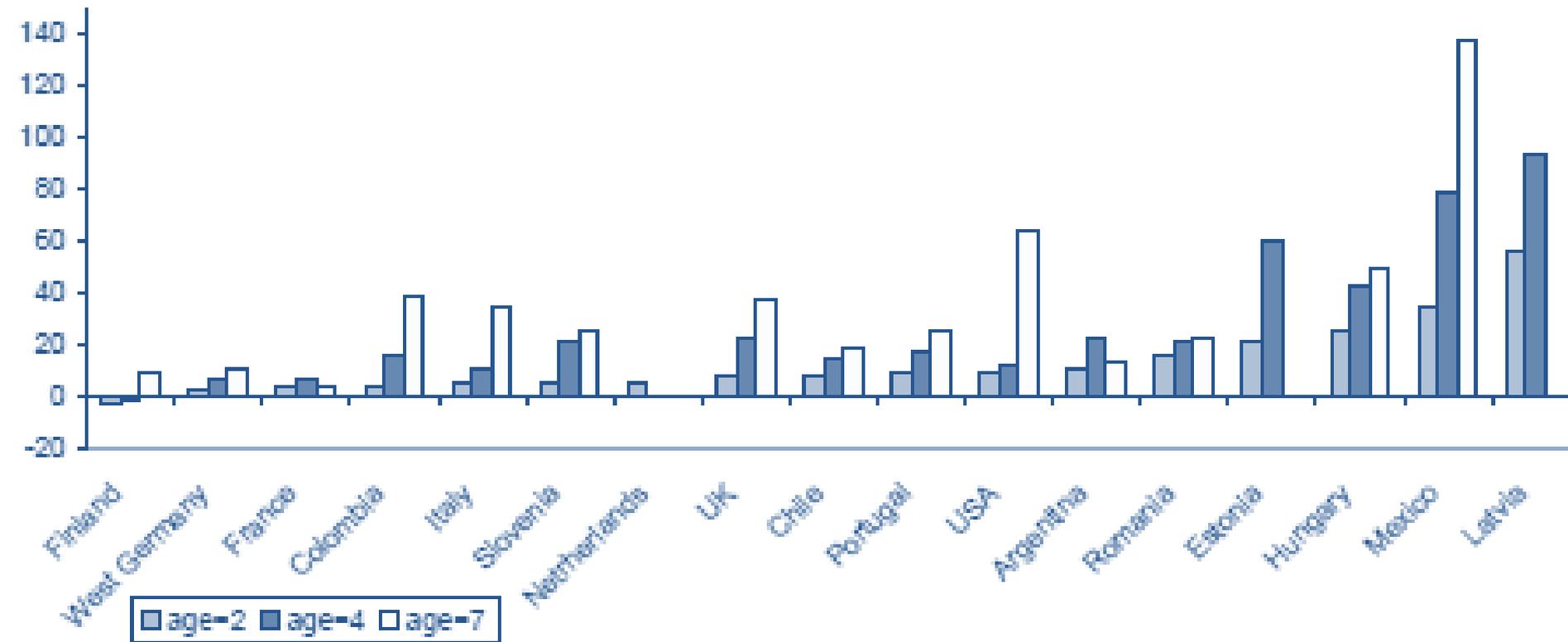
- Creative destruction and resource reallocation
- Increases competitive pressures and influences market structure
- Scaling-up and diffusion of ideas
- Employment dynamics

Why cross-country?

- Large theoretical and empirical literature examining within-country growth (Gibrat 1931, Nelson and Winter 1978, Jovanovic 1982, Cabral and Mata 2003, Bottazzi and Secchi 2006)
- Regulation, finance, institutions, etc. operate at country level
- Limited cross-country comparable data, but points to significant differences:
 - [Bartelsman et al. \(2003\)](#) → Differences across rich countries in post-entry growth more important than in entry and exit rates.
 - [EIP OECD \(2009\)](#) → Europe has fewer high growth firms (not only in high-tech)

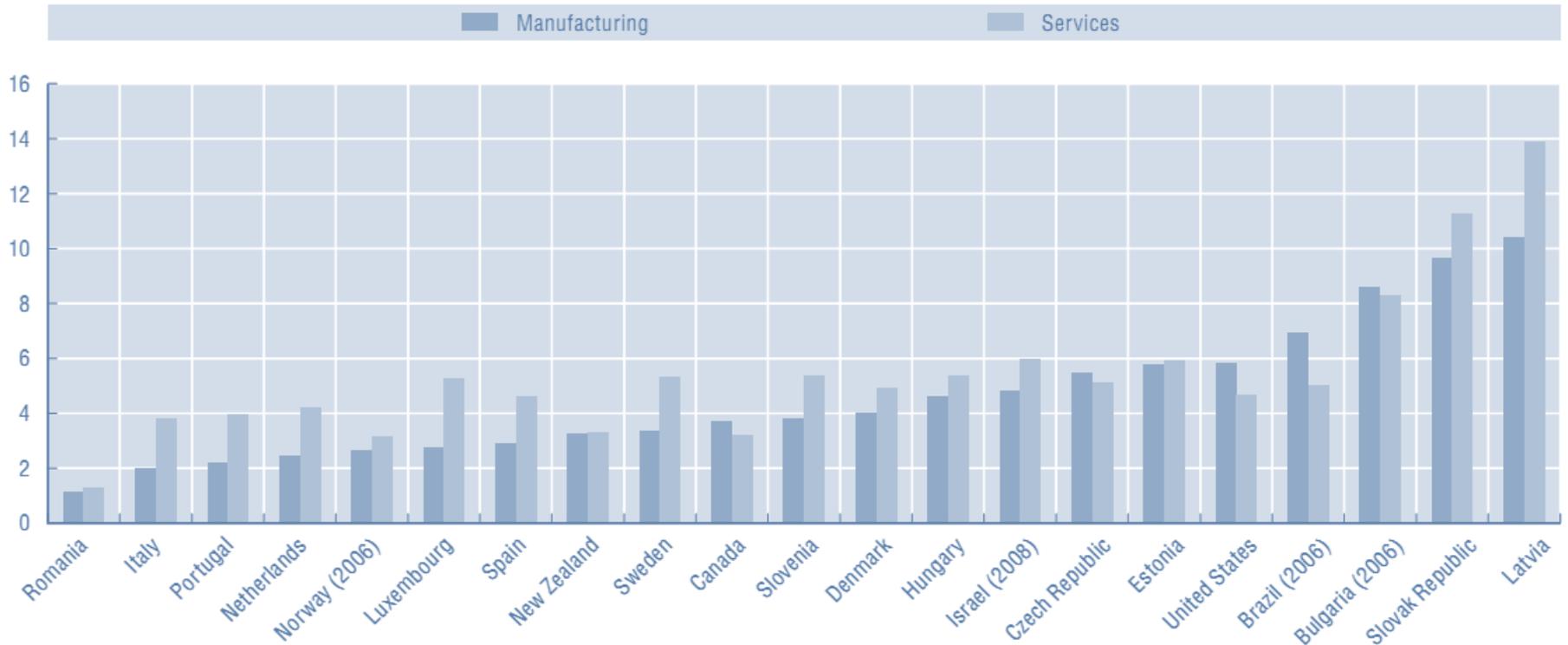
Post-entry growth across countries

Average firm size relative to entry by age (manufacturing, 1990s)



High-growth firms across countries

Share of high-growth firms



High-growth firm OECD-Eurostat definition:

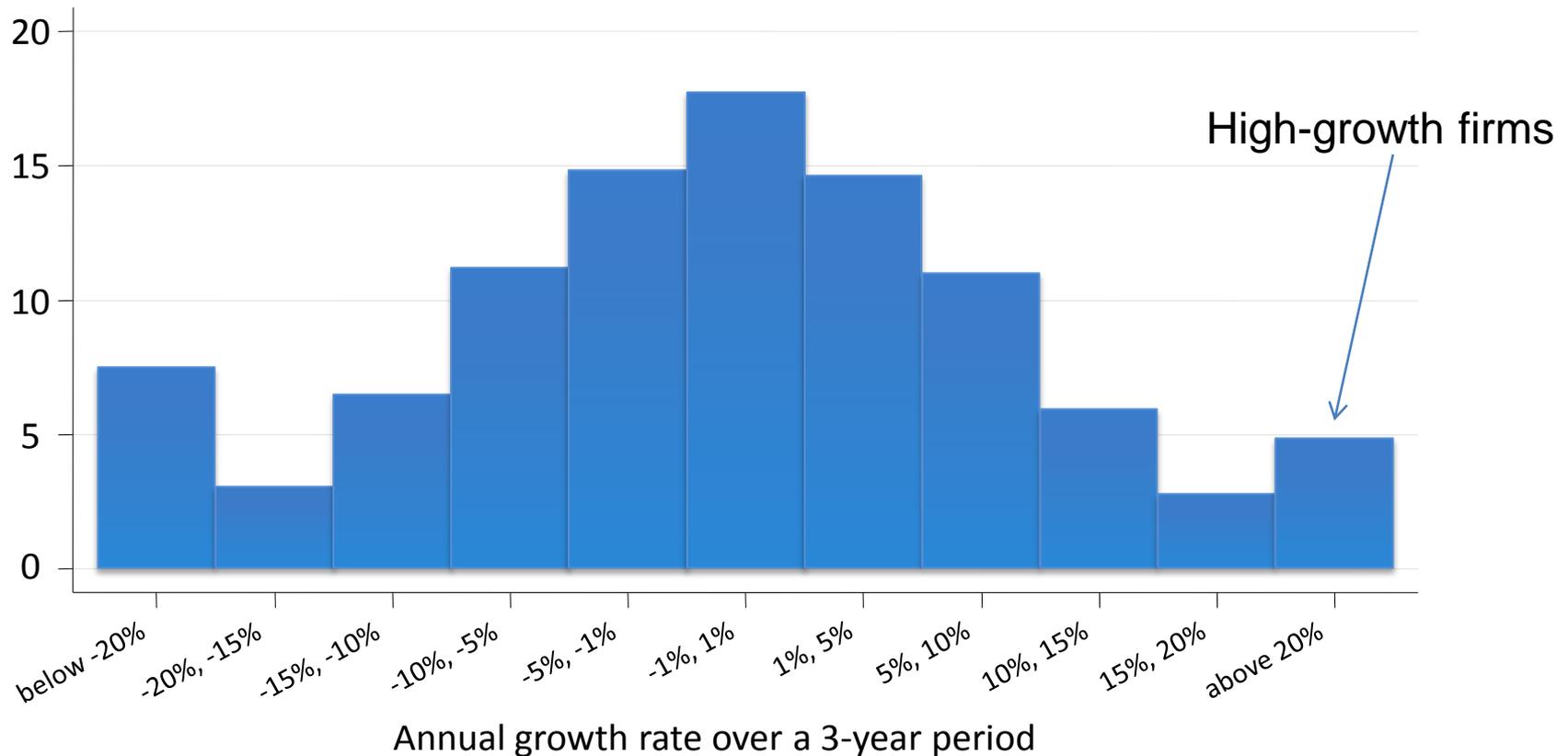
1. Annual average growth in employment (or turnover) of 20% or higher over 3 years
2. 10 or more employees at the beginning of the period

What's new?

- New database that describes the distribution of firm growth across several countries:
 - Captures heterogeneity of firms dynamics (not just the “average firm”) [What's new?](#)
 - Covers both recent entrants and incumbents
- Analysis so far:
 - Mapping cross-country differences
 - Employment growth patterns
 - Why does it matter for productivity growth
- On-going/next steps:
 - What drives differences in firm growth distribution?
 - Make non-disclosive data available to policy-makers and researchers interested in using it

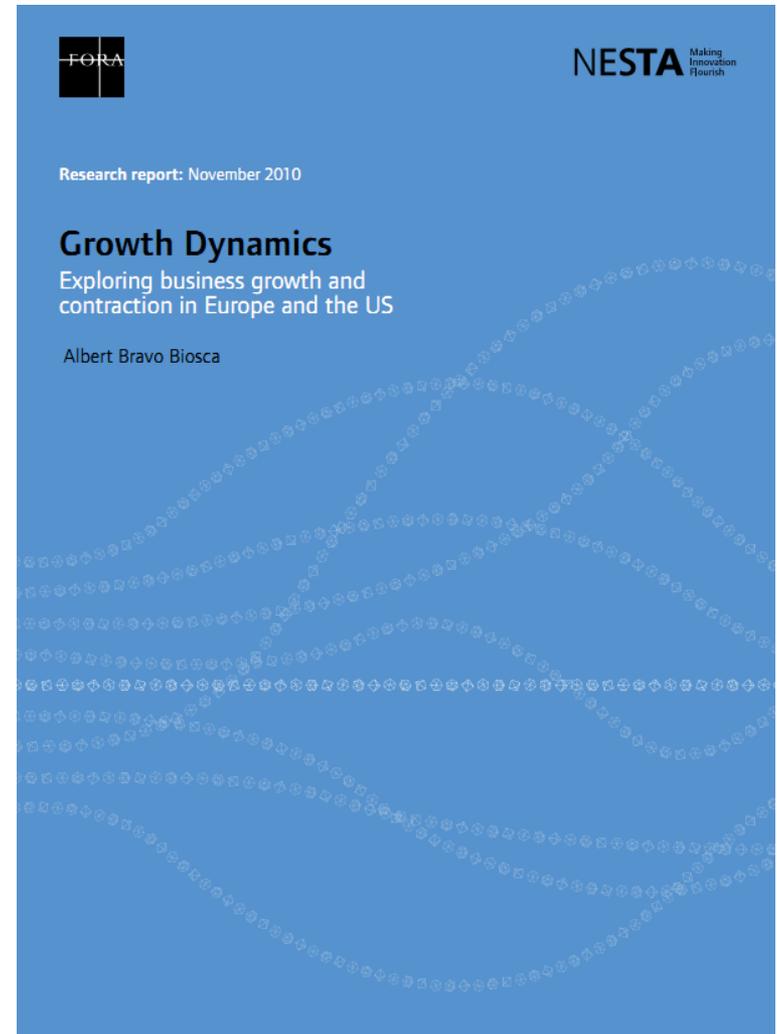
Distribution of growth for all businesses

Share of businesses by employment growth rate



Data from recent report:

- Examines business growth and contraction for all surviving employer enterprises in 11 countries (ca. 6 million) in 2002-05.
- Done in collaboration with researchers and statistical agencies in each country
- Detailed data by size, sector and age



Building the database

- 12 countries so far:
 - Austria, Canada, Denmark, Finland, Greece, Italy, the Netherlands, New Zealand, Norway, Spain, the UK and the US
- Official business register data
 - “Universal” coverage
 - Legally-protected confidentiality
 - Only accessible to national statistical offices or authorized researchers
- Population: All surviving employer enterprises
- Coverage: Private sector (ISIC 10-74)
- Period: 2002-2005 (& 2004-07/05-08)
- Exclude birth year
- Process: Harmonization of definitions → manual and code file → data provided by countries → checked for inconsistencies
- New partnership with the OECD to update it and expand it

The Project: a collaborative exercise

FORA and NESTA, with support from the ICE

- Austria: Werner Hölzl (WIFO)
- Canada: Sonja Djukic, Chris Johnston and Chris Parsley (Industry & Statistics Canada)
- Denmark: Henrik Lynge Hansen (FORA)
- Finland: Henri Kahonen, Petri Rouvinen and Mika Pajarinen (Ministry of Employment and the Economy & ETLA)
- Greece: Theano Tyfoxyliou (Hellenic Statistical Authority)
- Italy: Patrizia Cella and Caterina Viviano (Istituto Nazionale di Statistica)
- Netherlands: Rico Konen (Centraal Bureau voor de Statistiek)
- New Zealand: Geoff Mead (Statistics New Zealand)
- Norway: Svein Myro and Christian L. Wold Eide (Statistics Norway and Ministry of Trade and Industry)
- Spain: Valentín Llorente Garcia (Instituto Nacional de Estadística)
- United Kingdom: Michael Anyadike-Danes, Rodrigo Lluberas and Mark Hart (ERINI, NESTA and Aston Business School)
- United States: David Brown and Javier Miranda (U.S. Census Bureau)

The database

- Industry breakdown:
 - Up to 51 sectors, covering business sector 10-74 (manufacturing, services, construction and energy)
- Size breakdown:
 - Up to 10 size intervals, from 1 employees to 10000+
 - Average firm size per cell
- Age breakdown:
 - Exclude birth year
 - Up to 10 age intervals, from 1 year to 41+ (although problematic)
- Aggregated multiple breakdowns

The indicators

- For each surviving firm (c.a. 6 million), compute average employment growth:

$$\text{Growth}_j = \sqrt[i]{\frac{\text{employees}_{j,t}}{\text{employees}_{j,t-i}}} - 1, \text{ where } i = 3$$

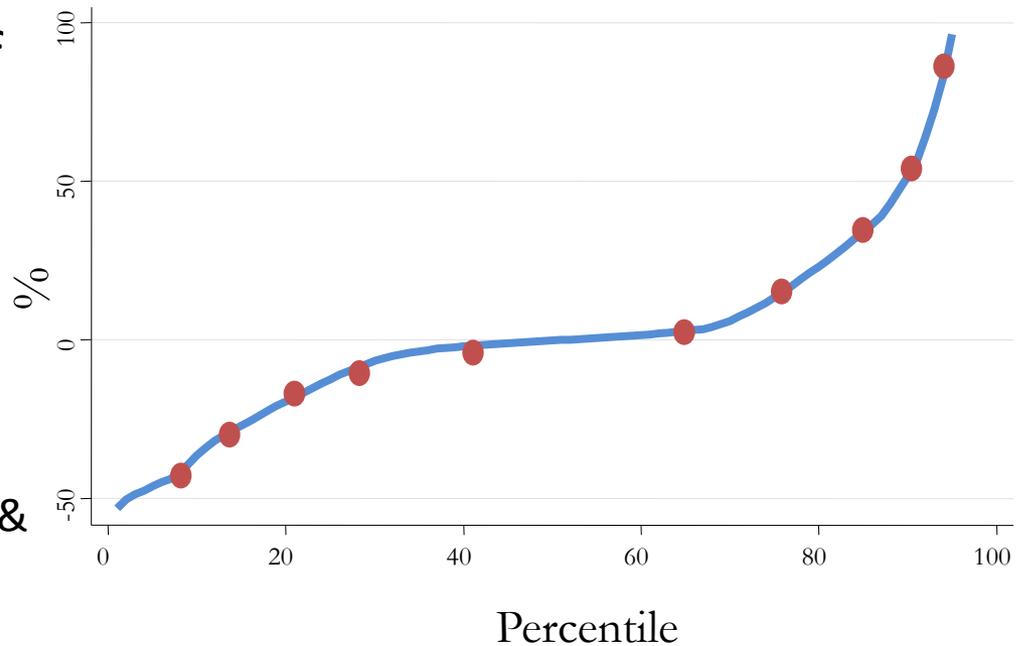
- Allocate to eleven growth intervals:

$]-\infty;-20[$	$[-10;-5[$	$[1;5[$	$[15;20[$
$[-20;-15[$	$[-5;-1[$	$[5;10[$	$[20; \infty[$
$[-15;-10[$	$[-1;1[$	$[10;15[$	

- For each cell, compute number of firms, average initial/final number of employees, and survival
- Do for turnover whenever feasible

Mapping the distribution

- 11 cells \rightarrow continuous cdf
- Interpolate between interval bounds
- Assume:
 - Continuous (only if >50 firms)
 - Laplace distribution is a good local approximation (Bottazzi & Secchi 2006)



$$f(x|\mu, b) = \frac{1}{2b} \exp\left(-\frac{|x - \mu|}{b}\right) \rightarrow F^{-1}(p) = \mu - b \operatorname{sgn}(p - 0.5) \ln(1 - 2|p - 0.5|)$$

- Solve for μ and b
- Unbounded top interval: Use average growth for top bracket

Some caveats

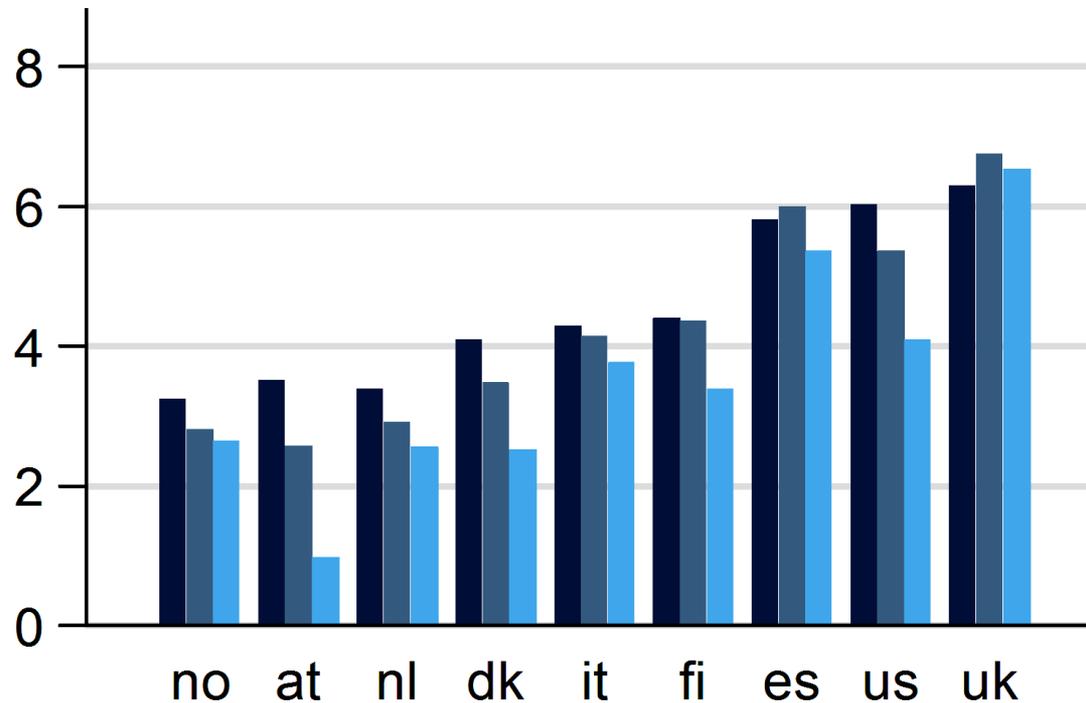
- Business registers threshold
- Longitudinal linkages – “false” entry/exit
- Boundaries of the firm – administrative definition of enterprise
 - Subsidiaries and business groups
 - Outsourcing
 - Offshoring
 - National borders
- Selection bias – only survivors
 - Exits by acquisition vs. out of business
- Internal growth vs. growth by acquisitions – job creation bias
- Business cycles & credit crunch

Structure for the session

1. A few facts on start-ups and high-growth firms
2. Exploring differences in the distribution of business growth across countries
3. Some policy implications

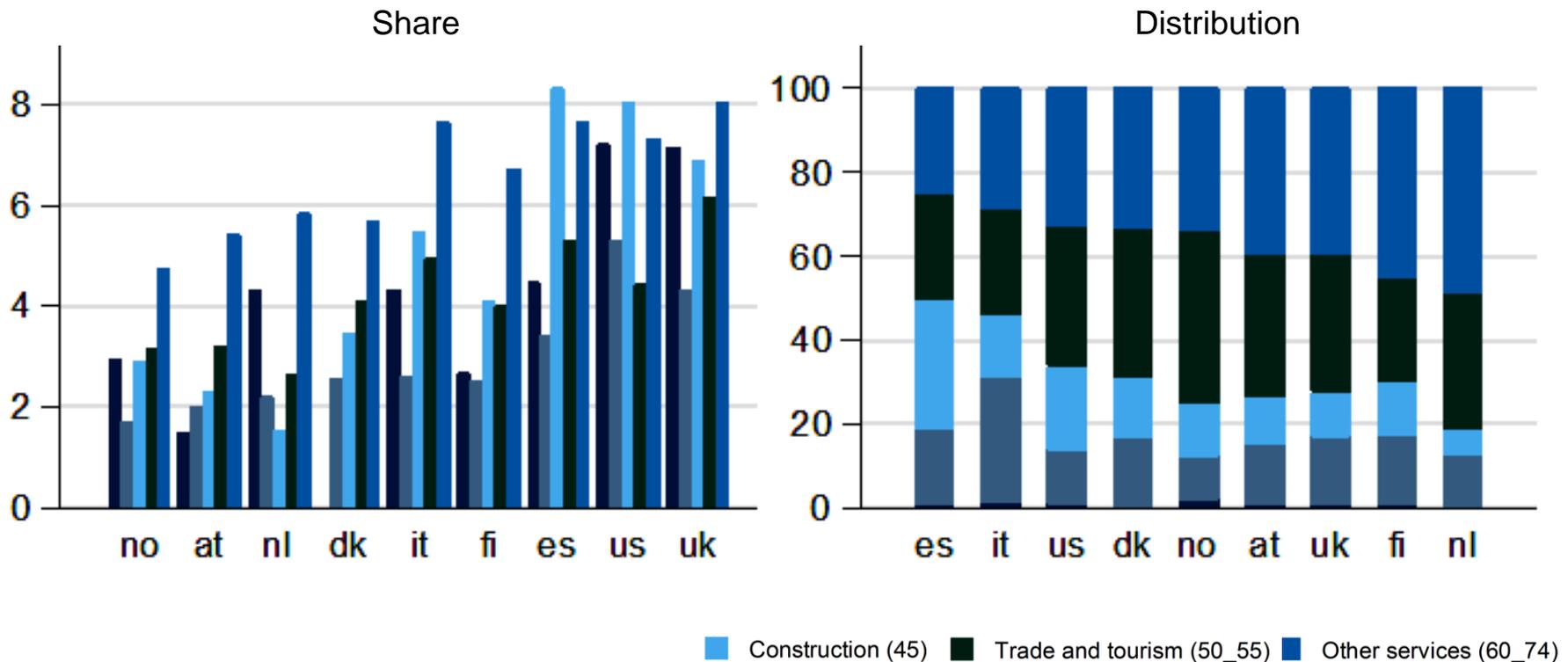
Most SMEs don't grow fast, even if a majority of high-growth firms are SMEs

Share of high-growth firms by initial firm size



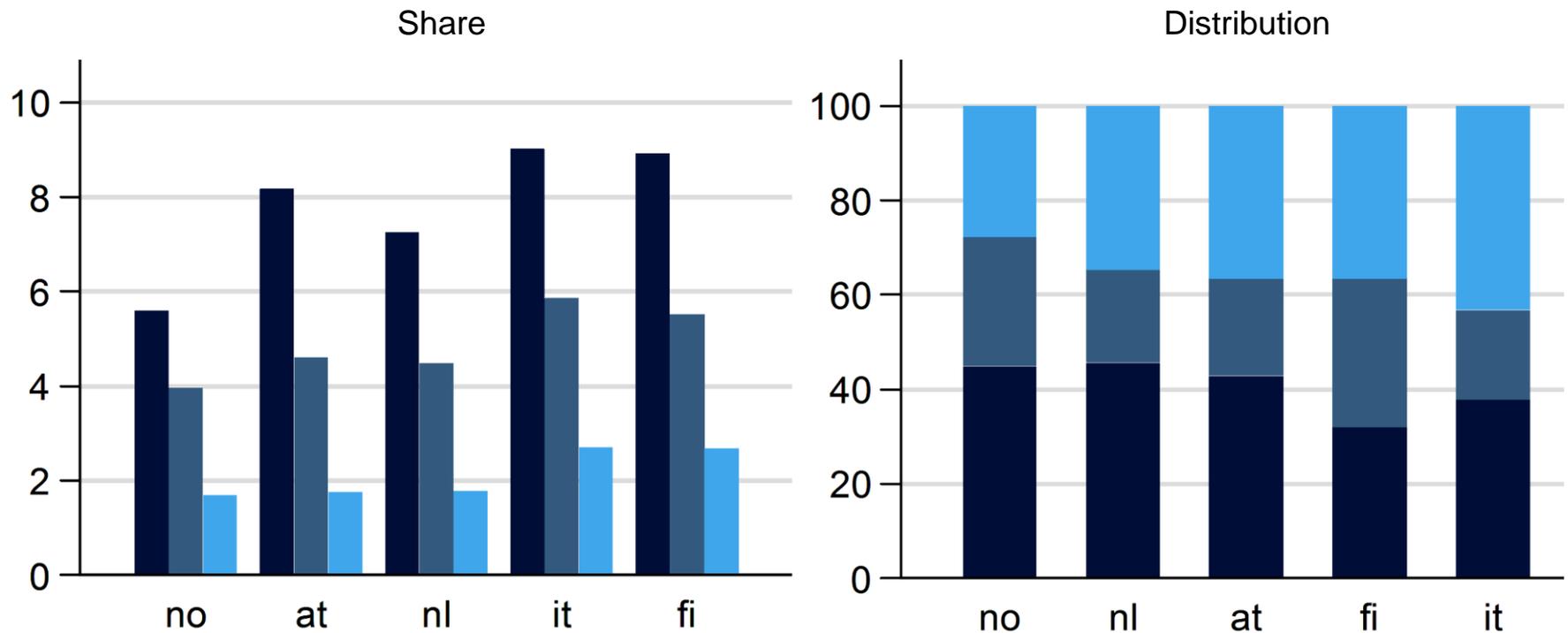
High-growth firms are everywhere, not only in high-tech or “growth” sectors

Share and distribution of high-growth firms by sector



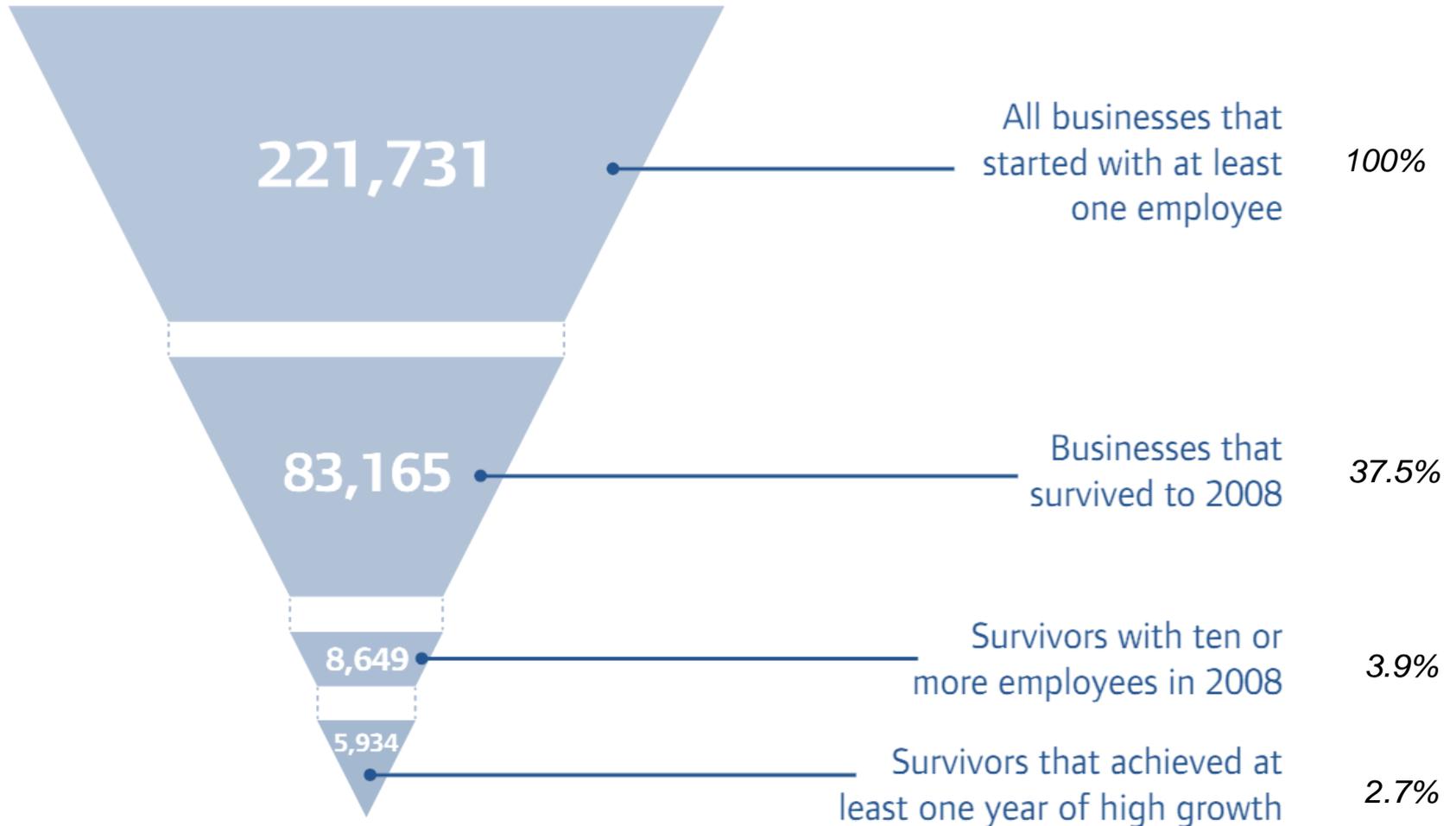
Young firms grow faster on average, but most high-growth firms are older than 5 years

Share and distribution of high-growth firms by firm age



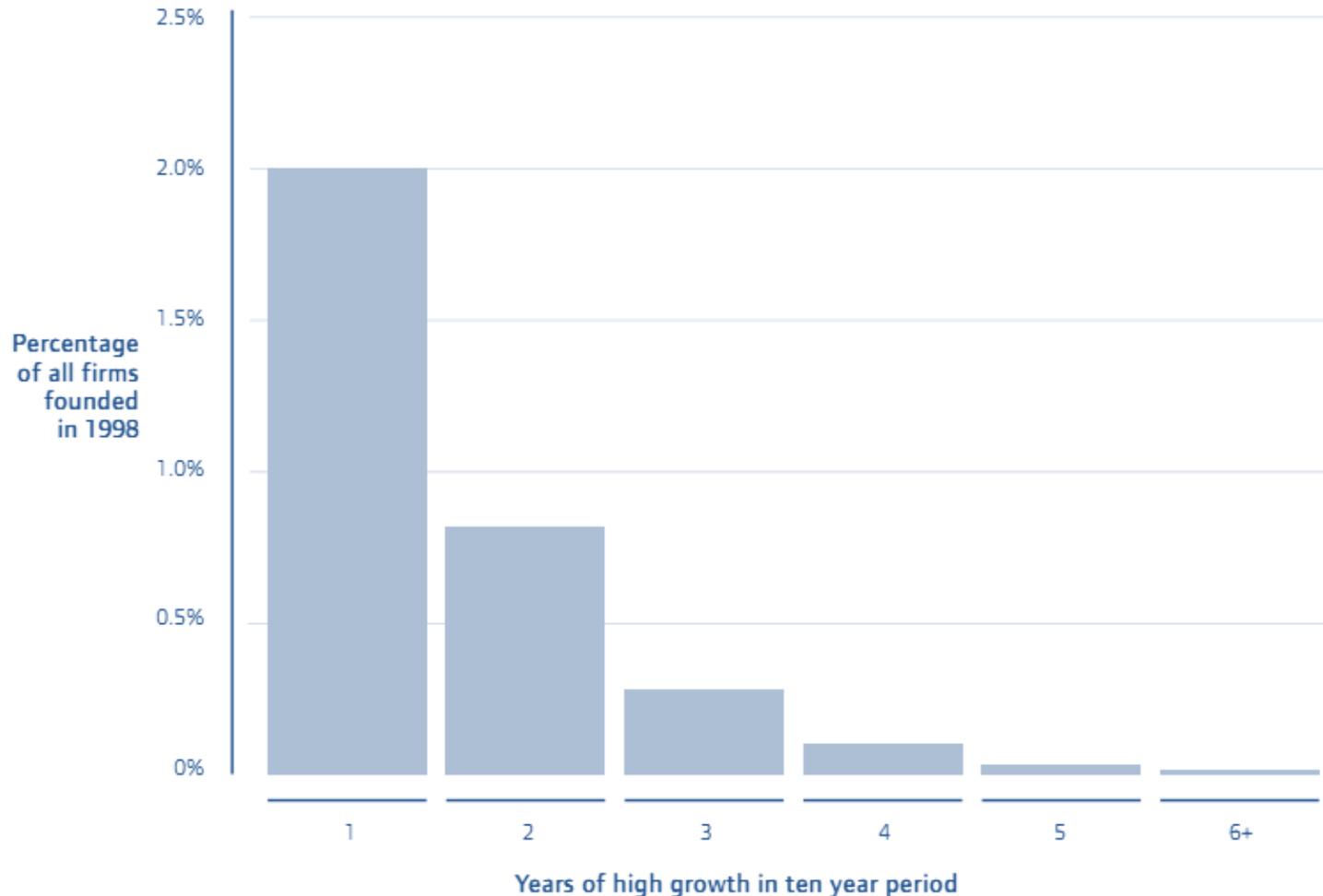
Very few start-ups survive and grow

UK businesses started in 1998 – ten years later



High-growth is a stage rather than a type of firms

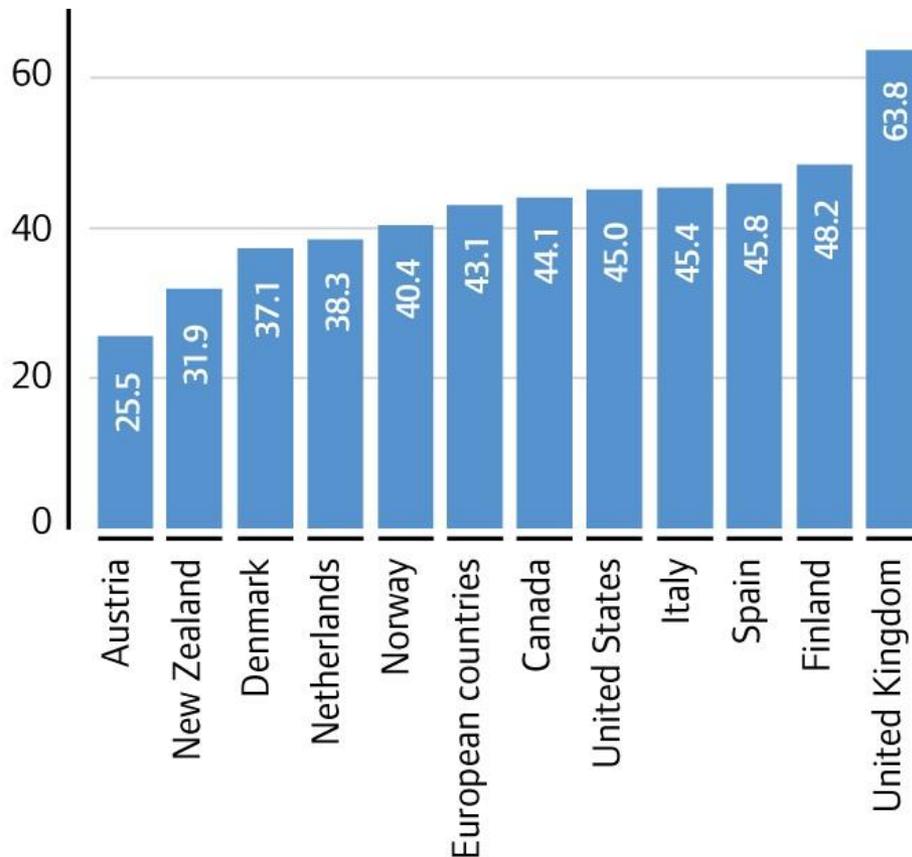
UK firms with at least one year of high-growth



Today's high-growth firms are unlikely to be tomorrow's high-growth firms

A few firms create a disproportionate share of new jobs...

Share of job creation by high-growth firms



High growth firms are a small share of firms (ca. 3-6% of firms), but accounted for between a third and half of all jobs 'created' by surviving firms with ten or more employees.

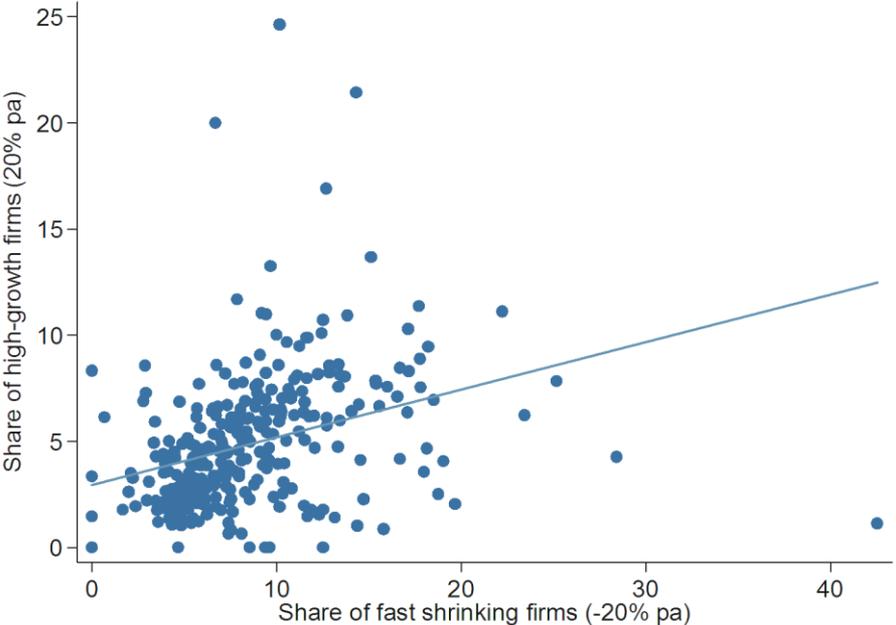
...and a minority also account for a majority of job destruction

Share of job creation/destruction by growth bracket

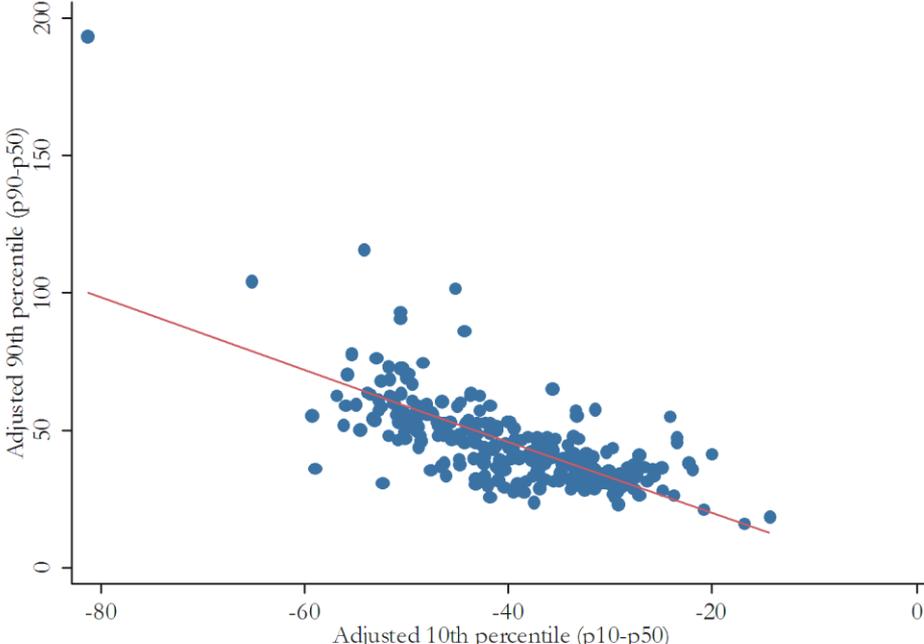


Expansion and contraction are correlated

High-growth vs. fast shrinking firms

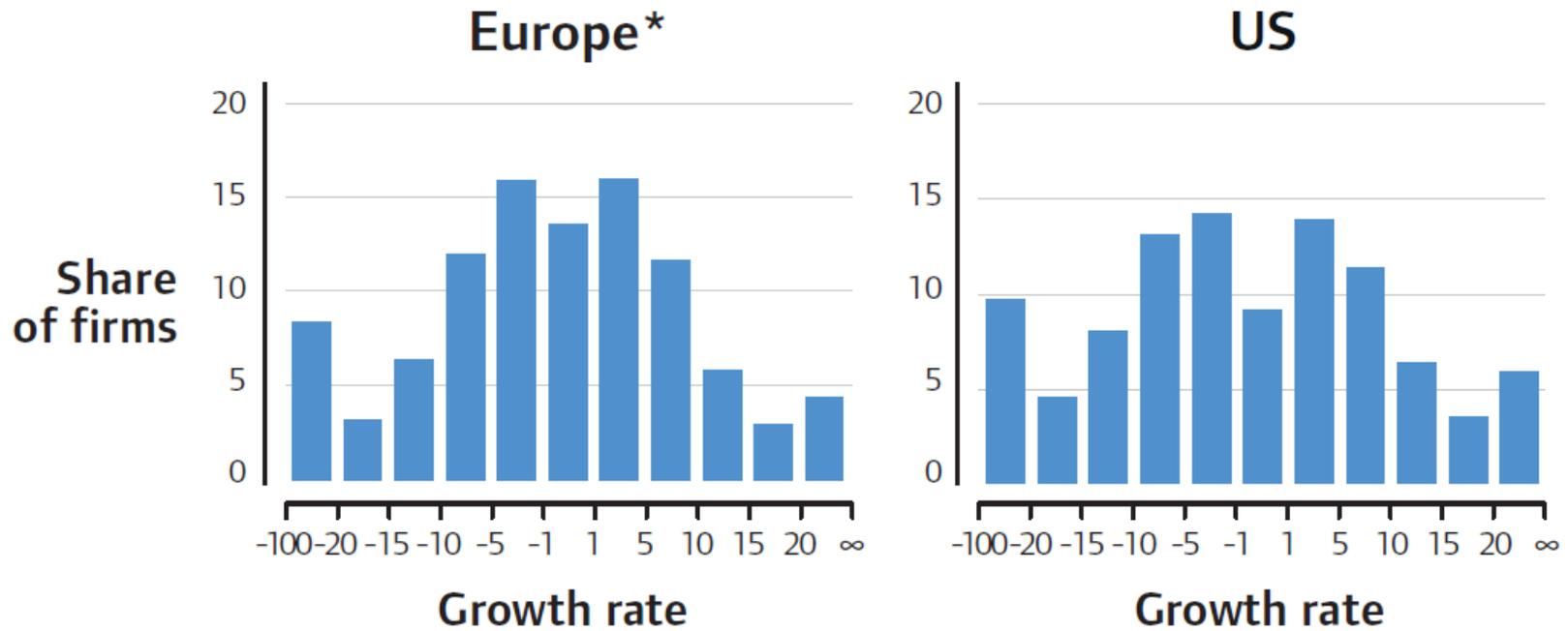


percentile 90 vs. percentile 10

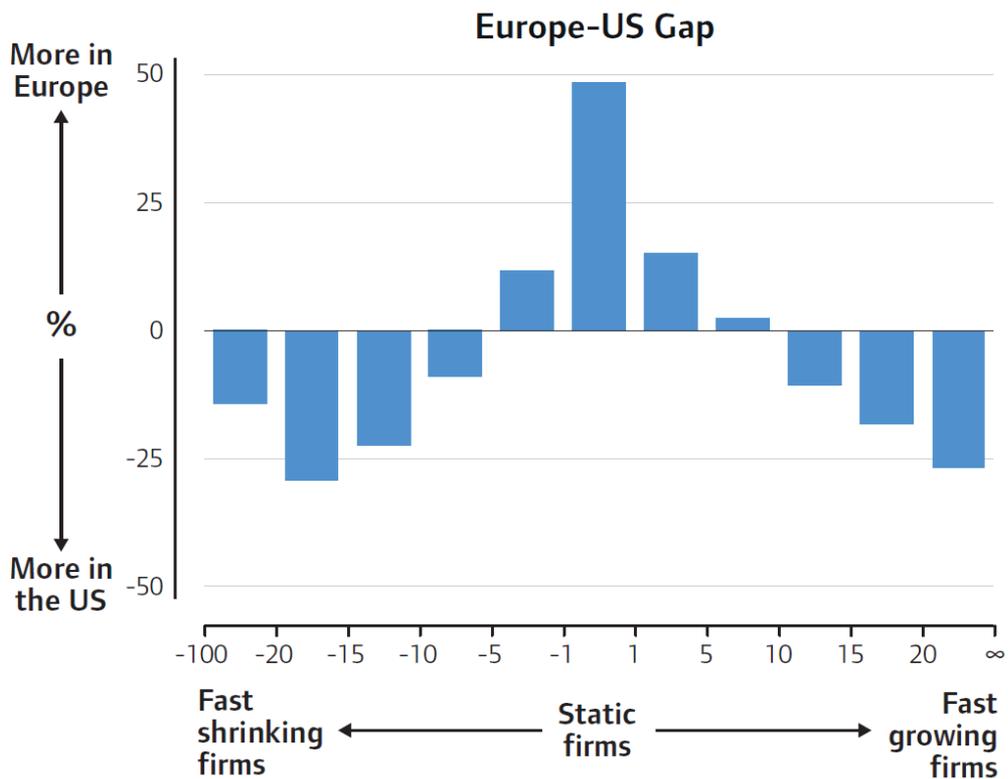
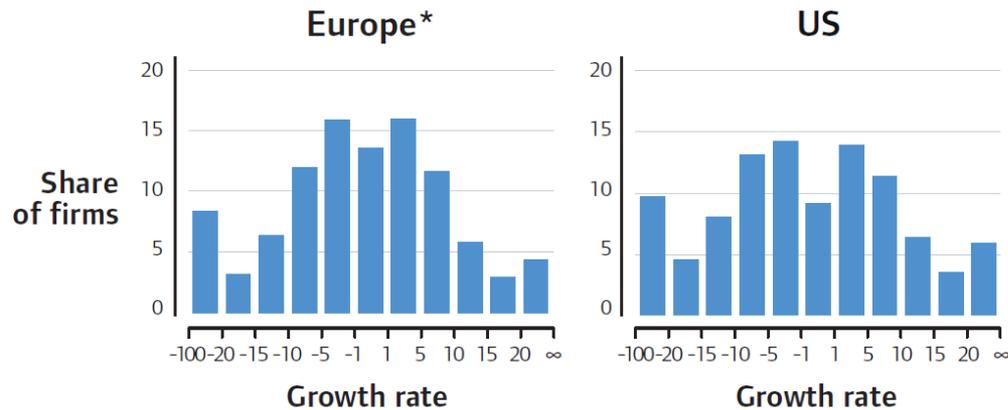


Source: Bravo-Biosca (2011).

Business growth distribution in Europe and the US



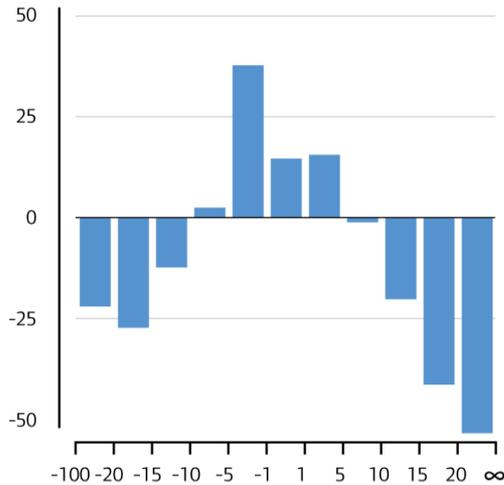
Business growth distribution in Europe and the US



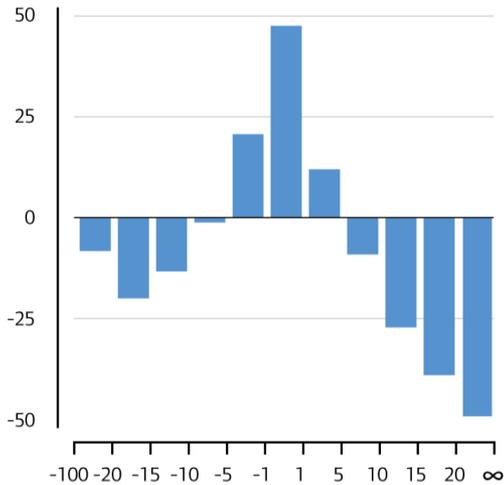
Europe has a much larger share of 'static' firms, while the US has more fast growing and fast shrinking firms

Gap by sector

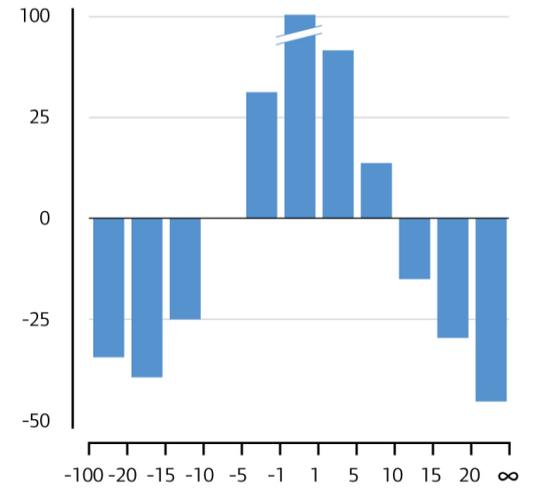
10_14 + 40_41: Mining and quarrying;
electricity, gas and water supply



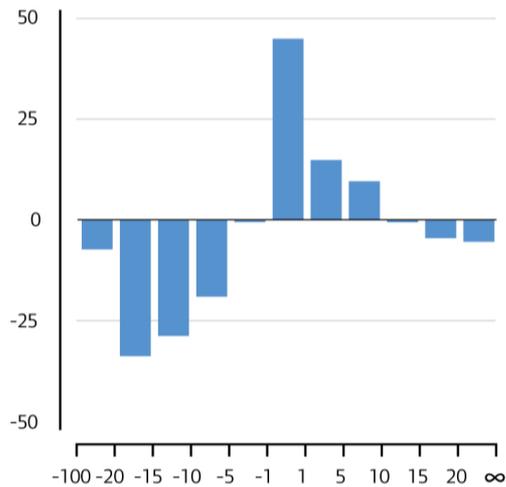
15_37: Manufacturing



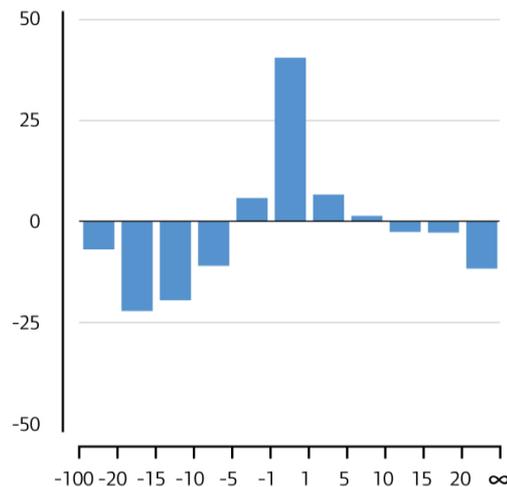
45: Construction



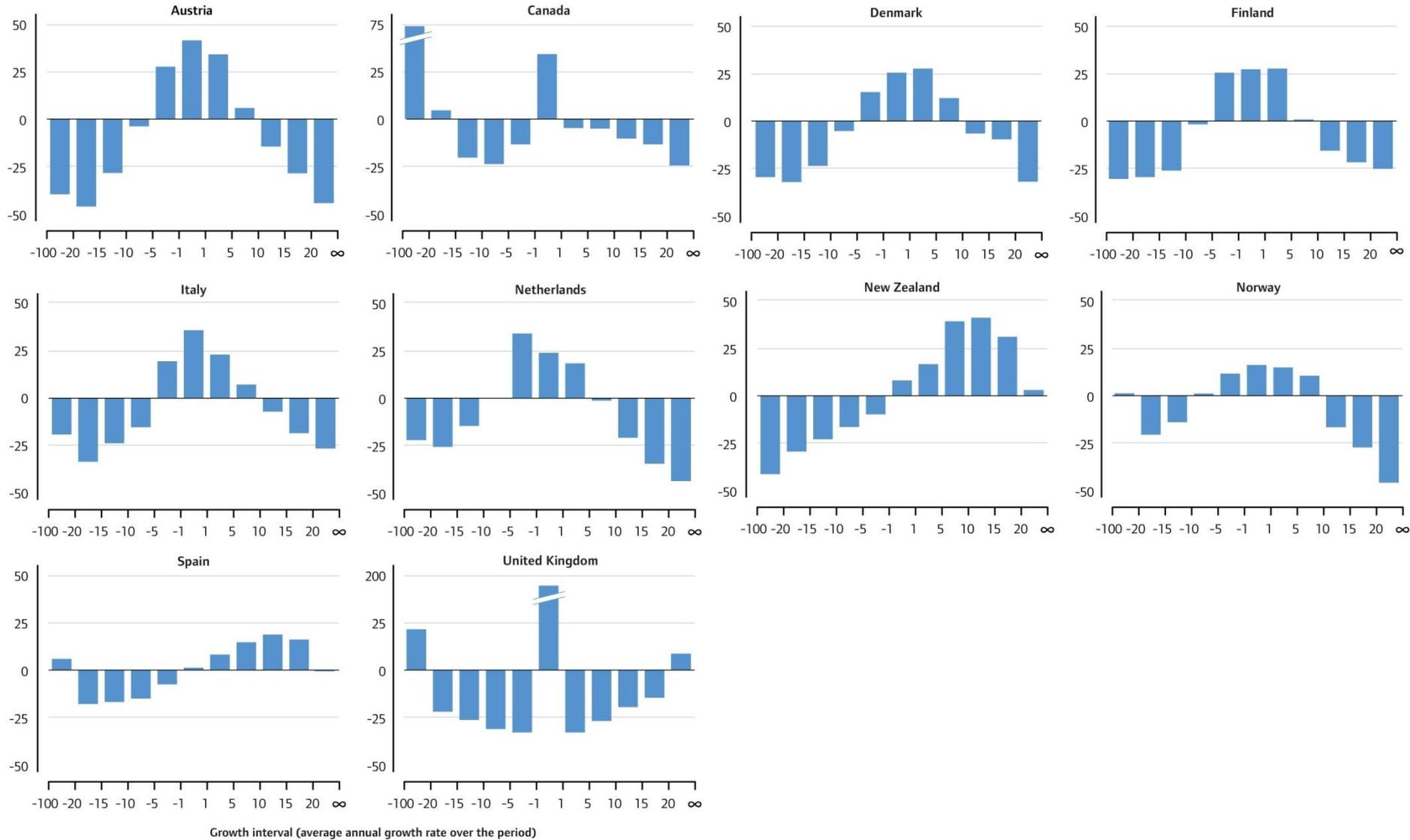
50_55: Wholesale and retail trade; hotels and restaurants



60_74: Transport, storage and communications; finance;
insurance, real estate and business services



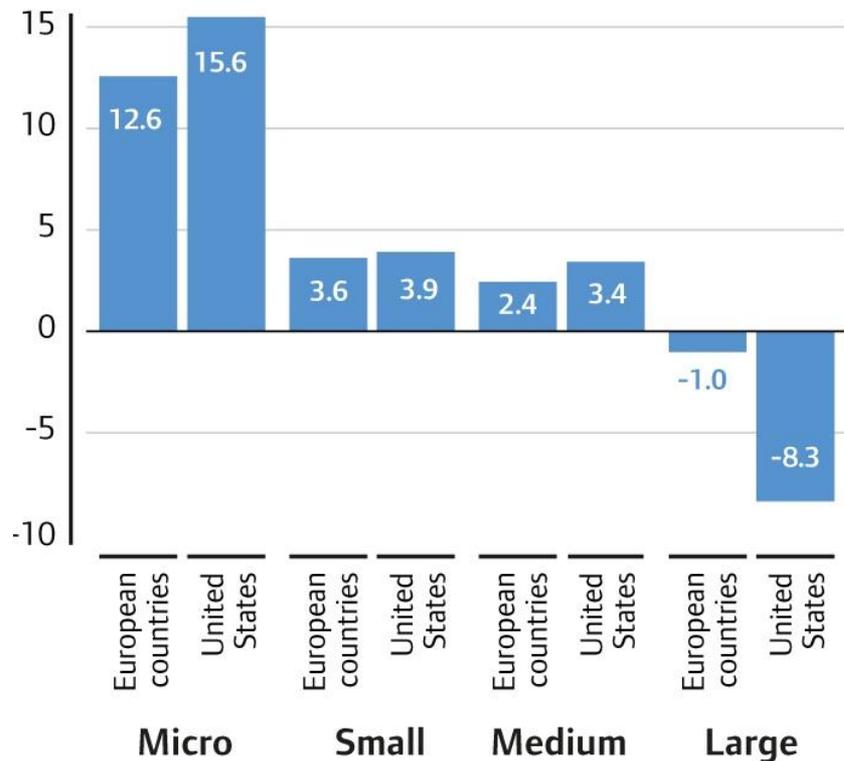
Gap by country



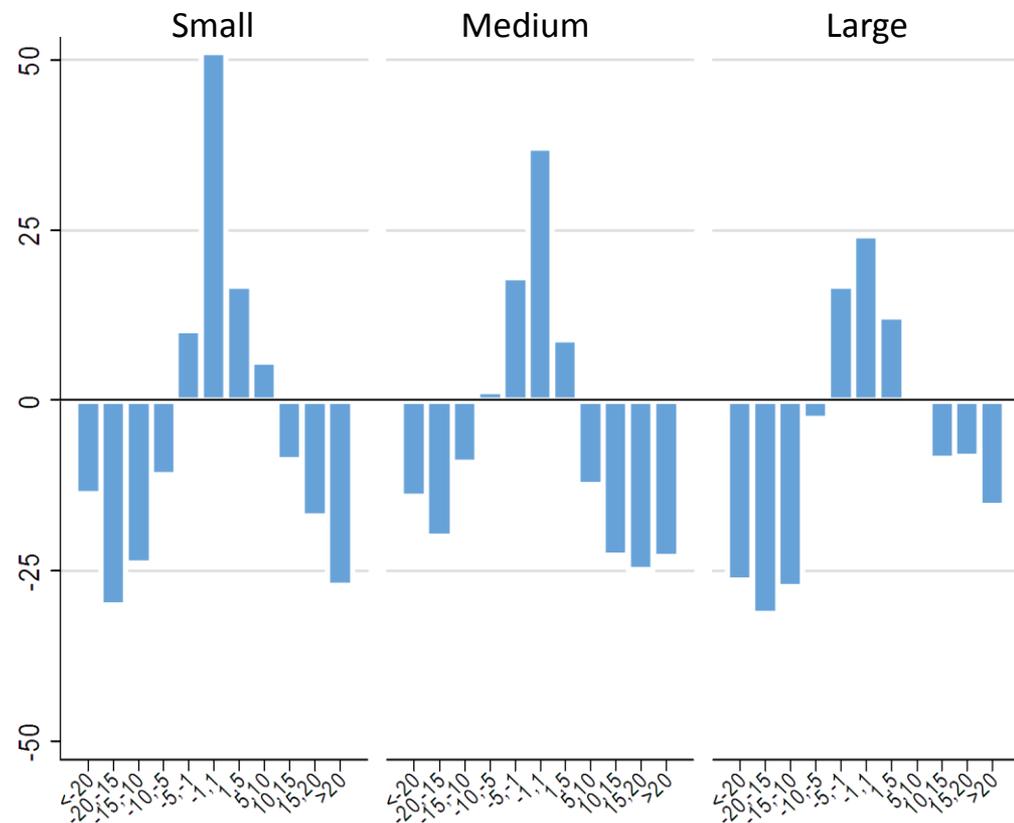
Growth interval (average annual growth rate over the period)

European incumbents appear to be less challenged than in the US

Average 3-year growth rate by firm size



Europe-US gap by size



Entrepreneurs appear to have a more important role for job creation in the US

3-year employment growth rate – surviving firms vs. private sector



Summing up the evidence

US vs. Europe:

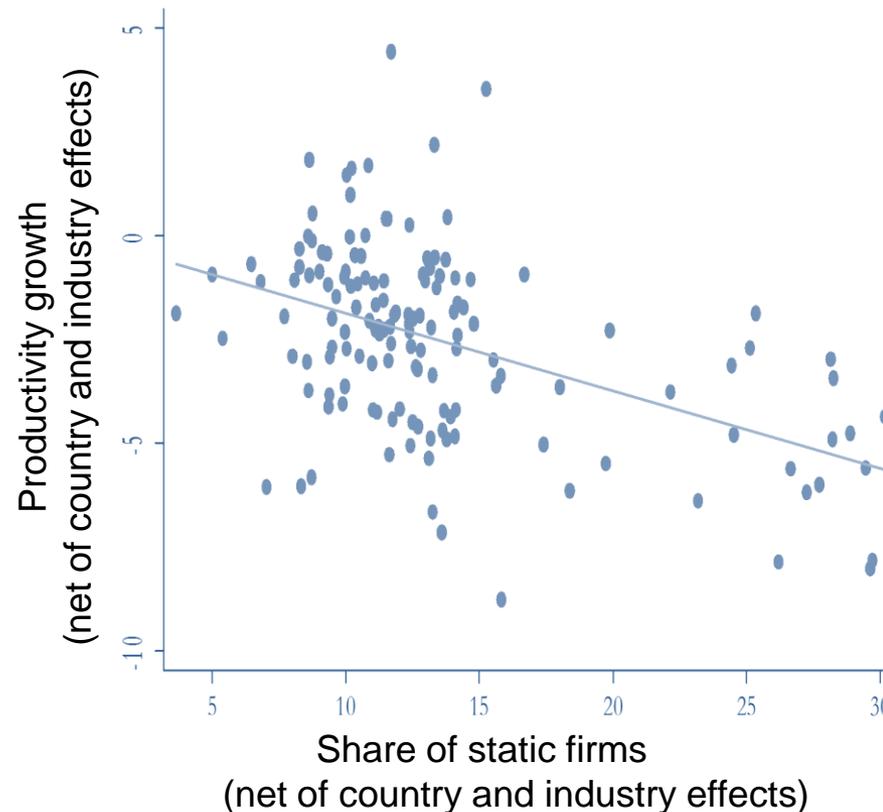
- Successful firms growth faster and unsuccessful shrink faster in US. Higher employment churn among incumbents -> more reallocation. Europe more static firms
- Most differences robust across European countries, size and sectors
- Incumbent firms more likely to contract than expand. Overall, surviving incumbents destroy employment in US, create employment in Europe
- Correlation between top and bottom percentile, high growth and high shrinkage

Why does it matter?

- Less experimentation
- Lower reallocation of resources (human and physical capital) towards most productive firms
- Successful innovators less likely to scale up and challenge incumbents
- Barriers to growth reduce incentives to innovate
- Lower competitive pressures

→ **Lower productivity growth**

Merge firm dynamics database with EUKLEMS productivity data to test the link



$$TFP\ growth_{ij} = \beta_0 share_{ij} + \beta_1 distancefrontier_{ij} + \beta_2 empgrowth_{ij} + countrydummy_i + industrydummy_j + \varepsilon_{ij}$$

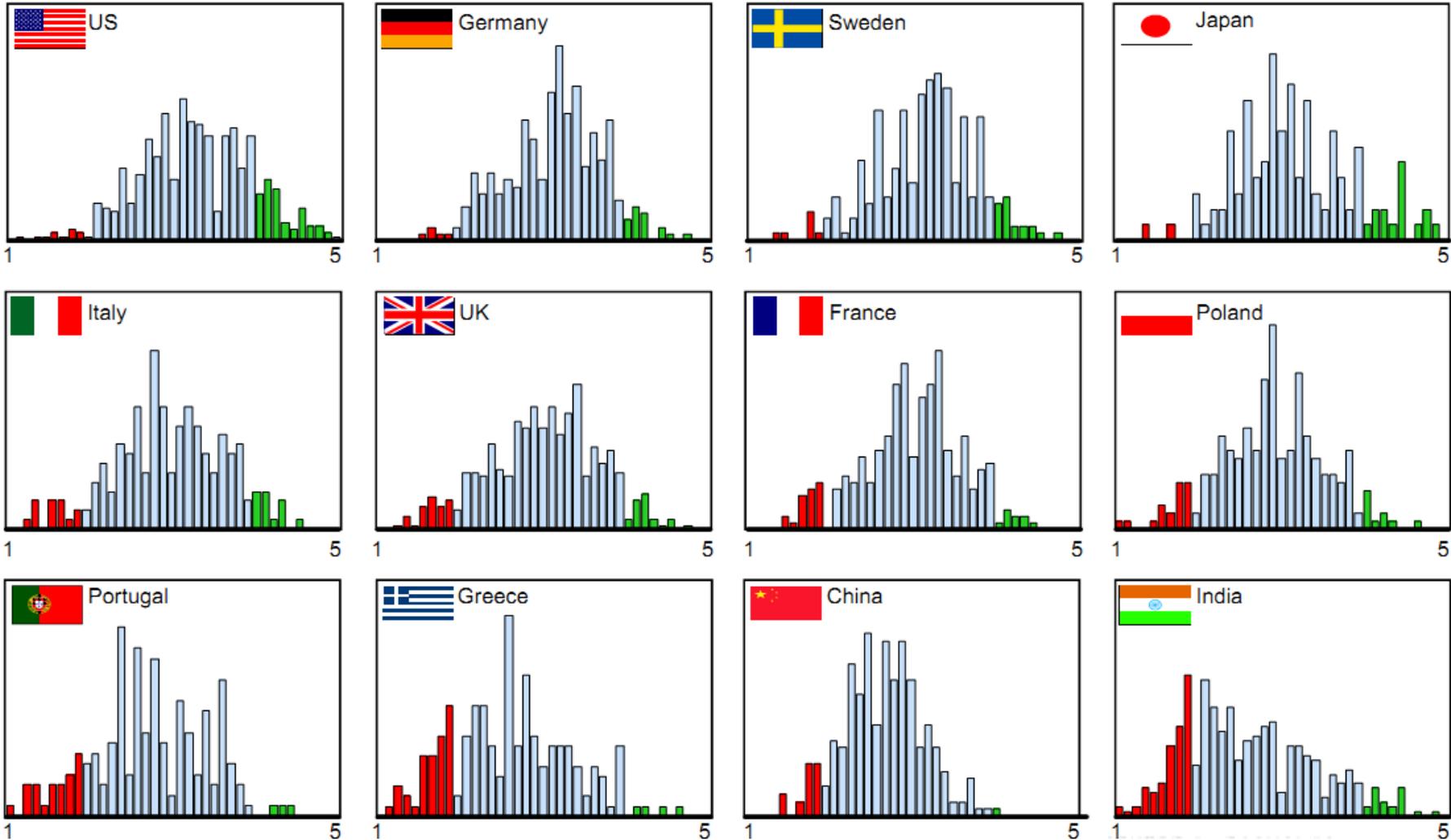
Evidence on link with productivity

	TFP growth	TFP growth	TFP growth	TFP growth	TFP growth	LP growth	LP growth
Share of static firms	-0.187*** (0.068)	-0.193*** (0.065)			-0.265*** (0.080)		-0.220** (0.107)
Share of growing firms			0.251*** (0.082)		0.342*** (0.119)		0.352** (0.136)
Share of shrinking firms			0.171** (0.070)		0.233*** (0.078)		0.164* (0.093)
Average employment growth		-0.123 (0.115)	-0.154 (0.100)	-0.142 (0.094)	-0.177*** (0.064)	-0.393*** (0.125)	-0.452*** (0.093)
Distance to frontier		0.0315 (0.563)	0.0513 (0.580)	-2.009 (1.240)	12.67** (5.719)	-2.239** (1.061)	12.86*** (4.644)
Distance to frontier x							
Share of static firms				0.143** (0.064)		0.144*** (0.054)	
Share of growing firms					-0.177* (0.097)		-0.209** (0.082)
Share of shrinking firms					-0.124* (0.073)		-0.107 (0.067)
Industry and country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	144	144	144	144	144	144	144
R-squared	0.538	0.544	0.555	0.561	0.574	0.616	0.647

Firm growth distribution – productivity link

- 5pp increase in the share of static firms is associated with 1pp lower annual TFP growth
- Both a large share of growing and shrinking firms are associated with higher productivity growth
- Effect becomes stronger as countries converge to the technology frontier
- Using labour productivity gives similar results

Distribution of firm level management practice scores by country



Source: LSE/McKinsey 'Management Matters'

Some policy implications

SME policy vs. start-ups vs. business growth agenda

- A minority of firms account for a disproportionate share of jobs
- Quality of entrepreneurs matters more than quantity

High-growth firms are not an homogenous group of firms

- Not a 'group', but a stage in the development of firms with potential and ambition to grow
- They can be young and old, small and large, in 'low tech' and 'high tech', in 'growth/high innovation sectors' and 'low innovation sectors'

Firm growth differences go beyond high-growth firms

- Need to look at the full picture → full dynamics drive productivity
- Having more HGF 'typically' means letting other firms shrink ('creative destruction')
- Too narrow focus on very targeted interventions for HGF may distract from wider and probably more impactful reforms

Creating the right conditions for companies with the ambition and potential to grow

Directly 'targeted' interventions

(e.g., grants, business support, coaching...)

- Targeting challenge: Need to design them so that "target" companies self-select
- Very limited evidence on their effectiveness
- Need experimentation with good evaluation
- Insufficient without wider reforms

Indirect support through intermediaries

(e.g., VC schemes, innovation eco-system...)

- Access to finance: Encourage venture capital/business angels, seeding/collaborating rather than replacing/competing with private sector. Supply-side (e.g., co-investment models) and demand-side (e.g., accelerators)
- Innovative firms grow twice as fast in employment and turnover than non-innovative firms (NESTA, 2009) → support innovation eco-system

Removing wider barriers to growth and contraction

- Product market regulation & competition → Improve or replace the long tail of badly managed/unproductive firms
- Labour markets → 'flexi-security' (protect individuals instead of jobs)
- Reduce European market fragmentation deepening the single market (e.g., a new single market for entrepreneurs with a 28th regime)

A new single market for entrepreneurs?

- Some of the problems with business regulation
 - Excessive in some areas/countries, often very complex, and typically different across countries (some times even if harmonized!)
- Create a new separate & optional full-fledged 28th (or 18th) regime for new companies:
 - A third way between full harmonisation and ‘country-of-origin’ principle (e.g., Common consolidated corporate tax base, the EU patent, EU contract law and the European Private Company).
 - Include regulation but also “enforcement”, sitting alongside the 27 regimes without replacing them (i.e., competing)
 - Three levels of regulation in a 28th regime:
 - Fully harmonized
 - Standardise definitions/formulas but let member states choose parameters
 - Freedom to regulate but through a common online platform
 - Simplification
 - Transparency as a force for improvement (e.g., real time WB “doing business” report)
 - Change default (“nudge governments”, EUGO)

Some potential benefits of a 28th regime...

- Address competitiveness differentials at the core of the euro crisis
 - Southern Europe can't outsource its regulation to Denmark or Germany
 - Some structural reforms can be done relatively quickly (e.g., labour markets), but institutional inertia will hamper reform in many other areas → starting from scratch may be easier
 - Can help prevent further divergence in the future (long term sustainability)
- Reduce the European market fragmentation, which limits long term growth
 - The starbucks/google question → imagine an entrepreneur who would like to set up shops in all member states!
 - Regulation but also enforcement institutions
 - Make it easier for companies to work together (key for relationship-specific investments that underpin innovation and “complex” products)
 - Create a less fragmented market for business services providers (e.g., IT, accountants...), facilitating the development of European-wide financial intermediaries (e.g., specialised mezzanine finance providers, VC, BAs...).
- Innovation...in regulation and enforcement
 - Incumbents not good at radical innovation, particularly without competition → Set up separate “division” with different rules for radical thinking (while avoiding disruption for firms but not for civil servants)
 - Debt vs. equity tax treatment
 - Exploit IT and big data opportunities
 - Rethink contract enforcement
 - What else would you change if starting from scratch?

Thank you

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BACKGROUND SLIDES

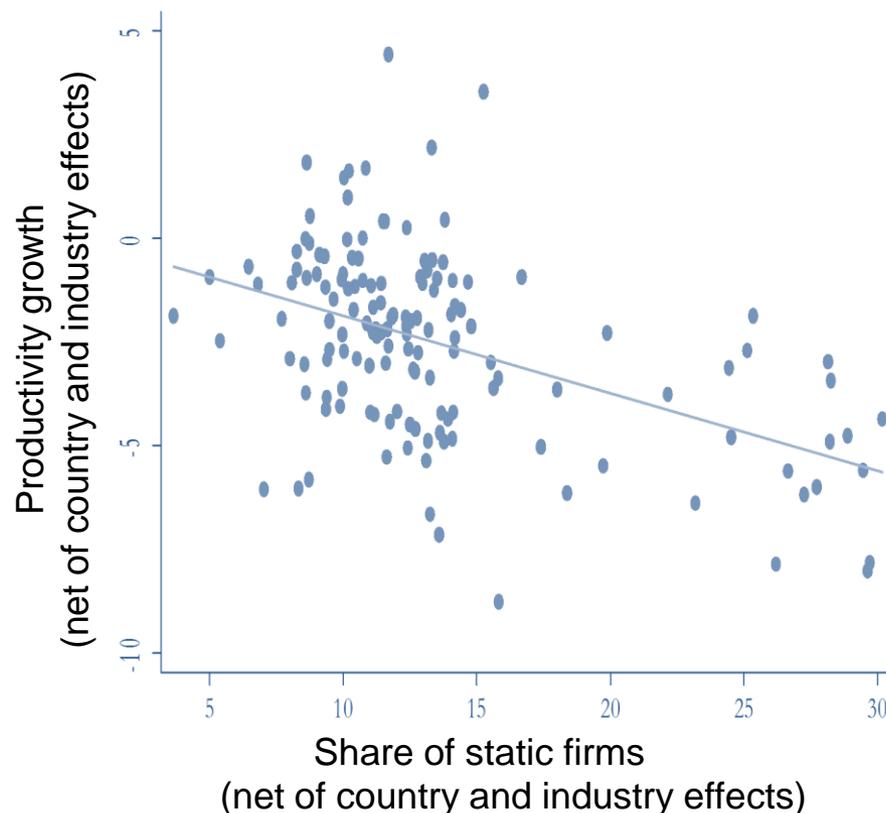
Does it matter?

- Less experimentation
- Lower reallocation of resources (human and physical capital) towards most productive firms
- Successful innovators less likely to scale up and challenge incumbents
- Barriers to growth reduce incentives to innovate
- Lower competitive pressures

→ **Lower productivity growth**

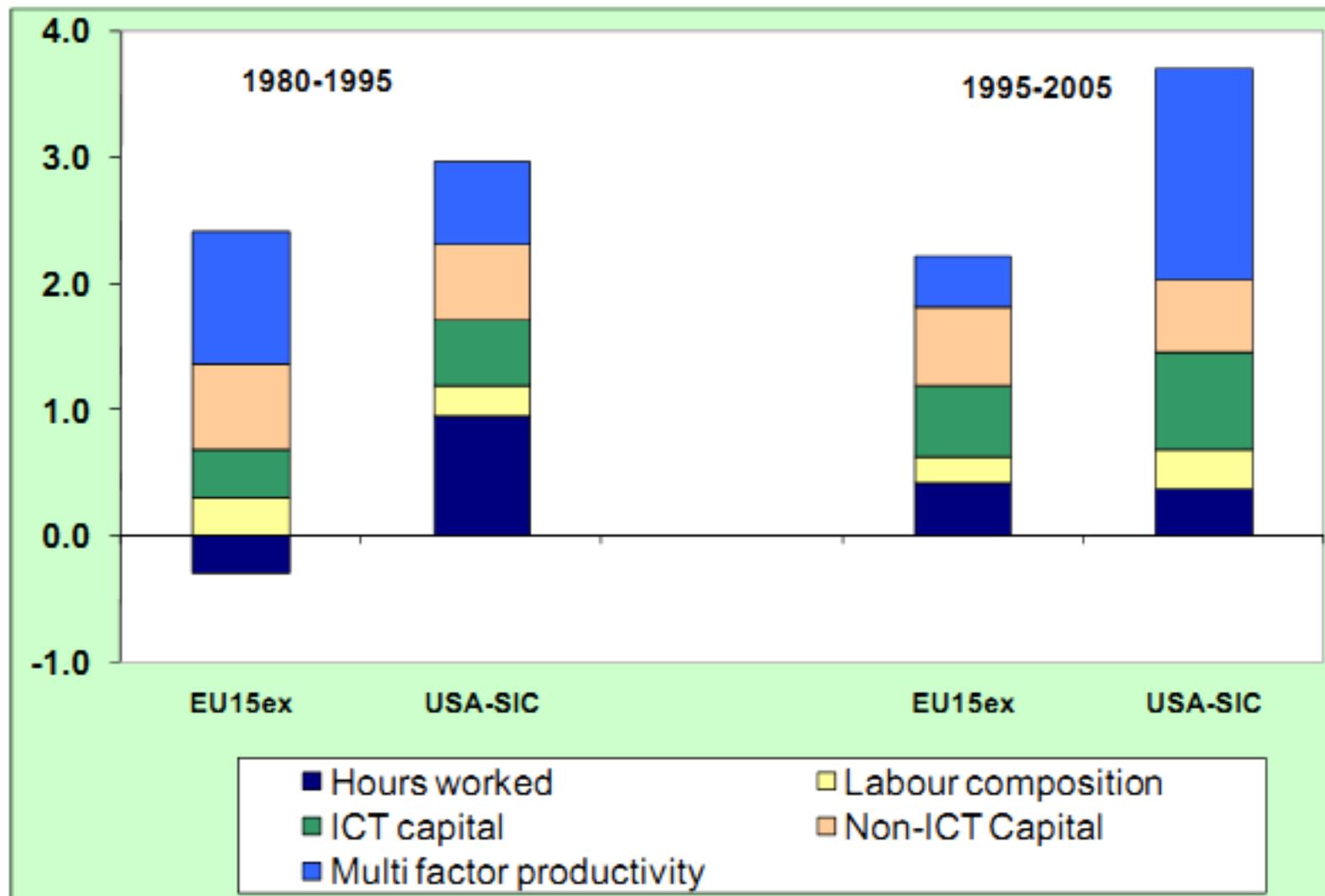
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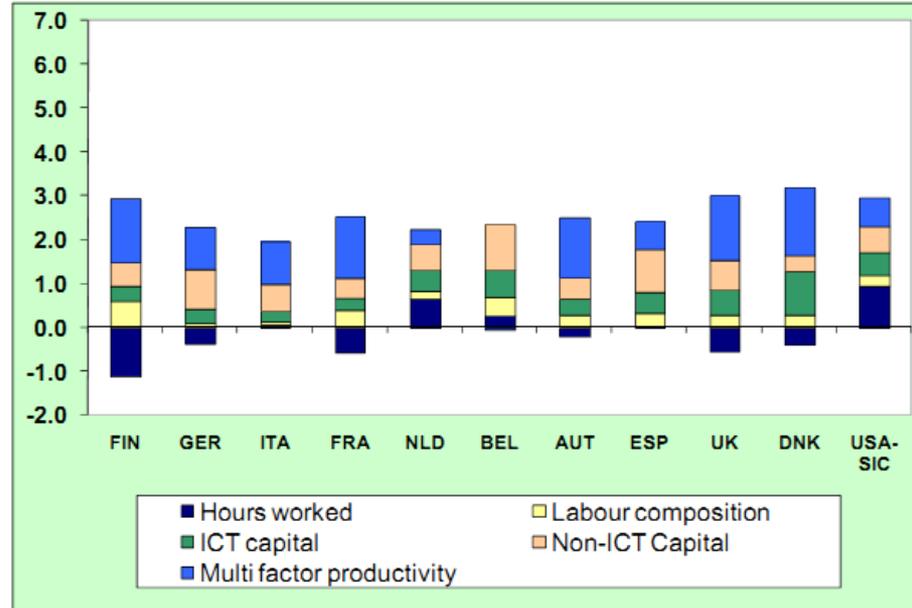
Effect becomes stronger as countries converge to the technology frontier

Contributions to market economy GDP growth

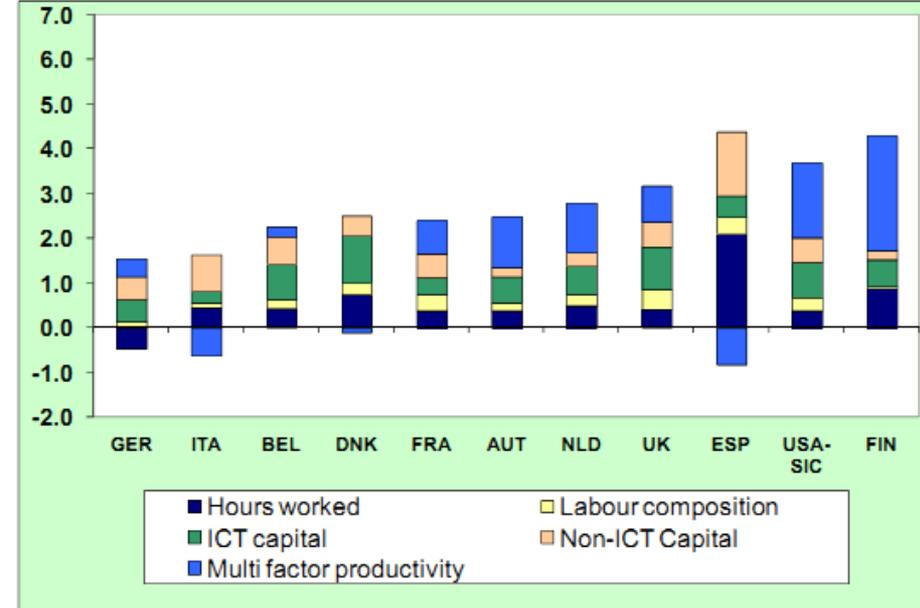


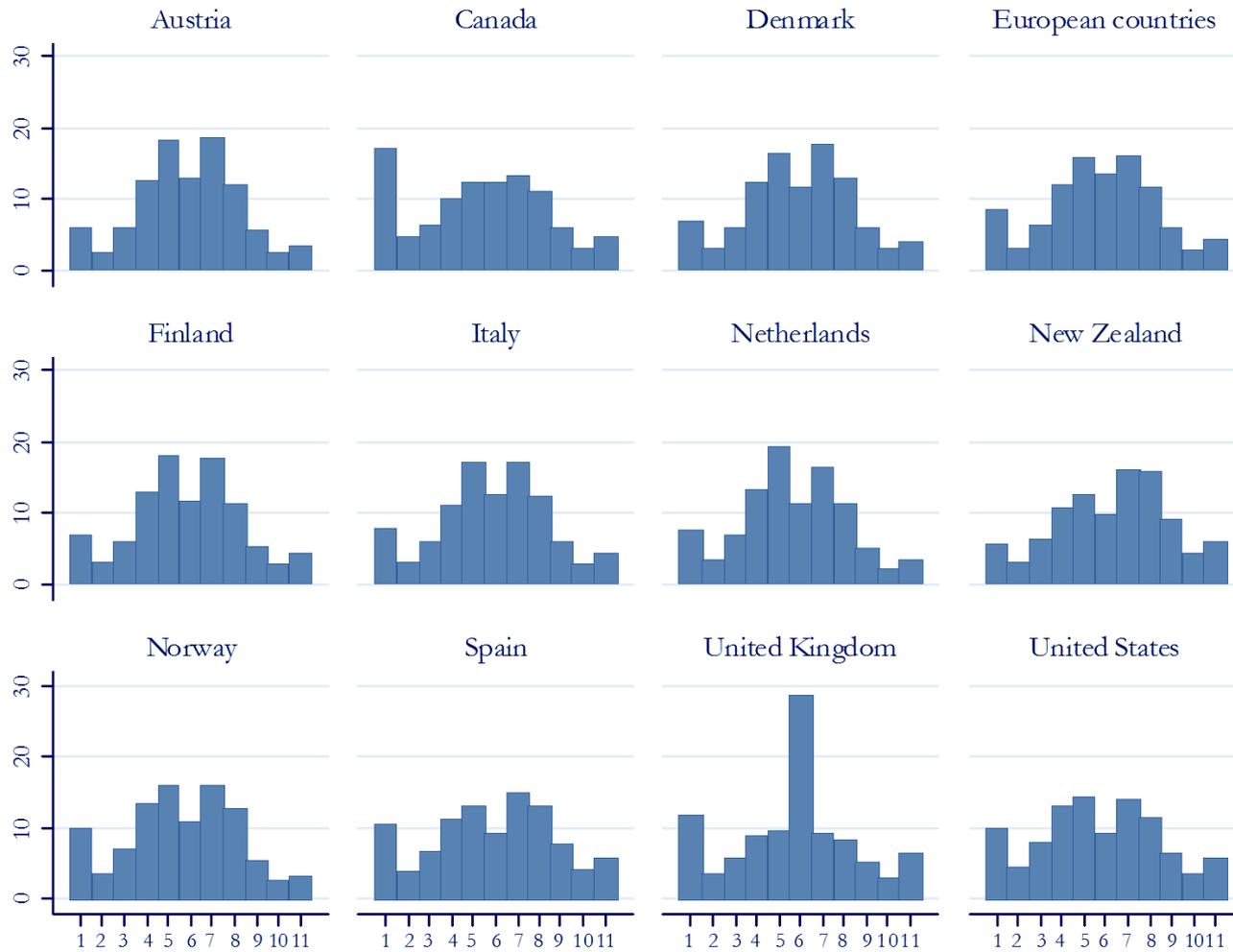
Contributions to market economy GDP growth (by country)

A. 1980-1995



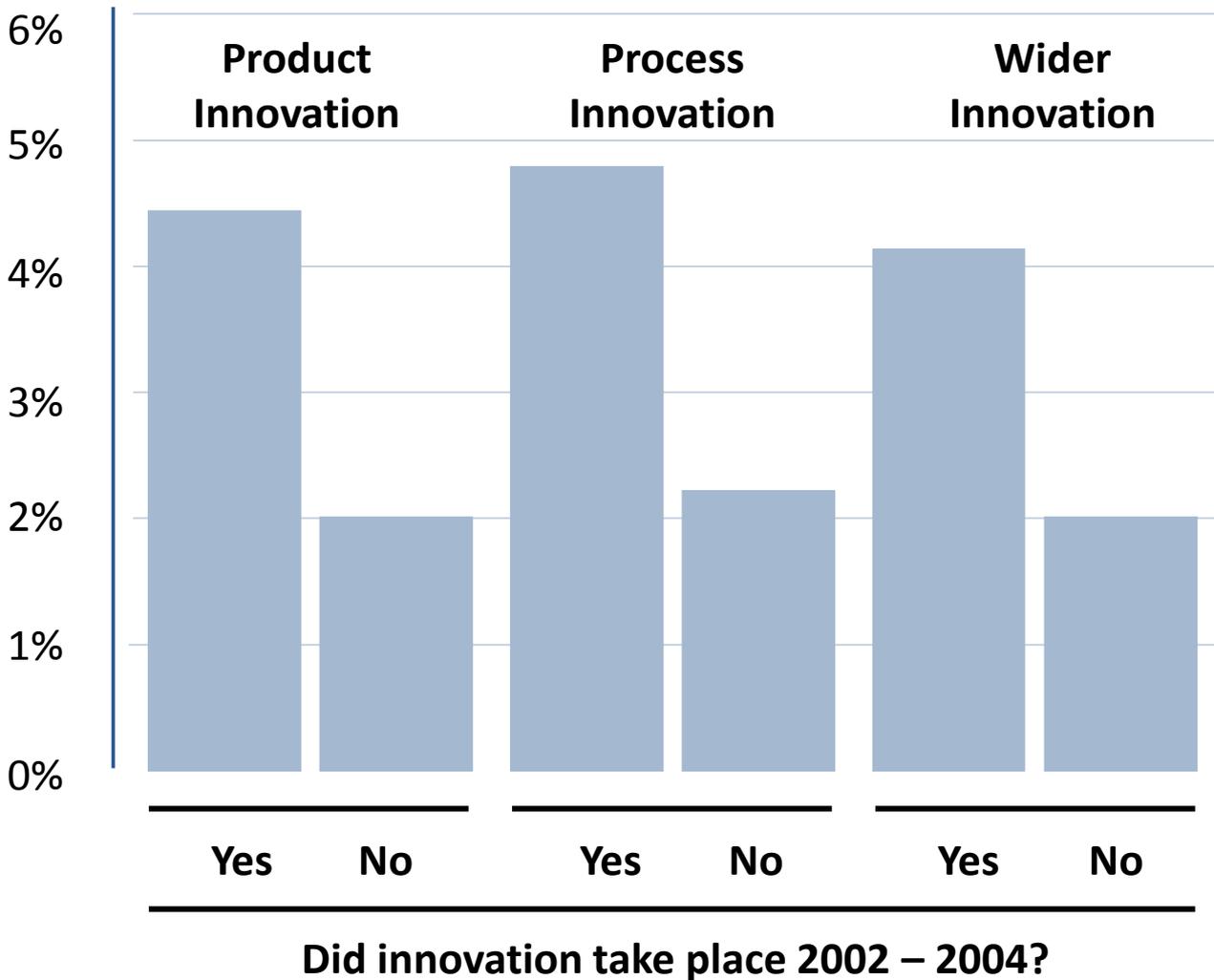
B. 1995-2005





But innovative seems to matter...

Average annual employment growth rate (04-07)



Source: Business Growth and Innovation (NESTA, 2009).

Average management practice score (with/without low score firms)

