



EU growth, innovation, entrepreneurship and the role of small firms

structural weaknesses?
crisis-vulnerability?
policy intervention?

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Outline



§ The importance of small firms for post-crisis growth potential

- Drivers of Growth:
 - ∅ Churning process (entry, growth, exit), entrepreneurship, innovation
 - ∅ Pivotal role of young small highly-innovative companies (YICs)

§ Impact of the crisis on the smallfirm-growth nexus

§ Assessing small firms' potential for driving post-crisis growth in the EU:

- Assessing pre-crisis role of SMEs/YICs in EU growth: structural weaknesses ?

§ A role for government intervention in the EU? How?



A Schumpeterian look at growth and innovation

Decomposing aggregate productivity growth into (i) contribution from entry, (ii) expansion of more productive firms, (iii) scaling down and exit of less efficient firms;

- § Churning process (entry & exit) is important for aggregate growth;
- § Churning (entry & exit) is associated with experimentation;
- § Experimentation with novel approaches typically comes from smaller entrants, young innovators not infected by incumbency.
- § If churning is hampered through exit barriers, there will be less entry, especially of the higher risk/experimentation type; and therefore less high-growth firms.
- § In interaction with large incumbents, young innovators are even more promising actors in the Schumpeterian dynamics
 - With their radical innovations young innovative companies create the scene on which other firms build further, enhancing their breakthroughs and adding to their overall usefulness
- § Having young, highly innovative firms impeded to play their role may have an important direct and indirect impact on an economy's overall innovative and growth performance
- § Access to finance is an important and specific barrier for young, small innovators
 - Young radical innovators, lacking collateral, reputation and with high-risk profile, more affected by imperfections in capital markets



The impact of the current crisis on the smallfirm-growth nexus:

- § While necessity entrepreneurship is more pro-cyclical, opportunity entrepreneurship, especially innovative entrepreneurship, is a leading indicator of the business cycle
- § Firms that have more difficulty to access external financing because of their high risk profile, will be affected disproportionately by a financial crisis
- § In recessions, the negative effect of credit constraints on R&D investment is exacerbated for firms at higher risk of bankruptcy.
- § Young radical innovators, have a high risk/bankruptcy profile and are credit constrained
- § Since the effect of the current downturn is compounded by a severe financial crisis, young innovators currently are getting a double whammy, leaving the economy with a seriously reduced likelihood of getting new radical innovations, that lay the foundations for growth in future.



Assessing the potential of Young Innovators for driving post-crisis growth **in the EU:**

structural weaknesses ?



Churning differential between US and EU is explained by experimentation

- US entrants are more small scale experimental
- Upon survival, US entrants have a stronger post-entry growth
- Exit occurs faster in the US , at smaller scale
- This entry-experimentation process plays particularly in high-tech/high IT intensive sectors

Role played by SMEs in the churning process is different in the EU: the lack of young experimenting enterprises behind the gap in growth performance between the EU and the US;

(percent)	US	EU	US	EU
	Average Manuf		ICT Producing	
Exit share of Job Destr.	24.7	34.3	10.7	24.1
Entrant Size rel. to incumbent	21.0	38.6	6.3	35.7
Productivity Gap of Exiters	10.0	15.4	1.2	9.1
Employment Share of Exiters*	18.9	23.1	20.2	31.8
Employment growth, top qrt.	68.6	50.1	91.8	65.1

Source: Aghion, Bartelsman, Perotti, Scarpetta (2008)



Why do we care about Young Innovators?

§ Young Innovators shape « young » R&D intensive and high-growth sectors

	% YLI	% R&D by YLI	% RDI young	% RDI old
Internet	100	100	10.9	
Biotech	91	92	26.7	9.2
Software	86	88	15.3	13.8
Semiconductors	71	53	15.2	13.8
Telecom Equipment	64	34	13.5	12.0
Computer H&S	64	30	3.9	4.9
Health H&S	26	29	10.6	6.0
Average	34	19	6.3	3.2

- Together these 7 Young Sectors represent 30% of *Leading World R&D 2007* and 37% of *Leading World R&D growth (2004-2007)*
- With the exception of Telecom Equipment, in none of the 7 Young Sectors, the EU holds a RTA, while the US in all these sectors

Source: Cincera & Veugelers (2010) (Bruegel & IPTS) on the basis of IPTS R&D Scoreboard



Young Leading Innovators and EU's leading R&D gap

	World	EU	US	JAP	RW
Share of YLI in Region's firms	34%	20%	52%	1.5%	53%
Share of YLI in Region's R&D	19%	7%	35%	0.4%	27%
Share of YLI in Region's Net sales	10%	4.5%	16%	2%	26%

§ Among US's Leading Innovators, more than half of them are Young, i.e. since 1975. In Europe only 1 out of 5 Leading Innovators are Young.

§ In the US, Young Leading Innovators account for 35% of total R&D, in the EU this is a mere 7% !

Source: Cincera & Veugelers (2010) (Bruegel & IPTS) on the basis of IPTS R&D Scoreboard



YLI and EU's leading R&D gap

	World	EU	US	JAP	RW
RDI	3.4	2.8	4.6	3.7	2.7
RDI of YLI	6.3	4.2	10.2	1.1	2.7
RDI of OLI	3.1	2.7	3.5	3.7	2.7

R&D intensity of EU companies is on average smaller than US companies: EU's RDIgap-score is 61% (US=100%)

§ This holds both for OLI and YLI

§ But the difference is more pronounced for YLI: while EU's RDIgap-score is 77% for OLI, the RDIgap-score for YLI is 41% (EU as % of US=100%).

Source: Cincera & Veugelers (2010) (Bruegel & IPTS) on the basis of IPTS R&D Scoreboard



YLI and EU's leading R&D gap

§ Higher RDI of US companies can therefore be explained by:

- EU has less YLI than the US. This matters when YLI have a higher RDI :
structural effect: 33%
- EU-based YLI are less RDI than their US counterparts: **young-intrinsic effect: 54%**
- Also EU-based OLI are less RDI than their US counterparts: **old-intrinsic effect: 13%**

Why are EU YLI overall less RDI than US YLI?

- **Is this because EU YLI are less present in HIGH-RDI sectors (structural effect)**
- **or because they are within sectors, less RDI than their US counterparts (intrinsic effect)?**

Source: Cincera & Veugelers (2010) (Bruegel & IPTS) on the basis of IPTS R&D Scoreboard



YLI and EU's leading R&D gap

§ Almost all the difference is in the structural effect:

- Strongest cases are Internet and Biotech
- In Telecom Equipment, where EU YLI hold a superior RDI position relative to their US counterparts, there are unfortunately relatively less YLI.

§ Within sectors, the differences are typically not very strong:

- EU YLI are strongly less RDI than US YLI in Biotech.
- In some sectors, EU YLI are more RDI than their US counterpart; This holds in Telecom Eq, the sector where EU holds a RTA.
- But in most sectors, the differences are not very strong.



Why fewer young innovators in young sectors in EU?

- poor overall EU innovation system to interact with
 - Ø Including industry science links
- more financial market barriers: EU risk capital markets more segmented
- less able to appropriate the returns from their innovations: IPR regime more costly
- EU product markets more segmented
- EU product markets more rigid: high exit barriers
- EU labour market inflexibility: high costs of hiring/firing labour
- more hampered by regulations/standards



A role for government intervention? How?

Tackling market failures while avoiding government failures



Policy Do's

Restoring Financial Markets

Framework Conditions

- more efficient market functioning: more integrated and more contestable
- reform of bankruptcy law: faster, cheaper exits and not preclude new starts
- integration of capital markets, particular emphasis on venture capital,
- improvement of Europe's IPR system
- Reduction of administrative burdens

Targeted Innovation Policy

- Governments helping to create « new » markets as « lead users »
- Governments helping young highly-innovative companies



How to design innovation instruments for young innovators

- § A **specific policy** approach should tackle the specific barriers faced by young highly innovating firms, at least those rooted in market failure and where governments can redress these without inflicting new barriers
 - Getting the target right: Young Highly Innovative small firms
 - A specific policy implies first and foremost dealing with the financial constraints.
 - ∅ Subsidy programmes for young radical innovators must be carefully designed in order to reward the risk-taking inherent in radical innovations.
 - See Bruegel PB 2009/1 for a YIC-subsidy proposal
 - Increasing the efficiency and reducing the cost of intellectual property (IPR) protection is also essential for young radical innovators.
- § Given that we still know very little of which 'cures' work, more emphasis should be put on **evaluation** of policy initiatives.



A (green) EU programme for radical innovators

- § The programme would fund project proposals from small, young businesses to help **bring to market** highly innovative and groundbreaking ideas in EU Framework Programme-research areas.
 - See US' Small Business Innovation Research Programme (SBIR)
 - (Part of) the funding targeted to designated policy areas, for example climate change and energy.
- § Phased funding of pre-commercialisation stages only
- § Projects evaluated on scientific, technical and commercial characteristics, assessing the groundbreaking nature of the project
 - Mixture of high-level experts to evaluate
- § Highly selective evaluation conducted to the highest standards of excellence
 - Grant should serve as certification to facilitate complementary private funding
- § Only small firms qualify, with special financing scheme for YICs
- § Total funding: around 3% of total EU spending on research & innovation, i.e; 1.75 billion euro (2007-2013)
- § Pilot designed, evaluated and adjusted/terminated if unsuccessful



Thank You For Your Attention

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