CLASS
ECONOMICS OF SMES

Course IPS

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OUTLINE

1. **Definition and characteristics of SMEs**

2. **Entrepreneurship: Why do entrepreneurs create enterprises ?**

3. **The importance of startups and spinoffs in the dynamics of industries**

4. **Favourable business environment to the creation and development of SMEs**

1. Definition and characteristics of SMEs

DEFINITION OF SMEs: FIRMS WITH LESS THAN 250 EMPLOYEES

Region	Micro	Small	Medium	Large
EU	< 10 employees	Between 10 and 49 employees	50–249 employees	>250 employees

Source: Eurostat 2011

EUROPEAN COMMISSION:
Small and medium-sized enterprises (SMEs) are the backbone of Europe's economy.
They represent 99% of all businesses in the EU.

In the past five years, they have created around 85% of new jobs and provided two-thirds of the total private sector employment in the EU.

The European Commission considers SMEs and entrepreneurship as key to ensuring economic growth, innovation, job creation, and social integration in the EU.

CONTRIBUTION OF SMEs TO GDP:

Regardless of the degree of development and standard of living of the population of a state, SMEs are the biggest contributors to the gross domestic product.

Japan or China: 60% of GDP comes from SMEs
USA: 65%
EU: 52% of GDP

Small and medium enterprises are the biggest **contributors to employment** in any country.

Meghana et al., 2011: study on 47745 firms from 99 countries during 2006- 2010.
On average, firms with 5 to 250 employees engage about **two thirds of active population** (not taking micro enterprises that have up to 5 employees into account)
SMEs also generate most of new jobs: about **86% of new jobs are created by SMEs**.

Table 1.1: No. of enterprises, employment and gross value added (GVA) figures for the EU-27 by size classification for 2012 (estimates)

	Micro	Small	Medium	SMEs	Large	Total
Enterprises	19,143,521	1,357,533	226,573	20,727,627	43,654	20,771,281
%	92.2	6.5	1.1	99.8	0.2	100
Employment	38,395,819	26,771,287	22,310,205	87,477,311	42,318,854	129,796,165
%	28.5	20.6	17.1	67.4	32.6	100
GVA (€ millions)	1307360,7	1143935,7	1136243,5	3587540	2591731,5	6179271,4
%	21.2	18.5	18.4	58.1	41.9	100

Source: Wymenga et al. 2012

Contribution of SMEs to GDP (again: data differ according to source)

ILO (The power of small: unlocking the potential of SMEs, October 2019):

SMEs account for 70% of employment worldwide

SMEs account for about 50% of GDP in OECD countries

➔ Consensus on the importance of SMEs

CHARACTERISTICS

HETEROGENEITY

The SME population is composed of very diverse businesses, in terms of age, size, ownership, business model, and entrepreneurs' profiles, motivations and aspirations.

SMEs are in all productive sectors, but more numerous in services with respect to manufacturing

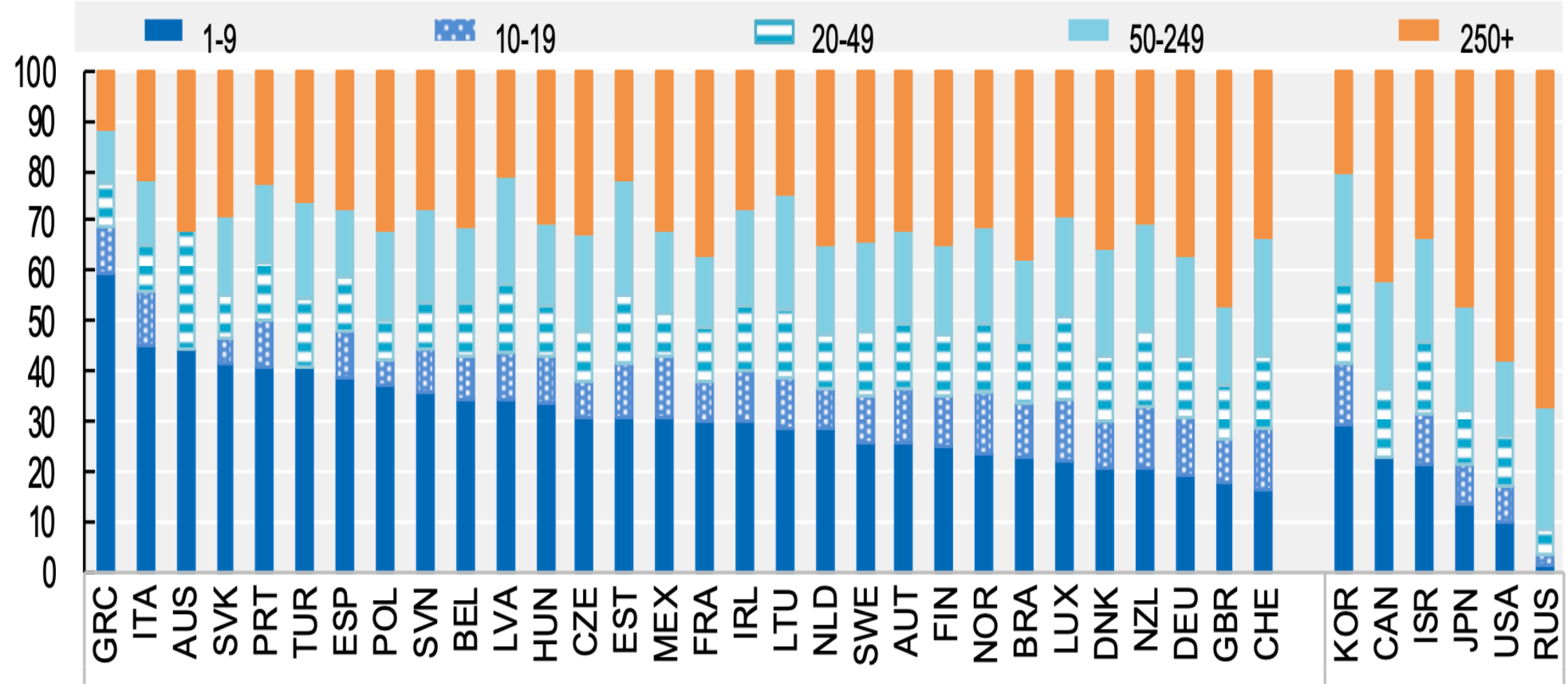
SME employment is concentrated in specific services sectors, notably wholesale and retail trade, and construction (= also low-pay sectors)

Stability of sectoral composition of SMEs:

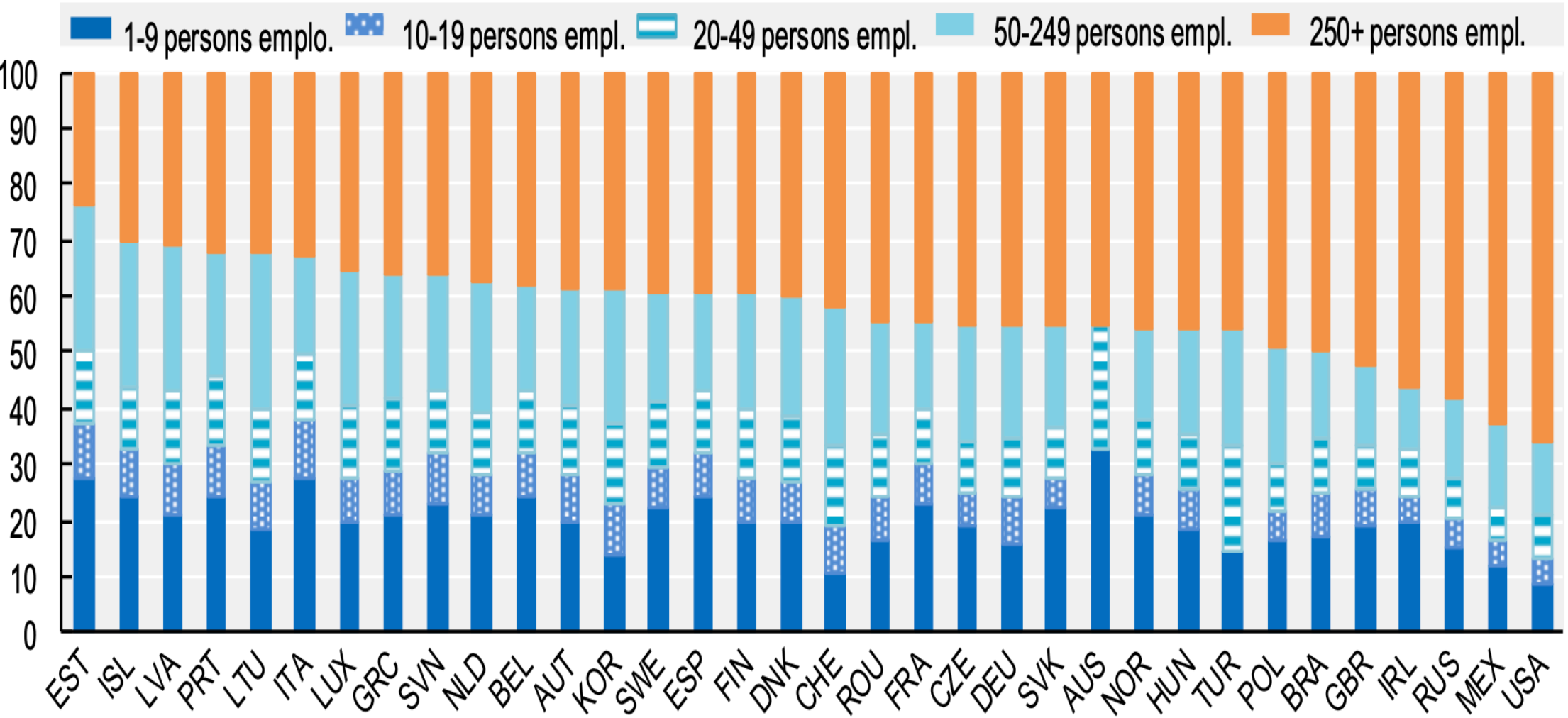
2010 to 2016: the top five sectors of SMEs (60% of all SME employment) did not change:

i) wholesale and retail trade, accounting for one in four of all persons employed in SMEs;
ii) manufacturing;
iii) construction;
iv) accommodation and food services; and
v) professional, scientific and technical activities.

Employment by enterprise size, business economy



Value added by enterprise size, business economy



Source: (OECD, 2018[3]), *Highlights of Entrepreneurship at a Glance 2018*, OECD, www.oecd.org/sdd/business-stats/EAG-

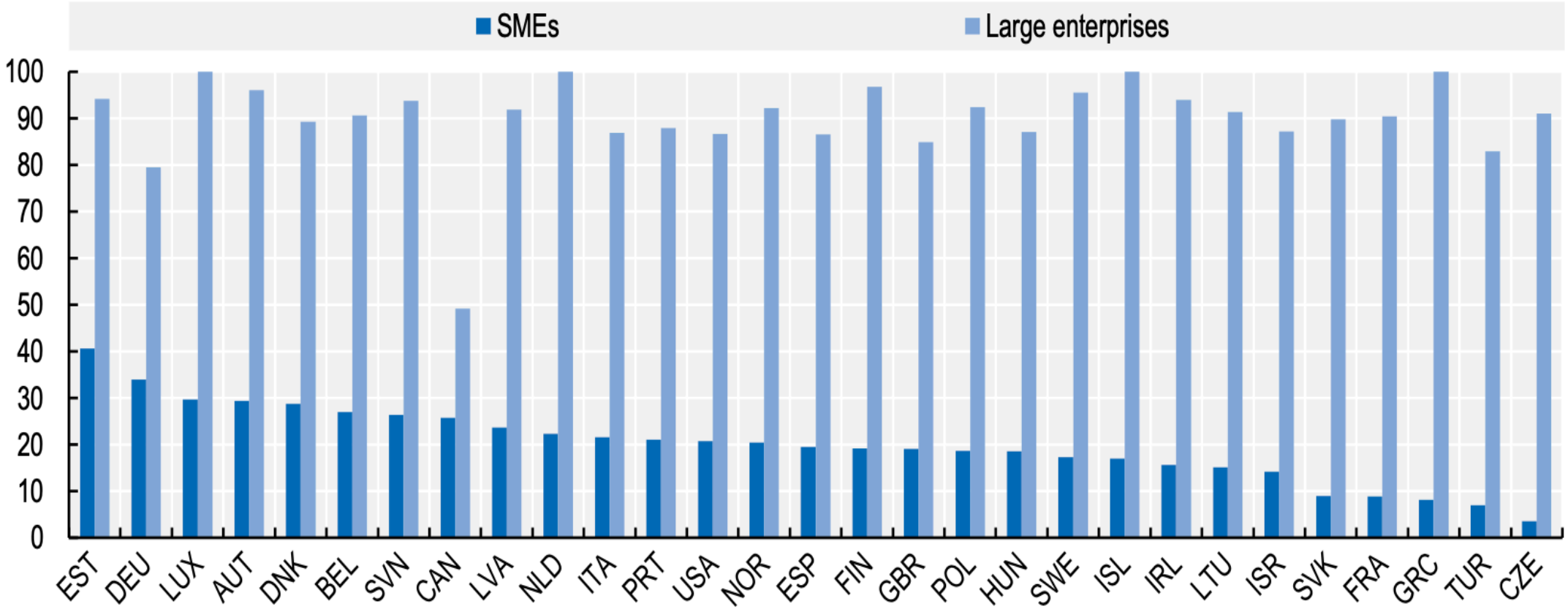
Previous two slides show that productivity is lower in SMEs than in larger firms

But differential is lower in some sectors (manufacturing versus services)

In countries where SMEs have a relatively high share of exports for example, differences in average salaries between SMEs and larger firms are smaller

Figure 1.15. Industrial firms engaged in exports, 2016 or earliest available year

As a percentage of total firms by size class



Sources: *OECD Structural and Demographic Business Statistics Database*, 2018,

Most jobs are created in SMEs:

Employment has increased in most OECD countries between 2010 and 2016
However,
close to 90% of all new jobs in France were created in activities with below average wages; close to two-thirds in Germany and the United Kingdom and over three-quarters in the United States

➔ Jobs are created in low productivity, low wage sectors such as retail, construction, restaurants, health and residential care

SOME SMEs SHOW HIGH PRODUCTIVITY…

In professional, scientific and technical activities, (e.g. advertising agencies, consulting companies, including legal services, architectural services, etc.,):

In these sectors micro firms in France, Sweden, and the United Kingdom have performed as well as large firms.

These sectors also experienced significant firm creation (SMEs) in recent years…

2. Entrepreneurship: Why do entrepreneurs create enterprises ?

Theory of the "queue of entrepreneurs" (Mansfield, 1962)

At each point in time there is a queue of entrepreneurs which all wait outside of the market. As soon as some profit possibilities arise, they enter the market.

⇔Perfectly competitive markets and rational individuals

Storey (1982): in fact entrepreneurs choose to enter a market not primarily because of profit opportunities, but because of many factors, including for instance:

- They know the sector well (previous job experience)
- The geographical location is well known (new firms are not created anywhere)

Entrepreneurship: definition

European Commission:

Entrepreneurship is an individual's ability to turn ideas into action. It includes creativity, innovation, risk taking, ability to plan and manage projects in order to achieve objectives.

Challenges faced by entrepreneurs in Europe

Only 37% of Europeans would like to be self-employed, compared to 51% of people in the US and China. Some of the challenges to be tackled include:

education should offer the right foundation for an entrepreneurial career;

difficult access to finance and markets;

difficulty in transferring businesses;

the fear of 'punitive' sanctions in case of failure;

burdensome administrative procedures.

Entrepreneur: definition and role?

... he was ... the entrepreneur extraordinaire, with all the requisite traits for the role: nerve, persistence, dynamic energy, a talent for propaganda, a capacity for deception, imagination.
(Description of Ferdinand de Lesseps in McCullough, 1977, p. 53)

The entrepreneur is at once one of the most intriguing and one of the most elusive in the cast of characters that constitutes the subject of economic analysis (Baumol, 1968).

Entrepreneur: definition and role?

Baumol:
In the literature of formal theory, at least until very recently, only Joseph Schumpeter and, to some degree, Frank Knight succeeded in infusing this character with life and assigning to him or her a specific area of activity to any extent commensurate with his acknowledged importance. But to do so, they were forced to sacrifice analytic tractability and even substantive mathematical representation.

➔ DIFFICULT TO FORMALISE ENTREPRENEURIAL CHOICES

First theories of entrepreneurship

- **Speculation and risk**:

Richard Cantillon (1755): role of the entrepreneur as speculator who bears risk in buying and selling at different prices

The entrepreneur is someone who organizes and assumes the risk of a business in return for the profits

First theories of entrepreneurship

- Entrepreneur as **coordinator:**

Adam Smith (1776) : the main role of the entrepreneur is to organise production, namely define the division of labour in the workshop

Adam Smith calls the entrepreneur the **master**

First theories of entrepreneurship

Jean-Baptiste Say (1828) also argued that the main contribution of the entrepreneur is to coordinate and organise the means of production

Attributes of the entrepreneur: wisdom, perseverance, experience, capacity to solve problems

Frank Knight: 1973, 1985

Individuals are opportunistic and only become entrepreneurs when the expected profits (discounted for risk) from creating a firm are higher than wages in an alternative activity as employee.

The major characteristics of entrepreneurs are:

- self-esteem
- Wisdom
- Risk-taking
- Foresight
- Luck
- perspicacity

Schumpeterian Entrepreneurship

Joseph Schumpeter (1912, 1934, 1942):
Entrepreneurship is intimately linked to innovation
The entrepreneur does not do incremental innovations but more radical ones: new products
Risk-taking is not the main characteristic of entrepreneur because risk is assumed by financial institutions in the capitalist system
Rather, main characteristics is innovation

Schumpeterian Entrepreneurship

Entrepreneurs constitute the engine of the economic system, providing dynamics (Agent of change and source of structural changes)

They change established routines

The “alert” entrepreneur

Israel Kirzner (1973, 1985): importance of the consideration of entrepreneurs as able to identify profit opportunities which other individuals do not perceive:

- **Alertness:** enables entrepreneurs to identify profit opportunities before any other individuals
- **Gifford (1998)**: follows Kirzner’s hypotheses and models managerial competencies of entrepreneurs that raise their probability of identifying new opportunities.

Personal or psychological aspects

Successful entrepreneurs have special capabilities, individual characteristics such as:

- Success as key to recognition in society: a society where success is important (e.g. be a winner rather than a loser) is likely to have more entrepreneurs

- Failure allowed in the society: often American and European societies are contrasted in that in the USA trying to create a firm is highly valued and failure is not a problem, while in Europe business failure tends to be perceived very negatively

- Internal locus of control: entrepreneurs have innate convinction that their success primarily depends on their own actions rather than on external factors

- Tolerance of ambiguity: entrepreneurs have higher ability to face ambiguity and complexity (relative to employees)

- Other characteristics: competitiveness, self-esteem, impatience, intuition, openness to changes and to new experiences, …

Empirical Evidence on ENTERPRENEURSHIP

-New firm creation positively depends on the unemployment rate (the higher the unemployment rate, the higher the entrepreneurship rate)

- Firm founders differ wrt personnel characteristics such as family background, previous job experience, education, financial situation, age, gender, ...

- Financial constraints: studies have shown that unexpected exogenous financial gains have positive effects on entrepreneurship (lottery winning, job bonus, etc.) (e.g. Taylor, 1999)

-Other characteristics: desire to be independent, acquiring better social status, ... (e.g. Blanchflower and Oswald, 1998)

3. The importance of startups and spinoffs in the dynamics of industries

Dynamics of Industry: Entry and exit rates

- **According to perfectly competitive models, we should observe new entries in industries making extra-profit, and exits in industries where profits are too low**
- **Empirical evidence: entries and exits are simultaneous**
- **This suggests that industry dynamics result more from a selection process (where less efficient firms are driven out of the market) than a competitive selection process (sort of arbitrage pushing profits towards zero as competition in the industry increases): models must account for firms' heterogeneity (in terms of efficiency) in industries (e.g. Jovanovic, 1982)**

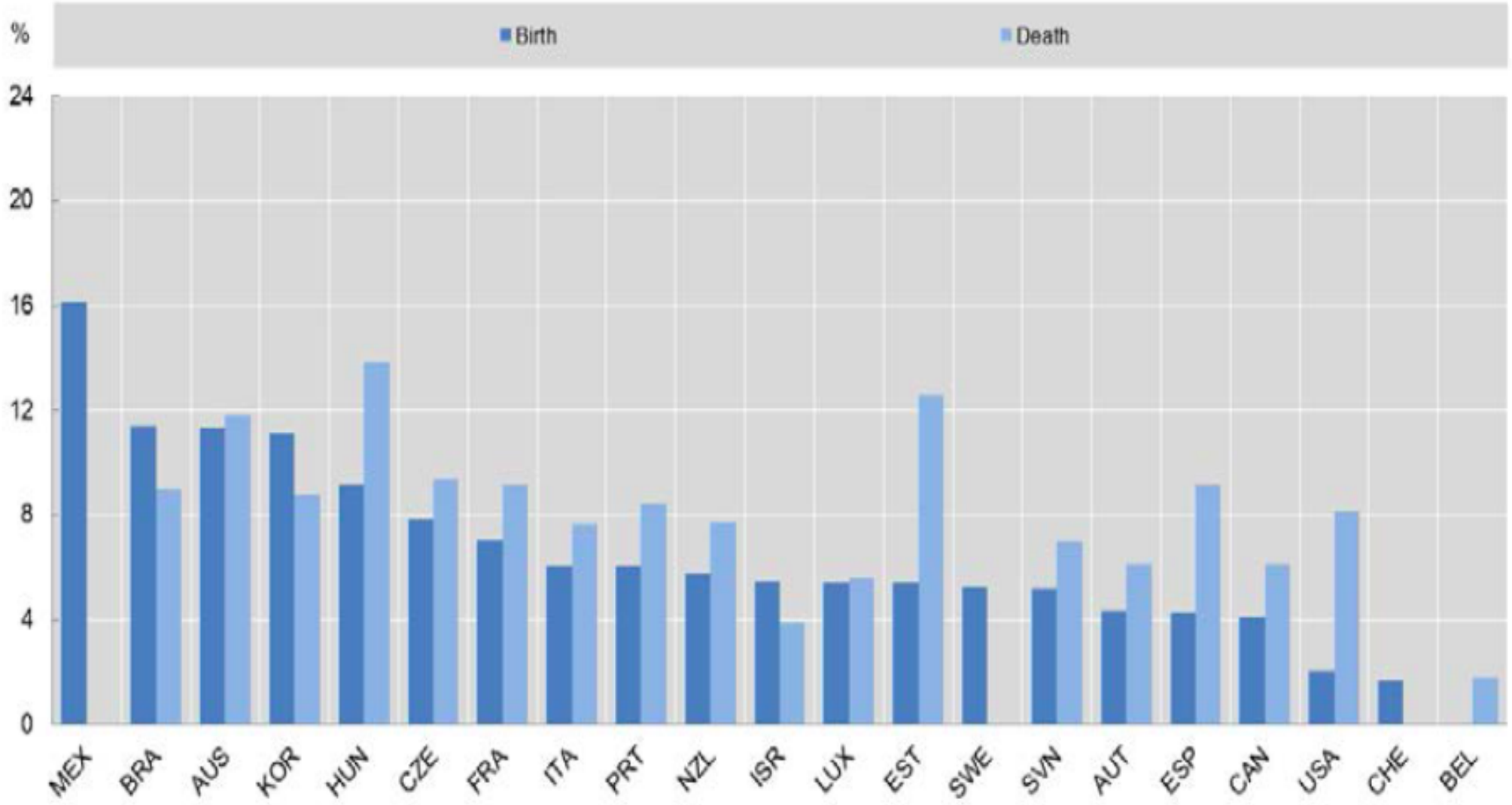
Measures of the demography of firms

- **Birth index**: ratio between new firms and already active firms.
- **Death index**: ratio between closed firms and active firms.
- **Development index**: ration between the difference between new firms and closed firms (birth – death) over total active firms.
- **Dynamics index**: ration between the sum of new firms and closed firms (birth + death) over total active firms.
- **Entrepreneurship rate**: share of business owners over the total labour force (in %).

Firm birth and death

Figure 8. Employer enterprise birth and death rates in the manufacturing sector, 2010

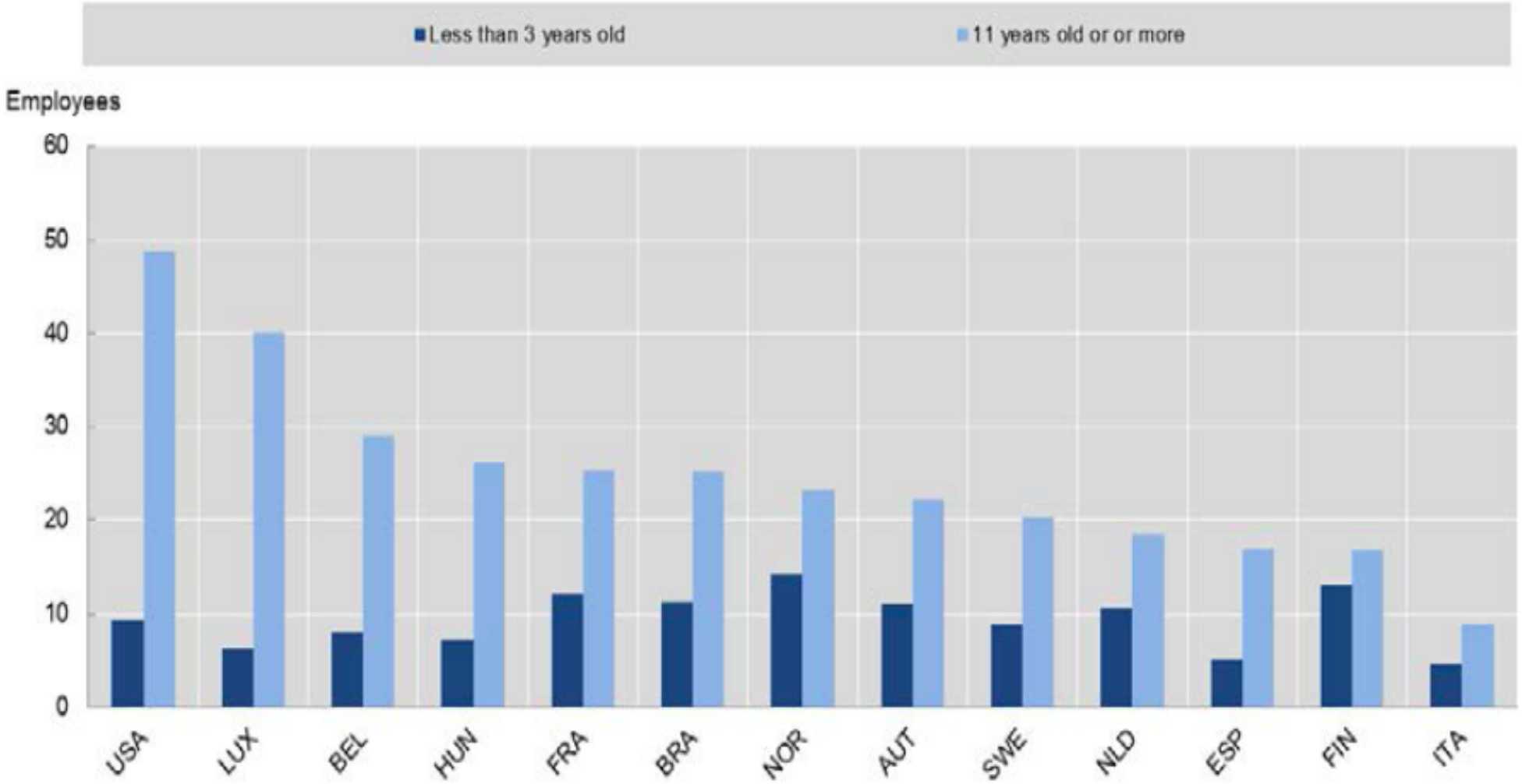
As a percentage of the population of active enterprises with at least one employee



Firm Growth

Figure 9. Average size of firms less than 3 years old and 11 years old or more, 2001-10

Non-financial business sector, reference cohorts 2001, 2004 and 2007



Business ownership

Table 2.1. Entrepreneurship as a percentage of the labor force in 23 OECD countries

	Level			Growth		Country percentage in total business owners		
	1972	1984	1998	1972-84	1984-98	1972	1984	1998
Austria	9.3	6.5	8.0	-2.8	1.5	0.96	0.58	0.69
Belgium	10.5	10.2	11.9	- 0.3	1.7	1.35	1.13	1.15
Denmark	8.2	6.6	6.4	-1.6	-0.2	0.68	0.48	0.40
Finland	6.6	6.6	8.2	0.0	1.6	0.49	0.45	0.46
France	11.3	9.8	8.5	-1.5	-1.3	8.40	6.31	4.92
Germany (West)*	7.6	6.8	8.5	-0.8	1.7	7.05	5.20	7.56
Greece	16.1	17.7	18.6	1.6	0.9	1.78	1.83	1.84
Ireland	6.9	8.0	11.2	1.1	3.2	0.26	0.28	0.41
Italy	14.3	16.5	18.2	2.2	1.7	9.56	9.77	9.52
Luxembourg	10.7	8.3	5.9	-2.4	-2.4	0.05	0.04	0.03
The Netherlands	10.0	8.1	10.4	-1.9	2.3	1.99	1.38	1.80
Portugal	11.3	10.6	15.2	-0.7	4.6	1.38	1.28	1.69
Spain	11.8	11.3	13.0	-0.5	1.7	5.28	4.20	4.75
Sweden	7.4	7.2	8.2	-0.2	1.0	0.99	0.84	0.78
United Kingdom	7.8	8.6	10.9	0.8	2.3	6.70	6.24	7.04
Iceland	11.1	9.1	13.2	-2.0	4.1	0.04	0.03	0.04
Norway	9.7	8.7	7.1	-1.0	-1.6	0.56	0.47	0.36
Switzerland	6.6	6.8	9.1	0.2	2.3	0.80	0.67	0.81
USA	8.0	10.4	10.3	2.4	-0.1	24.17	31.91	31.90
Japan	12.5	12.6	10.0	0.1	-2.6	22.04	19.96	15.10
Canada	7.9	10.0	14.1	2.1	4.1	2.50	3.44	4.92
Australia	12.6	16.0	15.5	3.4	-0.5	2.50	3.06	3.24
New Zealand	10.2	11.0	14.2	0.8	3.2	0.45	0.47	0.59
weighted average	9.8	10.6	10.9	0.8	0.3			
total business owners in thousands						29,390	37,430	44,927

* The data for Germany refer to West Germany for the period 1972-1990

Source: EIM: COMParative Entrepreneurship Data for International Analysis (COMPENDIA 2000.1)

Source: Audretsch *et al.*, 2004.

Other important issue to understand the phenomenon of firm entry and exit:

Where do new enterprises come from?

Surprisingly, little is known about the origin of entrants, especially new enterprises. This is perhaps a legacy of the way entry is typically modelled in theories of competition. It has always been assumed that if entry is profitable, it will occur. It is not at all clear, though, whether such confidence is justified (Geroski [1995]).

Recent work: **entrants are quite diverse at birth, and their pre-entry experience persistently affects their performance** (Carroll et al. [1996], Geroski, Mata, and Portugal [2002], Klepper [2002a, 2002b], Klepper and Simons [2000], Thompson [2004]).

Successful entrants are often firms **founded by employees of incumbent firms in the same industry** (Klepper [2002b], Agarwal et al. [2004], Walsh, Kirchhoff and Boylan [1996]) = **spinoffs**

While in some instances spinoffs are sponsored or linked to their "parent" firm, generally the founders of spinoffs do not maintain any link to their prior employers.

Factors determining intensity of spinoffs creation and performance of spinoffs:

Studies in the

Automobile industry (Klepper 2003, 2004)

Laser industry (Klepper and Sleeper, 2004)

Disk drive (Franco and Filson [2000], Agarwal et al. [2004])

Semiconductor: Brittain and Freeman (1986)

Biotech: Stuart and Sorenson (2003)

Automobile industry in the US: started in 1895

- Through 1966 there were 725 entrants into the industry, nearly all of which entered before 1926

- Spinoffs accounted for 20% of the entrants, with the percentage of spinoff entrants rising over time
- Performance of spinoffs: comparable to the performance of entrants with previous experience in the industry, while entrants without such previous experience perform less well
- Spinoffs were created from the 4 leaders of the car industry of the beginning of the century: Cadillac, Old Motor Works, Ford and Buick (which will become GM afterwards)

- Most spinoffs were created **from leaders** in the industry
- Number of spinoffs also higher from older firms in the industry (**age**)
- Number of spinoffs higher in the **Detroit** area (major automobile production location in the US)
- The performance of spinoffs is correlated with the performance of parent companies
- Most spinoffs were formed by top level engineers and managers as the result of **disagreements** within the parent firm about the kinds of cars to produce or about the management of the firm; spinoffs often continue R&D projects that were abandoned by the parent firm

LASER INDUSTRY

- Started in 1961
- By 1994, 17% of entrants were spinoffs from established firms
- The spinoff firms have had higher performance than other types of entrants, except entrants with prior experience in industrial electronics
- Typically spinoffs focus on specific niches of the market
- Typically spinoffs pursue projects which tend to be abandoned in parent firms and are created by higher level managers

DISK DRIVE INDUSTRY

Of the 153 entrants from 1977 to 1997, 26% were spinoffs;
In that period 5 major innovations were introduced;
All five were pioneered by spinoffs, who displaced the industry leaders and survived longer than entrants with other backgrounds (Agarwal et al., 2004)
All spinoffs had at least one founder with a high level technical background and sometimes other founders with a high level marketing or production background, similar to autos and lasers;
Better (quality) firms had better spinoffs (survived in the industry and grew)

DISK DRIVE INDUSTRY

Christensen [1993] found that leading incumbent firms conceived and developed prototypes of the smaller disk drives but then abandoned them when their customers showed little interest in them.
Engineers that worked on the smaller drives then left to start their own firms, which ended up pioneering the drives.

More recent examples of spinoffs:

Nespresso is a spinoff of Nestlé

MyM&Ms is a spinoff of M&Ms that has specialised in selling personalised M&Ms!

THE PERFECT GIFT

SHOP ALL

General tendencies of all cases:

1. Around 20% of all entrants were spinoffs, and the spinoffs were distinctly good performers
2. They generally had at least one founder who was a high level technical manager and sometimes also had founders with high level marketing and operational experience
3. Better firms had a higher spinoff rate and their spinoffs were better performers
4. Disagreements over what technologies to develop and sometimes about management practices were the principal impetus for the leading spinoffs

Theories of Spinoff

4 types:

1. An employee makes a discovery of some economic value: He decides to implement the discovery through his own startup rather than reveal it to his employer (Anton and Yao, 1995, Journal of Law, Economics and Organization)

2. The discovery is common knowledge within the firm but it is less valuable to the incumbent than it would be to a start-up (Henderson and Clark, 1990; Christensen, 1993, Business History Review)

3. Employees learn from their employers about how to profitably compete in their industry, especially when their employer is successful. They exploit this knowledge by setting up their own firm in the same industry (Argawal et al., 2004, Academic Management Journal)

4. Klepper and Thomson (2004): spinoffs can be created after disagreement of some employees with their employers, so they leave and create their own enterprise (e.g. when the firm is acquired and the employee do not agree with the new management; quite frequent case in reality)

TO SUM UP (I)

- SMEs are important contributors to growth and employment in economies

- They also contribute to innovation

- They contribute to competition in markets (higher variety and/or lower prices), since entrepreneurs enter markets by innovating on products, providing higher quality or occupying niches (segments)

TO SUM UP (II)

HOWEVER,

- Productivity of SMEs is on average lower than that of large firms

- Wages in SMEs are on average lower than wages in large firms

➔ Lower productivity in SMEs translates into lower pay. SMEs typically pay employees around 20% less than in large firms, even in large SMEs. But gaps are smaller for exporting SMEs.

TO SUM UP (II)

HOWEVER,

- Investment by SMEs is much lower than investment made by large firms: in training, in R&D, in new technology, etc.

TO SUM UP (III)

SMEs FACE SPECIFIC BARRIERS

- Access to finance (less financial sources, more difficult to get loans, …); SMEs face higher interest rates and higher transaction costs than large firms

- Access to information / new technologies (no specific dedicated department in the firm)

- Access to the right skills (skilled people prefer working in large firms since wages are higher)

➔ These barriers are addressed by industrial policy for SMEs (SEE LATER CLASSES)

4. Favourable business environment to the creation and development of SMEs

BUSINESS ENVIRONMENT

Business environment is key to the creation and development of all types of businesses, particularly to SMEs which have less power to influence it.

Business environment is:

1. Institutional and regulatory framework
2. System-enabling infrastructure (energy, transport, communication, …)
3. Local ecosystems (clusters, universities, cities, etc.)

1. Institutional and regulatory framework

= critical for entrepreneurial activity and to ensure that businesses of all sizes compete on a level playing field

What? Regulation in product and labour markets, taxation, competition, insolvency regimes, legal framework and court efficiency and public governance

All impact on entrepreneurship and SME development at all stages of the business cycle, including entry, investment and expansion, transfer and exit.

1. Institutional and regulatory framework (cont.ed)

Particularly important for SMEs and startups (because they divert proportionally more resources to these aspects than large firms):

- Clear and transparent regulatory rules
- Conditions for regulatory compliance

2. System-enabling infrastructure

Infrastructure include transport, energy and communication infrastructures, that are usually provided by the State.

Good infrastructure allow SMEs to be reduce costs (more rapid transport, low energy costs, access to broad band, …)

Now critical issues are digital infrastructure (see next lectures) and low-carbon energy and transport (environment sustainability)

3. Local eco-systems

Local and regional conditions have an important impact on SME creation and growth:

- Availability of skills
- Access to knowledge
- Networking capacity

➔ Local and regional actors (businesses, government, administration, educational institutions, research institutions, NGOs) are part of a **local or regional system (ecosystem)** that can be more or less favourable to business creation and development

➔ The literature shows that actors' competencies together with their capacity to exchange knowledge creates a favourable environment (e.g. regional innovation systems)

However, **market conditions** are also important for business creation and development

All businesses are influenced by market trends (of course!), namely demand, competition and product conditions, regarding the particular industry the business belongs to.

Market trends also regard so-called **MEGATRENDS** = BIG CHANGES THAT REGARD ALL INDUSTRIES OR GROUPS OF INDUSTRIES, OR ALSO THE WHOLE ECONOMY

MEGATRENDS TODAY???

1. INNOVATION AND TECHNOLOGICAL PROGRESS: THE FOURTH INDUSTRIAL REVOLUTION
2. GLOBALISATION AND GLOBAL VALUE CHAINS: influence of the global market on local businesses
3. SOCIETAL CHALLENGES (UN): climate change, growth in world population, inequalities, … that all imply need for SUSTAINABILITY of economic activities (both environmental and social)

THESE MEGATRENDS ARE ALSO DRIVERS OF STRUCTURAL CHANGES IN INDUSTRY

NEXT CLASS: THE FOURTH INDUSTRIAL REVOLUTION