Understanding Fast-Growing Firms: The Role of Management and Capabilities

S. Bertini N. Faraoni **T. Ferraresi** M. Mariani L. Rossi

XXXV Conferenza scientifica annuale AISRe

Padova 11/13 September 2014

Motivations

- It is widely recognized that the employment growth within the economy is due to a relatively small number of fast-growing firms (**high-growth** firms, **gazelles**)
- In the aftermath of the **economic crisis** of the late 2000s the study of these businesses has regained popularity
- Moreover, they have become a **target** of economic policies
- However, they are, to a great extent, still a **black box** in terms of the factors which contributed most to the growth process

Motivations

- It is widely recognized that the employment growth within the economy is due to a relatively small number of fast-growing firms (**high-growth** firms, **gazelles**)
- In the aftermath of the **economic crisis** of the late 2000s the study of these businesses has regained popularity
- Moreover, they have become a **target** of economic policies
- However, they are, to a great extent, still a **black box** in terms of the factors which contributed most to the growth process $\rightarrow$ little is known about **how they are managed** (lack of data)

Two strands of literature

1. **High-growth firms**
   - businesses that show the **highest growth**, in absolute or relative terms, over a **variously defined time interval** (generally 3-5 years) with respect to one (or a combination of) **output** variable (variables)
   - in most sectors; relatively young; relatively small; one-hit wonders? etc.

Two strands of literature

1. **High-growth firms**
   - businesses that show the **highest growth**, in absolute or relative terms, over a **variously defined time interval** (generally 3-5 years) with respect to one (or a combination of) **output** variable (variables)
   - in most sectors; relatively young; relatively small; one-hit wonders? etc.

2. **Management practices & dynamic capabilities**
   - recruitment; leadership style; monitoring; incentives; learning processes; training etc.
   - hard to make the concepts **operational**; **Bloom & Van Reenen** approach (corporation management) and the TFP

Our contribution

Our contribution is **threefold**

Our contribution

Our contribution is **threefold**

- Opening the black box and filling a gap between two streams of literature: Are high-growth firms characterized by **higher management practices**?

Our contribution

Our contribution is **threefold**

- Opening the black box and filling a gap between two streams of literature: Are high-growth firms characterized by **higher management practices**?
- Dealing with the lack of information: need of a survey within a **nested case-control design**

Our contribution

Our contribution is **threefold**

- Opening the black box and filling a gap between two streams of literature: Are high-growth firms characterized by **higher management practices**?
- Dealing with the lack of information: need of a survey within a **nested case-control design**
- Coping with attrition: **inverse-probability weighting** so as to achieve 'adjusted' estimates that are (as much as possible) free from the potential bias due to non response

Stating the research problems

1. We have a universe of firms endowed with administrative data (e.g., sales, employees) which allow us to select a group of **fast-growing firms**

Stating the research problems

1. We have a universe of firms endowed with administrative data (e.g., sales, employees) which allow us to select a group of **fast-growing firms**
2. We want to know whether they are better managed with respect to **similar NON high-growth firms**

Stating the research problems

1. We have a universe of firms endowed with administrative data (e.g., sales, employees) which allow us to select a group of **fast-growing firms**
2. We want to know whether they are better managed with respect to **similar NON high-growth firms**
3. No information availability about management practices as well as about other relevant aspects: we need a **survey**

Stating the research problems

1. We have a universe of firms endowed with administrative data (e.g., sales, employees) which allow us to select a group of **fast-growing firms**
2. We want to know whether they are better managed with respect to **similar NON high-growth firms**
3. No information availability about management practices as well as about other relevant aspects: we need a **survey**
4. We have cases (i.e., our high-growth firms) and need to select a group of potential controls **before** the interview

Stating the research problems

1. We have a universe of firms endowed with administrative data (e.g., sales, employees) which allow us to select a group of **fast-growing firms**
2. We want to know whether they are better managed with respect to **similar NON high-growth firms**
3. No information availability about management practices as well as about other relevant aspects: we need a **survey**
4. We have cases (i.e., our high-growth firms) and need to select a group of potential controls **before** the interview
5. The interview returns to us the **needed data**

Stating the research problems

1. We have a universe of firms endowed with administrative data (e.g., sales, employees) which allow us to select a group of **fast-growing firms**
2. We want to know whether they are better managed with respect to **similar NON high-growth firms**
3. No information availability about management practices as well as about other relevant aspects: we need a **survey**
4. We have cases (i.e., our high-growth firms) and need to select a group of potential controls **before** the interview
5. The interview returns to us the **needed data**
6. Some surveyed firms **do not respond**

Methodology

- We identify a set of high-growth firms (SMEs; manufacturing and business services) and, among them, gazelles, according to the ▸ definition of Eurostat-OECD
- We select a vast set of interviewable potential controls throughout **matched sampling**
- We **survey** both high growth firms and potential controls about several dimensions concerning managerial practices as well as other relevant aspects
- We are interested in estimating differences **all the rest being equal**
- Exploiting **matching** techniques, we sistematically check the ▸ adjusted differences between high-growth vs. ▸ similar non high-growth firms as well as between persistent high-growth vs. non persistent high-growth firms

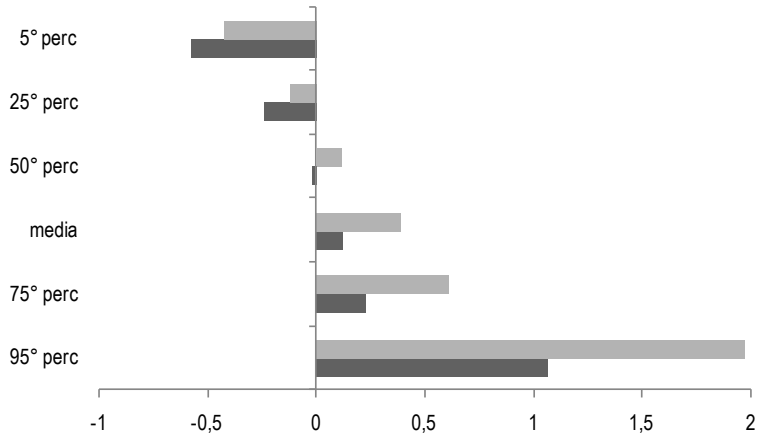
Our high-growth firms

- **2.808** Tuscan high-growth companies between 2004 and 2010
- of which **343** gazelles
- relatively **young**; in **all sectors**; mostly **small** and **medium**-sized; there are **large** firms
- we focus on manufacturing and on business services (**824** high-growth firms)

Our high-growth firms

- **2.808** Tuscan high-growth companies between 2004 and 2010
- of which **343** gazelles
- relatively **young**; in **all sectors**; mostly **small** and **medium**-sized; there are **large** firms
- we focus on manufacturing and on business services (**824** high-growth firms)

Figure: TFP à la Levinsohn & Petrin: HG (bright grey) vs. non HG firms (dark grey)



Results in a nutshell

358 surveyed firms (**181** high-growth businesses; ▸ non response)

Results in a nutshell

358 surveyed firms (**181** high-growth businesses; ▸ non response)

1. high-growth firms as **typical SMEs**
2. several interesting **differences** along many dimensions with respect to controls
3. **higher** management practices
4. **mature** HG vs. **gazelles**

Selection & recruitment

	Whole sample		Mature HG firms	
	Cases (prop.)	Adj diff (p-value)	Cases (prop.)	Adj diff (p-value)
Recruitment (multiple choice)				
insertions in national press/internet	0.12	0.067 (0.084)	0.11	0.054 (0.177)
unsolicited applications	0.46	0.102 (0.135)	0.47	0.125 (0.073)
head hunters	0.09	0.052 (0.119)	0.10	0.062 (0.091)
temporary work agencies	0.29	-0.058 (0.358)	0.28	-0.051 (0.434)
friendship/family network	0.40	-0.086 (0.214)	0.41	-0.093 (0.204)
university placement	0.11	0.026 (0.514)	0.11	0.015 (0.727)
The labor market				
recruits only in local labor market	0.85	-0.129 (0.001)	0.84	-0.136 (0.001)
also nationwide/international	0.15	0.129 (0.001)	0.16	0.136 (0.001)
Candidates attitude vs. past experience				
attitude	0.44	0.169 (0.006)	0.45	0.150 (0.021)
past experience	0.51	-0.146 (0.026)	0.50	-0.121 (0.081)

Incentives & monitoring

	Whole sample		Mature HG firms	
	Cases (prop.)	Adj diff (p-value)	Cases (prop.)	Adj diff (p-value)
Talent in career advancements				
is more important than seniority	0.66	0.126 (0.052)	0.68	0.129 (0.055)
Monetary incentives				
not present	0.51	-0.232 (0.000)	0.50	-0.230 (0.000)
for those who reach their goals	0.41	0.180 (0.003)	0.44	0.181 (0.005)
only for managers	0.07	0.052 (0.078)	0.06	0.048 (0.086)
Performance evalutation				
no	0.40	0.105 (0.110)	0.41	0.084 (0.229)
only informal	0.29	-0.303 (0.000)	0.28	-0.293 (0.000)
yes, for managers	0.05	0.023 (0.384)	0.05	0.029 (0.263)
yes, for all	0.26	0.175 (0.000)	0.27	0.180 (0.000)

Training

	Whole sample		Gazelles	
	Cases (prop.)	Adj diff (p-value)	Cases (prop.)	Adj diff (p-value)
external	0.12	0.028 (0.513)	0.30	0.255 (0.058)
internal	0.34	0.061 (0.330)	0.30	0.251 (0.127)
both	0.31	0.117 (0.043)	0.25	0.247 (0.063)
no	0.22	-0.206 (0.001)	0.15	-0.754 (0.000)

Interactive learning processes

	Whole sample		Mature HG firms	
	Cases (prop.)	Adj diff (p-value)	Cases (prop.)	Adj diff (p-value)
suppliers	0.87	0.042 (0.377)	0.87	0.033 (0.504)
clients	0.87	-0.064 (0.105)	0.86	-0.078 (0.050)
benchmark competitors	0.57	0.153 (0.014)	0.57	0.125 (0.057)
university	0.14	0.090 (0.022)	0.14	0.083 (0.046)
within stable relations	0.13	0.107 (0.004)	0.14	0.104 (0.268)
advanced services				
design/innovation	0.32	0.155 (0.004)	0.31	0.128 (0.026)
marketing	0.16	0.021 (0.653)	0.16	0.016 (0.743)
strategy consultants	0.16	0.074 (0.076)	0.15	0.062 (0.153)
ordinary business services	0.65	-0.130 (0.032)	0.64	-0.121 (0.058)

Are persistent high-growth firms better managed?

Are persistent high-growth firms better managed?

- Gazelles as **one-hit wonders**

Are persistent high-growth firms better managed?

- Gazelles as **one-hit wonders**
- Of our 181 high-growth firms, we now have **52** persistent HG and **129** non persistent HG

Are persistent high-growth firms better managed?

- Gazelles as **one-hit wonders**
- Of our 181 high-growth firms, we now have **52** persistent HG and **129** non persistent HG
- Are our new cases **better managed** compared to our new controls?

Are persistent high-growth firms better managed?

- Gazelles as **one-hit wonders**
- Of our 181 high-growth firms, we now have **52** persistent HG and **129** non persistent HG
- Are our new cases **better managed** compared to our new controls?
- To a great extent, more persistent firms are **not different** with respect to the controls

Are persistent high-growth firms better managed?

- Gazelles as **one-hit wonders**
- Of our 181 high-growth firms, we now have **52** persistent HG and **129** non persistent HG
- Are our new cases **better managed** compared to our new controls?
- To a great extent, more persistent firms are **not different** with respect to the controls
- Nevertheless, they display a higher propensity to:
  1. foster **internal training**
  2. activate **learning processes** within relations established with **advanced services providers**

Conclusions & future research

What have we done?

- We have opened the **black box** of high-growth firms in terms of their **management practices**
- **matched sampling**, **matching**, **inverse-probability weighting**
- High-growth firms are typical **SMEs**
- Nevertheless, they show **higher management practices**, as far as several different dimensions are taken into account

Conclusions & future research

What have we done?

- We have opened the **black box** of high-growth firms in terms of their **management practices**
- **matched sampling**, **matching**, **inverse-probability weighting**
- High-growth firms are typical **SMEs**
- Nevertheless, they show **higher management practices**, as far as several different dimensions are taken into account

Are there any implications in terms of **economic policy**?

- beyond the usual channels (e.g., finance), helping in fostering **management practices**
- facilitating the interactions between firms and **advanced services providers**, as they are likely to make the growth process more persistent

Definition

Eurostat-OECD (2007)

1. at least **10 employees** in the starting year
2. an average annual growth rate of employees and/or sales greater than or equal to **20%**
3. over a **3-years** time span
4. gazelles as the **young** businesses

back on track

The Xs and the Ys

administrative data
(e.g., employees, sales, exports, age, sector, etc.)

survey data
(e.g., education, history, etc.)

} **matched sampling**

} **matching**

The Xs and the Ys

administrative data
(e.g., employees, sales, exports, age, sector, etc.)

survey data
(e.g., education, history, etc.)

} **matched sampling**

} **matching**

survey data
(e.g., recruitment, leadership style, monitoring, incentives, training, learning, etc.)

} **outcomes**

back on track

The inverse probability weighting

- We assume that, **conditionally on all the available observed covariates**, non response is **random** (*missing at random*)
- We estimate the probability of responding conditional on the **information available for all**
- We construct a **weight** that is equal to the **inverse of this probability**. This weight allows to emphasize the information provided by the respondent units that, based on a set of background characteristics, are similar to non respondents
- We insert weights in the matching-based estimation procedure

▸ back on track

Respondents vs. Non respondents

358 respondents vs. **1.453** non respondents back on track

Respondents vs. Non respondents

358 respondents vs. **1.453** non respondents back on track

	Respondents	Non respondents	SMD
Sector (prop.)			
low tech manufacturing	0.341	0.400	-0.122
low to medium tech manufacturing	0.204	0.206	-0.005
medium to high tech manufacturing	0.204	0.164	0.104
high tech manufacturing	0.017	0.019	-0.019
high tech services	0.036	0.017	0.118
high knowledge services	0.098	0.096	0.007
low knowledge services	0.101	0.098	0.007
Growth (prop.)			
high-growth firms	0.506	0.443	0.126
Size & age (avg.)			
number of employees	23.61	23.43	0.007
age	20.91	19.61	0.110