

Searching for firm growth persistence

New methodologies and the sunset of dynamic capabilities approach

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- Motivations
- Economic thought perspectives
Focus on evolutionary theories and strategic management
- Literature review
Quantitative measure of persistence
- Data source and methodologies
Short description
- (Preliminary) empirical results
Validation of evolutionary expectations
- Ongoing research

- Studies on corporate and SMEs growth are becoming extremely important for the understanding of the industrial dynamics.
- Industrial dynamics are a central driver of economic growth and development.
- Necessity to detect the mechanisms behind (*persistent*) growth to efficiently allocate public and private resources.
- Firms growth as potential 'cure' for the economy during and just after periods of crisis.

(Past) research questions

Primordial research questions:

- Investigation of the determinants of *persistent* high-growth.
- Focus on role of human capital and innovation on *persistent* firm performance.

Do we really observe persistent growth (high-growth) paths? [NO]

- ✓ Infinitesimal proportion
- ✓ No statistically significant differences in terms of firm-level characteristics among sub-sample groups

Persistence appears as a very radicated and pervasive idea in the evolutionary economics thought and in all the strategic managerial theories (and in the common believe too).

Evolutionary economics theories, recently borrowed by strategic management literature, strongly rely on *routines* and *dynamic capabilities* concepts (Nelson and Winter 1982; Teece et al. 1997; Dosi et al. 2000):

- Almost always thought of as bundles of skills and one of the more important repositories of tacit knowledge inside firms.
- These competencies are not assets (do not appear on balance sheets and cannot be bought and sold).
- They confer to firm durable *competitive advantages* which guarantee continuous market shares gain (Teece 2007)

Evolutionary (now strategic management) perspectives

- The ambition of the dynamic capabilities framework is nothing less than to explain the sources of enterprise-level competitive advantage over time.
- *Competitive advantages* create value for consumers, are unique (or at least better than that possessed by rivals), durable, generate returns which are appropriable, and they are (or should be) inimitable (Teece et al. 1997)
- Firms are likely to be heterogeneous and realize different levels of performance over long periods of time (Geroski 1999)

Is this hypothesis empirically consistent?
[NO (without exclamation mark)]

Recent literature on persistence

- Several studies on persistence of growth but very contrasting results (see Coad 2007 for an extensive review).
- All based on econometric specification.

e.g.
$$g_{i,t} = \alpha + \lambda g_{i,t-1} + \beta s_{i,t-1} + e^{-\sigma s_{i,t-1}} \epsilon_{i,t}$$

- ✓ Growth rates are computed on normalized (log) variables
- ✓ Coefficients are estimated with LAD
- ✓ Heteroskedastic error term
- Omitted variables, serial autocorrelation of error terms, extremely small predictive power, residuals distribution.
- General (unclear) screenshot of the overall economy.

Heterogeneity of size

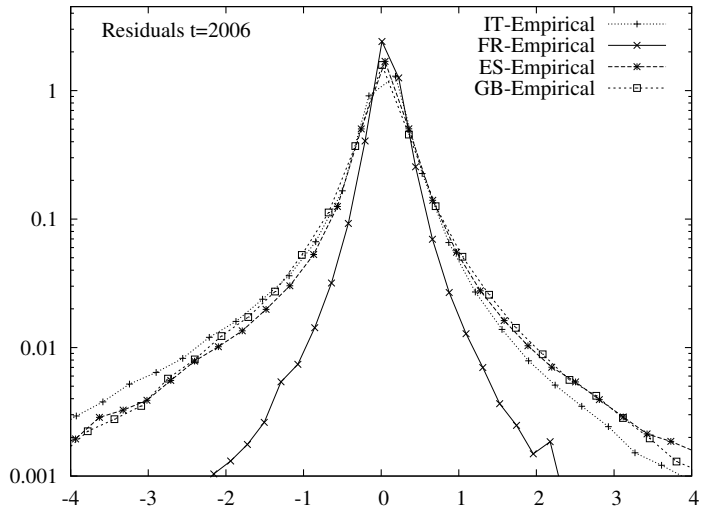


Figure: Residuals distribution by country

Data:

- *Amadeus* database
- Focus on 4 countries: Italy, France, Spain, Great Britain
- Time span: 2004 - 2011
- Balanced panel data (focus on continuing firms - see Coad 2007; Bottazzi et al. 2011)
- Rule out mergings and acquisitions
- Around 15000 obs per country for each year

Methodology:

- Focus on statistical distributions and not on parameters (no sensibility to outliers, less sensible to sample size, etc.)
- Keep track of *intra-distribution dynamics*
“Some countries rich at time $t + s$ had already been rich at time t ; similarly, others poor at $t + s$ had already been poor at t . There is, therefore, persistence”(Quah 1997)
- Non-parametric approach:
 - ✓ Markov transition matrix (discrete state space)
 - ✓ Stochastic kernel (continuous state space)
- Mobility indices (Shorrocks 1978; Bartholomew 1978)
- Different level of disaggregation (sector, size, R&D expenditure, past demand shocks, etc.)

Heterogeneity of size

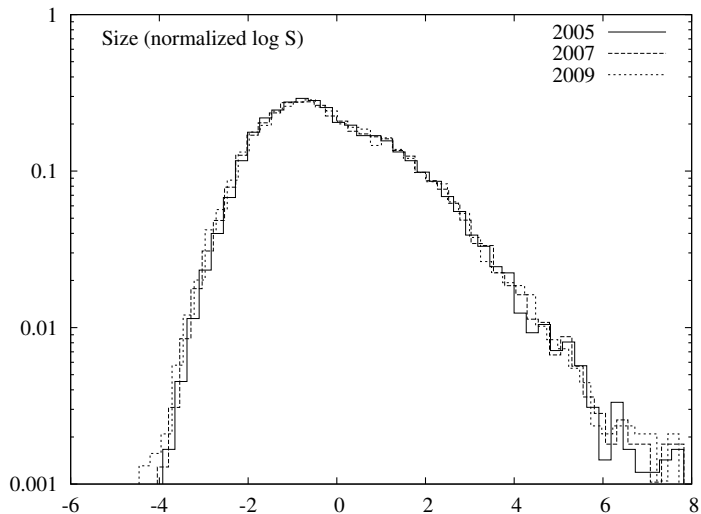


Figure: Total sales distribution - France

Heterogeneity everywhere

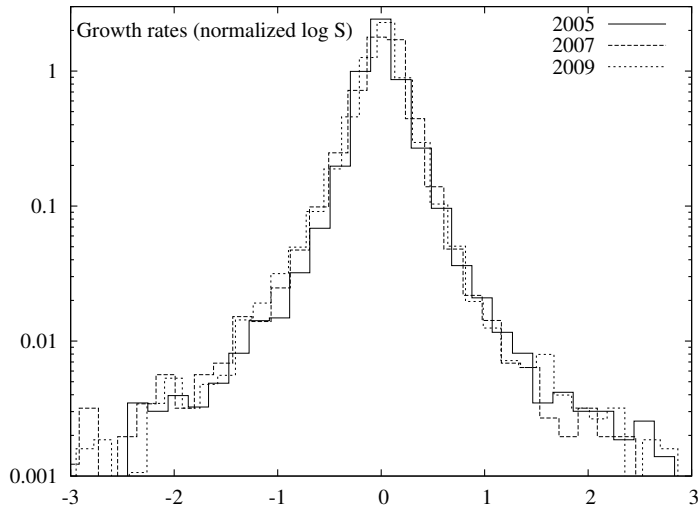


Figure: Growth rates (total sales) distribution - Spain

Heterogeneity everywhere

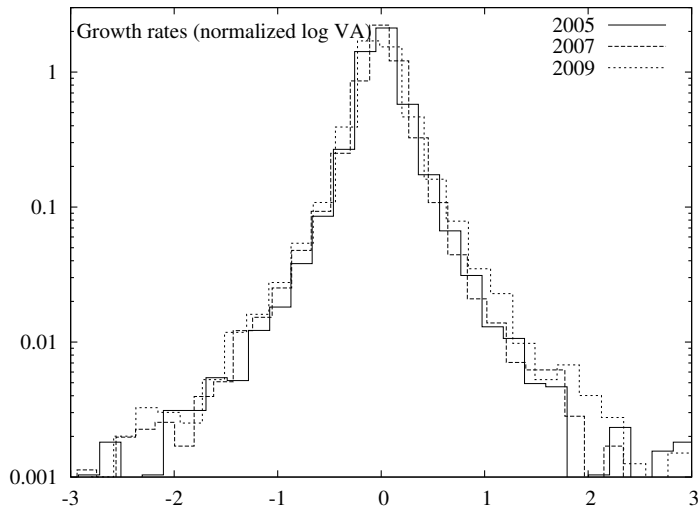


Figure: Growth rates (value added) distribution - Italy

Preliminary findings

Transitions from 2005 to 2006 - Italy				
	1	2	3	4
1	30.14	20.38	21.83	27.64
2	22.95	33.59	25.07	18.40
3	20.74	28.52	29.70	21.05
4	26.18	17.50	23.43	32.94

Transitions from 2009 to 2010 - France				
	1	2	3	4
1	29.05	22.82	20.30	27.83
2	24.35	32.82	26.17	16.66
3	21.21	26.61	30.33	21.86
4	25.44	17.75	23.21	33.65

Figure: Markov matrices on total sales (different countries and periods)

Preliminary findings

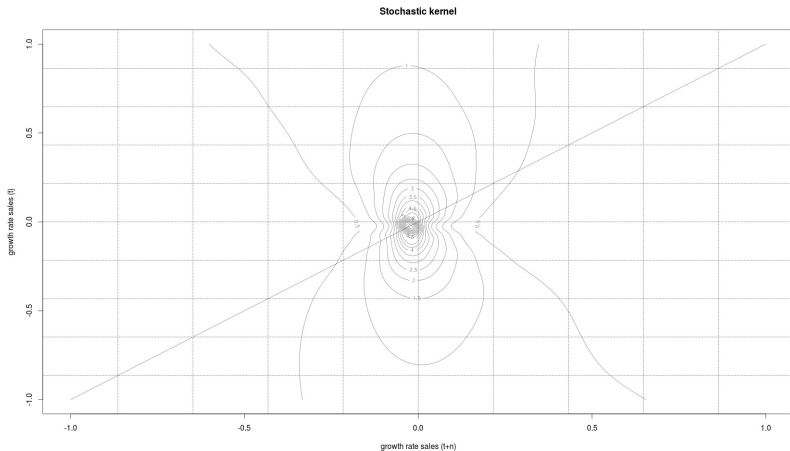


Figure: Stochastic kernel on total sales (Italy)

Summarizing:

- New statistical-based methodologies are provided to analyze persistent paths of growth.
- Overall lack of performance persistence over time.
- Robustness across whatever level of disaggregation.

Implications:

- Huge fallacy in the strategic management foundations - are *competencies/capabilities* the real driver of firm performance?
- Importance of idiosyncratic components which lead the system to be more complex than what models generally assume.
- Potential threats in resources allocation (e.g. gazelles).

First step:

- Strong critique to the huge amount of literature focused on dynamic capabilities and competitive advantages (manily on their sustainability).
- Ground this 'stylized fact' with theory → model which is able to capture intra-distribution dynamics

Limitation/next step:

- Performance simply measured in terms of growth → persistence of governance performance (in line with Kraft and Quatraro - couple of days ago)