Fast growing mid-sized firms in Europe: a first exploration

Massimo Colombo, Roberto Camerani, Massimiliano Guerini, Vahid Sadr
Fast-growing firms

- **Fast growing firms** received considerable attention by academic scholars and policymakers (Coad et al., 2014)
  - Crucial role in creating new jobs (Birch and Medoff, 1994; Brüderl and Preisendörfer, 2000; Davidsson and Henrekson, 2002; Acs et al., 2008; Acs and Mueller 2008)

- Literature has pointed out that:
  - Firm performance appears to be highly skewed (Stanley et al., 1996; Bottazzi and Secchi, 2006)
  - High growth is difficult to foresee (Marsili, 2001; Coad, 2009)
  - Newness is a more important factor than small size in explaining growth (Henrekson and Johansson, 2010)
  - High growth tends not to persist over time (Coad, 2007; Coad and Hölzl, 2009; Daunfeldt and Halvarsson, 2012)
Key issues

- Within this debate, one category of firms received somewhat less attention: medium-sized firms
  - Core of job creation in Europe: German ‘mittelstand’
  - Positive evidence in Sweden in terms of high growth rates (Davidsson and Delmar, 1997)
  - Positive evidence in the US in terms of persistent employment effects over time (Acs et al., 2008)

- Furthermore, little is known concerning the institutional factors that can stimulate the emergence of fast growing firms
  - Need for cross-country/regional comparative analysis to understand the kind of policy support that is most appropriate (Coad et al., 2014)
Identifying fast growing mid-sized firms in Europe
Cheetah database

• **Aim of this presentation.** Introducing the Cheetah database
  - Developed in the context of FP7 project “RISIS - Research Infrastructure for Research and Innovation Policy Studies”

• **Unit of analysis.** European medium-sized companies that experienced fast-growth rates in 3 growth periods (2008-2011, 2009-2012 and 2010-2013)

• **Content.** Detailed information regarding geographical localization, industry specialization, accounting data and ownership structure of each firm
  - Data source: Bureau Van Dijk’s ORBIS database
  - Data collection on patent ongoing (source PATSTAT)
Identifying fast growing mid-sized firms in Europe
Cheetah database – Criteria

1. Firms established in Europe (EU-28 countries plus Switzerland, Norway and Israel)

2. Firms are medium-sized at the beginning of each observation period (2008, 2009, 2010)

3. Firms experienced fast growth in at least one of the three observation periods
Identifying fast growing mid-sized firms in Europe
Cheetah database – Criteria (detail)

• Mid-sized criterion:
  • Number of employees between 50 and 4,999 and
  • Turnover lower than €1.5 billion or balance sheet total of less than €2 billion

• Fast-growing firm criterion (OECD/EUROSTAT):
  • *Firms that experienced an average annualized growth rate greater than 20% over a period of three years should be considered high-growth firms. Growth can be measured using either number of employees or turnover.*
Comparing selection criteria

- Overall the Cheetah database includes **42,369 Fast Growing Medium-Sized Firms**

<table>
<thead>
<tr>
<th>Selection criteria</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2008-11</td>
</tr>
<tr>
<td>Either employee or turnover growth</td>
<td>17,438</td>
</tr>
<tr>
<td>Employee growth</td>
<td>6,762</td>
</tr>
<tr>
<td>Turnover growth</td>
<td>13,648</td>
</tr>
<tr>
<td>Both employee and turnover</td>
<td>2,972</td>
</tr>
</tbody>
</table>
Fast growth mid-sized firms vs mid-sized firms
Fast growing mid-sized firms vs mid-sized firms
Distribution by incorporation year

- 2005 - 2009: 12.3% (Fast growing) vs 19.2% (All mid-sized)
- 2000 - 2004: 16.2% (Fast growing) vs 19.3% (All mid-sized)
- 1995 - 1999: 16.5% (Fast growing) vs 17.5% (All mid-sized)
- 1990 - 1994: 16.5% (Fast growing) vs 17.8% (All mid-sized)
- Before 1990: 27.5% (Fast growing) vs 37.3% (All mid-sized)
Fast growth mid-sized firms vs mid-sized firms
Distribution by country (top 10)

<table>
<thead>
<tr>
<th>Country</th>
<th>Fast growing mid-sized firms</th>
<th>All mid-sized firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Kingdom</td>
<td>17.6%</td>
<td>14.1%</td>
</tr>
<tr>
<td>Germany</td>
<td>14.4%</td>
<td>9.8%</td>
</tr>
<tr>
<td>Italy</td>
<td>9.0%</td>
<td>8.4%</td>
</tr>
<tr>
<td>Poland</td>
<td>7.7%</td>
<td>7.9%</td>
</tr>
<tr>
<td>France</td>
<td>8.2%</td>
<td>6.5%</td>
</tr>
<tr>
<td>Romania</td>
<td>7.8%</td>
<td>5.5%</td>
</tr>
<tr>
<td>Spain</td>
<td>5.4%</td>
<td>3.6%</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>5.3%</td>
<td>4.4%</td>
</tr>
<tr>
<td>Sweden</td>
<td>5.1%</td>
<td>2.6%</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>3.8%</td>
<td>2.7%</td>
</tr>
<tr>
<td>Other countries</td>
<td>24.7%</td>
<td>25.5%</td>
</tr>
</tbody>
</table>
Fast growing mid-sized firms vs mid-sized firms
Distribution by industry

- Agriculture and mining: Fast growing 2.6%, All 1.4%
- Manufacturing: Fast growing 32.4%, All 29.4%
- Electricity, gas, water supply: Fast growing 2.1%, All 0.8%
- Construction: Fast growing 8.3%, All 7.5%
- Wholesale and retail trade: Fast growing 14.9%, All 12.6%
- Transportation and storage: Fast growing 5.3%, All 5.0%
- Accommodation and food service: Fast growing 3.4%, All 2.5%
- Information and communication: Fast growing 4.1%, All 5.0%
- Finance, insurance and real estate: Fast growing 5.1%, All 6.6%
- Professional, scientific and technical activities: Fast growing 6.5%, All 7.2%
- Administrative and support service: Fast growing 7.3%, All 8.7%
- Public administration, defence and education: Fast growing 0.3%, All 1.4%
- Other activities: Fast growing 6.3%, All 13.2%
Fast growing mid-sized firms vs mid-sized firms
Distribution by industry (based on technology level and knowledge intensity)

Fast growing mid-sized firms
All mid-sized firms

- High-Tech Manufacturing
  - Fast growing: 2.6%
  - All: 1.8%
- Medium-High-Tech Manufacturing
  - Fast growing: 9.8%
  - All: 7.2%
- Medium-Low-Tech Manufacturing
  - Fast growing: 9.6%
  - All: 9.2%
- Low-Tech Manufacturing
  - Fast growing: 10.4%
  - All: 11.2%
- Knowledge-Intensive Services
  - Fast growing: 28.0%
  - All: 27.0%
- Less Knowledge-Intensive Services
  - Fast growing: 24.6%
  - All: 31.2%
- Other
  - Fast growing: 14.9%
  - All: 12.5%
Growth patterns of fast growth mid-sized firms
Industry specialization (based on technology level and knowledge intensity)
Balassa indexes by country (top10)
## Controlled vs independent firms by country (top 10%)

<table>
<thead>
<tr>
<th>Country</th>
<th>Percentage of independent firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Kingdom</td>
<td>32.7%</td>
</tr>
<tr>
<td>Germany</td>
<td>35.3%</td>
</tr>
<tr>
<td>Italy</td>
<td>48.9%</td>
</tr>
<tr>
<td>Poland</td>
<td>50.3%</td>
</tr>
<tr>
<td>France</td>
<td>18.4%</td>
</tr>
<tr>
<td>Romania</td>
<td>61.0%</td>
</tr>
<tr>
<td>Spain</td>
<td>35.7%</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>39.6%</td>
</tr>
<tr>
<td>Sweden</td>
<td>5.8%</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>57.1%</td>
</tr>
<tr>
<td>Total</td>
<td>37.0%</td>
</tr>
</tbody>
</table>
Size classes by industry (based on technology level and knowledge intensity)

- High-Tech Manufacturing: 23% 57% 20%
- Medium-High-Tech Manufacturing: 29% 54% 17%
- Medium-Low-Tech Manufacturing: 32% 58% 10%
- Low-Tech Manufacturing: 32% 57% 11%
- Knowledge-Intensive Services: 21% 57% 22%
- Less Knowledge-Intensive Services: 29% 56% 15%
- Other: 38% 52% 9%

Legend: Blue = 50-100 employees, Red = 101-500 employees, Green = more than 500 employees
Size classes by country (top 10)

<table>
<thead>
<tr>
<th>Country</th>
<th>50-100 employees</th>
<th>101-500 employees</th>
<th>more than 500 employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Kingdom</td>
<td>22%</td>
<td>59%</td>
<td>19%</td>
</tr>
<tr>
<td>Germany</td>
<td>23%</td>
<td>57%</td>
<td>21%</td>
</tr>
<tr>
<td>Italy</td>
<td>39%</td>
<td>48%</td>
<td>14%</td>
</tr>
<tr>
<td>Poland</td>
<td>31%</td>
<td>58%</td>
<td>12%</td>
</tr>
<tr>
<td>France</td>
<td>28%</td>
<td>60%</td>
<td>12%</td>
</tr>
<tr>
<td>Romania</td>
<td>32%</td>
<td>58%</td>
<td>11%</td>
</tr>
<tr>
<td>Spain</td>
<td>29%</td>
<td>57%</td>
<td>14%</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>20%</td>
<td>65%</td>
<td>15%</td>
</tr>
<tr>
<td>Sweden</td>
<td>30%</td>
<td>55%</td>
<td>15%</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>41%</td>
<td>50%</td>
<td>9%</td>
</tr>
</tbody>
</table>

Fast growing mid-sized firms in Europe
Persistence over time

- Literature suggests that fast growth is not persistent over time (Coad, 2007; Coad and Hölz, 2009; Daunfeldt and Halvarsson, 2012)
- However, some firms experienced growth in more than 1 observation period

<table>
<thead>
<tr>
<th>Number of growth periods</th>
<th>Number of firms</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>One period</td>
<td>29,245</td>
<td>69.0%</td>
</tr>
<tr>
<td>Two periods</td>
<td>10,101</td>
<td>23.8%</td>
</tr>
<tr>
<td>Three period</td>
<td>3,023</td>
<td>7.1%</td>
</tr>
<tr>
<td>Total</td>
<td>42,369</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
Persistence over time
Distribution by size classes

Fast growing mid-sized firms in Europe
Conclusions

• Heterogeneity across countries

• Fast growth is not limited to high-tech/knowledge intensive industries

• Persistence is difficult (but a non-negligible amount of firms are able to grow for more than 1 period)

• Possible avenues for future research:
  • Institutional determinants and agglomeration effects
  • Mode of growth (organic vs. external)
  • Just offshoring? Role of subsidiaries of large incumbents
  • Regularly of growth over time
  • Innovation and growth