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Sleeping Gazelles:  
High profits but no growth

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# Sleeping Gazelles: High profits but no growth

Anders Bornhäll\*, Sven-Olov Daunfeldt† and Niklas Rudholm†

## Abstract

Among 205,322 limited liability firms in Sweden during 1997-2010, more than 10% did not hire new employees in any given 3-year period despite having high profits. Nearly one-third continued to have high profits in the next three-year period, but still no growth. Regression analysis indicates that these firms were not randomly distributed; rather they were small and young, did not belong to an enterprise group, had low own-capital as a share of total liabilities, and operated in local markets with high profit-opportunities and low competition. We conclude that it might be more beneficial to focus policy towards these firms instead of towards a few high-growth firms that, having just grown exponentially, may not be best positioned to grow further.

**Keywords:** Gazelles; high-growth firms; firm growth; growth barriers; job creation

**JEL-codes:** L11; L25.

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## 1 Introduction

Most firms do not grow, or only grow slowly (Hodges and Østbye, 2010), while a few, so-called high-growth firms (HGFs) are crucial for job creation (Birch and Medoff, 1994; Brüderl and Preisendörfer, 2000; Davidsson and Henrekson, 2002; Delmar et al., 2003; Littunnen and Tohmo, 2003; Halabisky et al., 2006; Acs and Mueller, 2008; Acs et al., 2008). HGFs have therefore received increasing attention in recent years. Shane (2009) argues that the importance of a small number of HGFs suggests that policy should be re-directed from promoting start-ups towards encouraging them, and Mason and Brown (2012) present several public policies that could be used to support HGFs. The Europe 2020 strategy also mentions more HGFs as a political objective (European Commission, 2010).

Many studies have focused on explaining what characterizes HGFs, i.e., whether they are small (Delmar 1997; Delmar and Davidsson 1998; Weinzimmer et al. 1998; Delmar et al. 2003; Shepherd and Wiklund 2009); young (Delmar et al., 2003; Haltiwanger et al. 2010); belong to an enterprise group (Delmar et al., 2003); family-owned (Bjuggren et al., 2010); belong to a certain industry (Delmar et al, 2003; Davidsson and Delmar, 2003, 2006; Halabisky, 2006; Acs et al., 2008); region (Stam, 2005; Acs and Mueller, 2008); or country (Schreyer, 2000; Biosca, 2010), and so on.<sup>1</sup> The implicit assumption behind most studies is that we might learn something from investigating HGFs that could be used to increase the number of fast-growing firms in the economy.

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<sup>1</sup>Henrekson and Johansson (2010) review the empirical literature on HGFs.

However, the recent focus on HGFs could be problematic, for at least two reasons. First, HGFs could experience high growth despite growth-barriers, removal of which might have no influence on the growth of HGFs, but could promote growth of other firms. Factors hindering firm-growth might thus not be discovered by studying HGFs, and results might be of little value in increasing job opportunities. Second, HGFs are likely to be "one-hit wonders", unlikely to repeat their high growth (Hölz, 2011; Daunfeldt and Halvarsson, 2012). This raises serious questions whether policymakers can target high-growth firms in order to design policies to promote future firm growth.

The characteristics and strategies of HGFs might thus not be useful for determining what needs to be improved in order to create a business environment more favorable for job creation. In fact, the focus on HGFs might be distracting. It might be more productive to focus on getting more firms that are profitable but not growing, to start employing additional personnel. This paper thus focuses on what we call "sleeping gazelles"<sup>2</sup>, i.e., firms that have historically experienced high profitability, but no employment growth.

The purpose of this paper is twofold. First, calculating transition-probability matrices to investigate whether sleeping gazelles in one 3-year period continued to have high profitability but no employment growth in the next. Second, to estimate the determinants of being a sleeping gazelle using a linear-probability regression model. We are interested in answering questions such as: How many profitable firms with no employment growth chose not to hire more employees in the next 3-year period? Which are

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<sup>2</sup>HGFs were labeled "gazelles" by Birch and Medoff (1994).

the determinants of being a sleeping gazelle, and can we from this conclude possible policies to increase employment?

Our results show that sleeping gazelles constituted 10.45-11.41% of all firms in our sample (depending on the time period chosen). This is a much larger share of the firm population than HGFs, suggesting that Swedish unemployment would decline substantially, *ceteris paribus*, if these firms, on average, chose to hire just one more employee each.

However, the probability that sleeping gazelles – though continuing to have high profitability – will have no growth in the next period is as high as 0.30, indicating their reluctance to grow. In general, they are small and young firms; not in an enterprise group; with a low share of own-capital in relation to total debt; and operates in businesses with high profits and low competition in their local market. Regional demographic factors including educational level do not seem to influence the likelihood of being classified as a sleeping gazelle.

Previous studies have focused too much on analyzing HGFs, a small fraction of the firm population which are extremely unlikely to repeat their rapid growth. More research is instead needed on solving the puzzle why so many firms have no growth despite high profits, and why they choose not to grow. Policymakers should also focus more on removing growth-barriers for sleeping gazelles, since this might generate more jobs than targeting a small number of HGFs.

The next section discusses what determines firm growth theoretically, including why certain firms become sleeping gazelles, while Section 3 presents the data. Section 4 then describes the empirical model, and Section 5

presents the results. Section 6 summarizes and draws conclusions.

## 2 Understanding firm growth

Many variables have been suggested as important for firm growth (Coad, 2009), but we focus on those measurable using secondary data, which we can include as control variables in an empirical model. Thus we exclude direct measures such as growth ambitions, market orientation, business models, firm-level human assets, firm culture, governance modes and innovative orientation, whose impacts are instead assumed to be captured in regional-, industry-, and time-specific fixed effects.

A much-studied relationship is whether firm growth is contingent on firm size, usually starting from Gibrat's law which predicts that firm growth is purely random, independent of firm size (Gibrat, 1931). However, already Schumpeter (1912, 1934) emphasized the importance of new and small ventures for introducing novel ideas into the economic system, thereby promoting firm growth. The later Schumpeter (1943), was of another opinion, arguing that innovation was a routinized process best performed by large firms that could use economics of scale to their advantage with respect to growth. Small sized firms were often considered as inefficient and, at times, a waste of resources (Galbraith, 1956, 1967).

Birch et al. (1979) questioned this view, showing that large companies account for the largest employment share in the United States at any given time. But companies that are large in one period may then shrink and be replaced by new firms that used to be small. Thus, with this dynamic

perspective, small firms may be the job creators, while large firms lose employment, though this view has been heavily criticized (Davis et al., 1996, Kircho and Greene, 1998). Nevertheless, the key findings of Birch's analysis have been confirmed in more recent studies (Van Praag and Versloot, 2007), with one important addition: The majority of small firms do not grow. Instead, firm growth seems concentrated in a minority of firms (Birch and Medoff, 1994). Davidsson et al. (2005), for example, noted that "Most firms start small, live small and die small". This suggests that small firms may be overrepresented among profitable firms that do not grow.

Younger firms should grow faster since they are more entrepreneurial, acting more quickly on new business opportunities (Coad, 2009), while older firms are more likely to have achieved their optimal size. In fact, Haltiwanger et al. (2010) argues that after controlling for firm age, there is no systematic relationship between size and growth. This implies that older firms may be more likely to be sleeping gazelles.

Ownership structure may also be relevant to growth. Multi-plant firms have been found to have higher growth than others among U.S. small businesses (Variyam and Kraybill 1992; Audretsch and Mahmood 1994); among large European corporations (Geroski and Gugler 2004); and among Italian manufacturing firms (Fagiolo and Luzzi 2006).

Multi-plant firms presumably have greater financial backing than others, and should thus making them more able to add employees when experiencing high profits. The financial strength of the firm might also determine whether profitable firms choose to grow or not. Cressy (2006) developed a theoretical model of firm growth, showing that firms often die young be-



cause financial resources are impoverished. Santarelli and Vivarelli (2007) also claim that credit constraints and lack of financial capital in general should limit firm growth. But credit-rationing may have been overemphasized, with difficulties in getting financing not the cause of problems but their symptom. This argument is supported by De Meza (2002), who argues that asymmetric information and entrepreneurial over-optimism can cause over-lending to low-quality firms.

Local industry-specific variables might also affect the likelihood of firms being sleeping gazelles. Higher profit opportunities are often thought to stimulate firm growth, though this has been difficult to prove empirically (Geroski, 1995). Firms in industries with high uncertainty regarding future profits might choose not to add employees. Kan and Tsai (2006), for example, find that risk-aversion has a negative impact on the decision to become self-employed. Modern Austrian economists have a different perspective on uncertainty and the entry of new firms: "What drives the market process is entrepreneurial boldness and imagination" (Kirzner, 1997: 73).

Industry minimum efficient scale (MES) might also affect growth, since the scale disadvantage of a small firm is greater in industries with a larger MES. Small firms are thus forced to grow quickly in industries with high MES (Strotman, 2007: 89), implying fewer sleeping gazelles.

Market concentration within industries has also been suggested as an important determinant of firm growth (Geroski, 1995). There might be substantial barriers to entry and growth in industries with a high concentration – where large incumbents might engage in strategic behavior to prevent growth of smaller firms – implying more sleeping gazelles.

Innovation activity might also be an industry-specific determinant of firm growth (Mansfield 1962; Scherer 1965; Mowery 1983; Geroski and Machin 1992; Geroski and Toker 1996; Roper 1997; Freel 2000; Bottazzi et al. 2001). Audretsch (1995) finds that while the likelihood of survival was lower for new entrants in innovative industries, those that survived exhibited higher growth than in other industries. Acs and Audretsch (1990) also find that the degree of industry turbulence is inhibited by the overall amount of innovative activity, but promoted by the extent to which small firms innovate. Arrighetti and Vivarelli (1999) investigated the start-up decision of 147 entrepreneurs in Italy, finding that innovative motivation and experience in innovative activities were positively related to superior post-entry performance. According to Cefis and Marsili (2006), the ability to innovate increases the survival probability of manufacturing firms in the Netherlands across most industries, with the innovative premium highest for small and young firms, thus implying fewer sleeping gazelles in innovative industries.

Region-specific determinants of firm growth have been very seldom analyzed, even though they might be important (Audretsch and Dohse, 2007). Since entrepreneurial activity varies across regions, effects of entrepreneurship and new firm start-ups ought to be particularly obvious at that level (Santarelli and Vivarelli, 2007).

Endogenous growth theory (Romer, 1991) and the “new economic geography” (Krugman, 1995; Fujita et al., 1999) suggest that large common markets drive economic growth, with industrial networking promoting firm growth and firm survival, especially for small firms. Because of externalities, clustering might have a positive effect on human capital formation. Thus,

firm growth should be higher in more densely populated regions, with more sleeping gazelles in smaller local markets.

Since it facilitates knowledge spillovers, regional education level might also affect whether a firms choose to expand (Audretsh, Keilbach, and Lehman 2006; Acs et al., 2004). If firm growth primarily is determined by access to an educated workforce then firms should expand more in these regions compared to regions with lower educational attainment. Higher education might also encourage individuals to become entrepreneurs (Daunfeldt et al., 2006; Brixy and Grotz, 2007), and the presence of a university might increase business opportunities, including university spin-offs (Goldstein and Renault, 2004).

Entrepreneurial activity can also depend on its political and institutional setting (Baumol, 1990), with (for example) left-of-center governments generally perceived as less favorable to entrepreneurship (Ayittey 2008: 146). Firms also value stable rules of the game, being more likely to add employees if there is political stability evidenced by a high concentration of political power in the local parliament. But a high concentration of political power might also be detrimental if it means less perceived need (by complacent politicians) to improve local business conditions.

Finally, of course, firm growth is probably lower during recessions, thus dependent on the study-period.

We still hypothesize, first, that small firms, old firms, firms that do not belong to a business group, and firms with low liquidity are more likely sleeping gazelles. We also hypothesize that sleeping gazelles are more common in industries with low profit opportunities, a high industry-uncertainty,

low MES, high market-concentration, and a low innovation. Finally we hypothesize more sleeping gazelles in small regions with no universities, a less-educated workforce governed by left-wing parties in a highly fragmented local parliament and during recession years.

### **3 Data and identification of sleeping gazelles**

Data was obtained from PAR, a Swedish consulting firm that gathers economic information from PRV (the Swedish patent and registration office), used mostly by Swedish commercial decision-makers. All limited liability firms in Sweden are required to submit an annual report to PRV. The data comprises all such firms (503,985 firms in total) active at some point during 1997-2010. The data includes all variables found in the annual reports: profits, number of employees, salaries, fixed costs, and liquidity.

Our two-period analysis requires that the firms existed during at least two consecutive three-year periods. New entrants and those that exited during these periods are therefore excluded. Only active firms are included meaning that we exclude those with an annual sales turnover less than 100,000 SEK<sup>3</sup>. Finally, we exclude a few (less than 1%) extreme observations, those with a return (or loss) on total assets more than 500%. These extreme observations make up for less than one percent of the observations in the original data-set. Our final sample consists of 205,322 firms yielding 692,243 time-period observations.

Employment and sales are the most commonly used indicators of firm

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<sup>3</sup>About 15,200 US dollars (April 28, 2013).

growth (Delmar, 1997; Daunfeldt et al., 2010). We define firm growth ( $G_{it}$ ) in period  $t$  for firm  $i$  as the change in number of employees during a three-year period. As this fluctuates over time, the period for which growth is measured can affect the results. We focus on three-year periods since most previous studies on HGFs have measured growth over three- or four-year periods (Henrekson and Johansson, 2010). We choose employment as growth indicator since our focus is on the potential job contribution of firms that do not grow despite high profitability.

To study the dynamics of sleeping gazelles – following Davidsson et al. (2009) – we use a two-dimensional growth-profits performance-space with both growth and profits divided into three categories, giving us a three-by-three matrix (Table 1). For each period, employment growth is simply classified as positive, negative or zero. Returns on total assets (ROA) are used as our profit measure, classified as low, medium or high. Above-median ROA during all three years of one period is classified as high. ROA consistently below the median is classified as low, and the rest as medium. Sleeping gazelles (with high profits but no growth) are category 6, whereas HGFs in general are defined as a subsample of 7-9.

Table 1: Classification of sleeping gazelles

Employment change	Return on total assets		
	Low	Medium	High
Negative	1	2	3
Zero	4	5	6
Positive	7	8	9

Despite the recessions in 2001 and 2008, and the change in national government from social democratic to liberal-conservative government in

2007, sleeping gazelles varied only between 10.45-11.41% during 1998-2010. Many companies were thus profitable, but chose not to expand their business (Table 2).

Table 2: Number and share of sleeping gazelles per 3-year period

	No. Firms	Sleeping gazelles	
1998-2001	152,209	15,905	10.45%
2001-2004	179,093	19,769	11.04%
2004-2007	189,637	20,880	11.01%
2007-2010	171,304	19,551	11.41%

As discussed in Section 2, we included firm-specific, industry-specific, region-specific, and time-specific explanatory variables to analyze what characterizes sleeping gazelles and the likelihood that they might start to grow (Table 3).

Firm size, firm age, ownership structure, and financial strength are included as firm-specific variables in the empirical analysis; whereas profit opportunities, profit uncertainty, industry minimum efficient scale (MES), and market concentration are included as industry-specific variables. The degree of innovation activities in the industry is controlled for using industry-specific fixed effects. Region-specific factors might also affect the likelihood of not observing any high growth rates, and we therefore control for population size, the presence of a university or a university college; the educational level of the population; political preferences; and political strength as explanatory variables in the estimated model. Region-specific characteristics are provided by Statistics Sweden and measured at municipality level. We also include industry-specific and region-specific fixed effects to control for time-invariant heterogeneity across industries (e.g., innovation activity) and

regions. Finally, time-variant heterogeneity in growth rates are controlled for using time-specific fixed effects.

Table 3: Summary statistics

Variable	Mean	Std. Dev.	Min.	Max.	N
Firm size	10.611	137.169	0	32637	692243
Firm age	22.248	13.493	5	113	692243
Enterprise group	0.433	0.496	0	1	692243
Return on Total Assets	6.046	31.315	-500	500	688740
Financial strength	9.962	1088.623	-57876.934	461304.781	690435
Number of firms	117.381	365.365	0	2863	692243
Profit opportunities	6.034	11.723	-498.462	441.842	692131
Profit uncertainty	958.329	1704.594	0	302642	685959
MES	3.689	41.208	0	11709.841	692243
Market concentration	0.078	0.121	0	1	692243
Population	247079.435	296581.005	2521.801	811616.25	658381
Population density	1115.069	1601.159	0	4315.730	680663
University	0.522	0.5	0	1	692243
Educational level	0.206	0.084	0.063	0.432	671005
Political preferences	0.316	0.465	0	1	692243
Political strength	0.225	0.038	0.092	0.491	670976

Descriptive statistics of all variables included in the empirical analysis are presented in Table 3. All variables are defined and discussed more thoroughly in Section 4.

## 4 Dynamics of sleeping gazelles

Following Capasso et al. (2009), Hölzl (2011), and Daunfeldt and Halvarsson (2012), we estimate transition probabilities that a company in a given category in period  $t$  (vertical-axis) will be in that or another category in the next period (horizontal-axis). The results from the transition probability analysis are presented in Table 4. Of course, with four three-year periods a company might change category more than once.

Sleeping gazelles with high profits but no employment-growth (category

6 in Table 4) are very likely ( $\text{Pr}=0.30$ ) to be sleeping gazelles again in the next period, equally likely to have medium profits and no growth (category 5) but very unlikely to ( $\text{Pr}=0.05$ ) to have low profits (category 4).

Table 4: Add caption

		To category period t+1								
		1	2	3	4	5	6	7	8	9
From category period t	1	0.13	0.15	0.02	0.21	0.22	0.03	0.08	0.13	0.03
	2	0.08	0.16	0.04	0.13	0.26	0.07	0.05	0.16	0.06
	3	0.04	0.14	0.10	0.05	0.19	0.16	0.02	0.13	0.16
	4	0.07	0.10	0.01	0.29	0.33	0.05	0.05	0.09	0.02
	5	0.05	0.11	0.02	0.14	0.39	0.12	0.03	0.10	0.04
	6	0.02	0.08	0.05	0.05	0.30	0.30	0.01	0.09	0.09
	7	0.18	0.23	0.03	0.09	0.14	0.03	0.12	0.15	0.04
	8	0.09	0.23	0.06	0.05	0.18	0.07	0.05	0.19	0.10
	9	0.04	0.16	0.12	0.02	0.12	0.13	0.02	0.16	0.25

Note: 1=negative growth, low profits, 2=negative growth, medium profits, 3=negative growth, high profits, 4=no growth, low profits, 5=no growth, medium profits, 6=no growth, high profits (sleeping gazelles), 7=high growth, low profits, 8=high growth, medium profits, 9=high growth, high profits.

Thus, almost two-thirds of sleeping gazelles did not add employees in the next period despite again having high or medium profits. Sleeping gazelles are also less likely than other categories to lose employees in the next period: Only 15% ended up in categories 1-3. Companies with medium profits but no growth (category 5) are also very likely ( $\text{Pr}=0.39$ ) to be in that category again in the next period.

Companies with high growth but low profits (category 7), are very unlikely ( $\text{Pr} = 0.04$ ) to have high growth and high profits in the next period (category 9). The most likely outcome is in fact that they will end up with falling employment and medium or low profits.



On the other hand, companies with high growth and high profitability (category 9), are most likely to grow again in the next period. A quarter of the firms with high employment growth and high profits will, for example, remain in this category during the next period. This support Davidsson et al.'s (2009) finding that companies with high profits are more likely to also have high growth than those that are growing before achieving high profits.

## 5 What characterizes a sleeping gazelle?

### 5.1 Empirical model

In any period some firms may choose not hire more employees despite having high profits. To analyze what characterizes these firms, we estimate the linear probability model

$$D_{it} = a_0 + \gamma'_k \mathbf{X}_{it-1} + \beta'_s \mathbf{Z}_{jmt-1} + \delta'_v \mathbf{Y}_{mt-1} + \eta'_v \mathbf{I}_j + \lambda'_l \mathbf{R}_m + \theta'_h \mathbf{T}_t + \varepsilon_t \quad (1)$$

where the dependent variable  $D_{it}$  takes the value one if firm  $i$  can be characterized as a sleeping gazelle during the three-year period  $t$ , and zero otherwise. Firm-specific characteristics are captured by the vector  $\mathbf{X}_{it-1}$ ;  $\mathbf{Z}_{jmt-1}$  is a vector of industry-specific characteristics assumed to influence the probability of being a sleeping gazelle;  $\mathbf{Y}_{mt-1}$  is a vector of regional (municipal) characteristics;  $\mathbf{I}_j$ ,  $\mathbf{R}_m$  and  $\mathbf{T}_t$  are industry, municipality, and time-specific fixed effects; and  $\gamma'_k$  ( $k = 1, \dots, 4$ ),  $\beta'_s$  ( $s = 1, \dots, 6$ ),  $\delta'_v$  ( $v = 1, \dots, 6$ ),  $\eta'_v$  ( $v = 1, \dots, 318$ ),  $\lambda'_l$  ( $l = 1, \dots, 24$ ), and  $\theta'_h$  ( $h = 1, 2, 3$ ) are the corresponding

parameter vectors. All explanatory variables are lagged one period to avoid reversed causality problem since previous-period values are, by definition, pre-determined.

Among firm characteristics, firm size is measured as the average number of employees in the previous period, while firm age is defined as the observation-year minus the registered start-year (available from 1897). Ownership structure is a dummy taking value one if part of an enterprise group. Financial strength measured by own capital as a share of total liabilities during the previous period.

Among industry characteristics, profit opportunities for potential entrants are measured by average ROA in the industry and municipality during the previous period. Profit uncertainty is proxied by the conditional variance of those ROAs during the same period.

Audretsch (1995) adopted the standard Comanor & Wilson (1967) proxy for measuring the minimum efficient scale, the mean size of the largest plants, accounting for half of industry sales. Other commonly used proxies are industry-mean (Daunfeldt et al., 2013a; Håkansson et al., 2013) or median (Daunfeldt et al., 2013b) size, or the ratio of that plant's output to total industry output (Sutton, 1991). Following Daunfeldt et al. (2013b), we use total sales of the median firm in the industry during the previous period.

Market concentration – indicating the potential presence of dominant incumbent firms – is measured by a Herfindahl-index, calculated as the sum of squares of firms' market-shares, i.e.,  $s_{1m}^2 + s_{2m}^2 + \dots + s_{km}^2$ , where  $k$  is the number of firms in the municipality for each 5-digit industry. If all firms had equal revenues, the index would be  $1/k$ , whereas if the entire local market

were supplied by one firm, it would be one. The number of firms in the industry and municipality in the previous period is included as a measure of local competition.

Region-specific factors include population and population density. The local availability of higher education is represented by a dummy variable with value one if a university is located in the municipality. Educational level is measured as the percentage of people aged 16-74 with at least 3 years of post-secondary education. Political preferences are represented by a dummy variable with value one if non-socialist parties had a local majority. Political strength is measured by a Herfindahl-index, the sum of squares of political parties' shares in the votes for local government.

To analyze whether the existence of sleeping gazelles is related to the innovative activity in the industry, we also measure fixed effects of high-tech industries and knowledge-intensive services compared to others.

## 5.2 Results

Equation (1) is first estimated for the all firms (Model I), both surviving and those that entered or exited during the entire study period, 1997-2010 (Table 5, first column). However, smaller firms are more likely to have zero growth, and higher exit rates (Lotti et al. 2003). Thus Equation (1) is also estimated for only firms that survived throughout the study period (column 2).

As expected – since variation in number of employees increases as firms get larger, and thus most often older – sleeping gazelles are generally smaller and younger than other firms. Hiring one more employee in the previous

Table 5: Linear probability model of sleeping gazelles in Sweden, 1997-2010

VARIABLES	All firms	Surviving firms
Size (L)	-3.38e-05*** (5.19e-06)	-3.63e-05*** (4.23e-06)
Age	-0.000204*** (3.61e-05)	-0.000247*** (4.21e-05)
Enterprise group	-0.0172*** (0.000994)	-0.0178*** (0.00118)
Financial strength (L)	-7.67e-07*** (2.44e-07)	-7.60e-07** (3.22e-07)
Profit opportunities (L)	0.00188*** (5.81e-05)	0.00209*** (7.49e-05)
Profit uncertainty (L)	2.25e-06*** (3.41e-07)	2.18e-06*** (4.14e-07)
Minimum efficient scale (L)	5.49e-06 (7.02e-06)	-2.61e-06 (7.33e-06)
Market concentration	0.0270*** (0.00558)	0.0311*** (0.00676)
Number of firms (L)	-1.12e-05*** (1.61e-06)	-1.21e-05*** (1.99e-06)
Population	3.14e-09 (6.69e-09)	2.99e-09 (7.86e-09)
Population density	-1.80e-06 (1.26e-06)	-1.41e-06 (1.47e-06)
University	0.000872 (0.00178)	0.00219 (0.00208)
Educational level	0.00307 (0.0112)	-0.00452 (0.0131)
Political preferences	0.00220* (0.00133)	0.00119 (0.00156)
Political strength	0.0123 (0.0149)	0.0273 (0.0173)
Constant	0.0923*** (0.0112)	0.0917*** (0.0117)
Observations	441,498	325,418
R-squared	0.019	0.019
Time FE	YES	YES
Regional FE	YES	YES
Industry FE	YES	YES

Note: Robust standard errors in parentheses;  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

period reduces the probability of being a sleeping gazelle with 0.0034%, while being one year older reduces it with 0.02%. Also as expected, firms in an establishment group are 1.7% less likely to be sleeping gazelles. Sleeping gazelles also have less financial strength, but the economic significance of this effect is very small. A 1% increase in the share of own capital to total liabilities reduces the probability of being a sleeping gazelles with 0.000077%.

Sleeping gazelles are more likely in local markets with high profit opportunities, 0.19% more likely if average returns on total assets for firms within the same industry and municipality in the previous period increases with 1%. They are also more likely in markets with greater profit uncertainty. Perhaps, despite being able to obtain high profits, they refrain from hiring due to volatile market conditions. As expected, sleeping gazelles are also more common in more concentrated markets where they perhaps collude (explicitly or otherwise) to restrict growth in order to keep profits up. Or perhaps, despite being profitable, they do not want to grow because it would challenge firms with more market power.

Degree of innovation is controlled for using industry-specific fixed effects. We find no evidence that sleeping gazelles are more or less common in high-tech or knowledge-intensive industries, suggesting that the existence of sleeping gazelles is not related to the degree of industry innovation. None of the regional-specific characteristics are statistically significant at the conventional 5% level, suggesting that regional conditions may not be important for the emergence of sleeping gazelles<sup>4</sup>.

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<sup>4</sup>Industry, municipality and time-specific fixed effects are available from the authors upon request.

## 6 Summary and conclusions

Studies have shown that most jobs are created by a few high-growth firms (HGFs), which have therefore received increasing attention among both academic scholars and policymakers. The assumption is that we might learn something from investigating HGFs that could be used to increase their number and thus increase employment. This focus on HGFs might be troublesome if we want to understand what kind of policies are important in order to create more job opportunities in the economy.

Focus should instead be on "sleeping gazelles", profitable firms that do not grow. Such firms are more likely to attain high profits and high growth in the future than firms that are growing before having high profits.

We find many firms (10.45-11.41%) that, regardless of recessions and change in national government, do not grow despite having high profits. Many new jobs could be created if they grew. Transition-probability analysis also revealed that these firms were very reluctant to grow. Almost one-third of sleeping gazelles were again sleeping gazelles in the next three-year period. Thus, lack of growth ambitions or barriers to growth seem to keep them from growing.

Regression analysis showed that sleeping gazelles were not randomly distributed. They were more likely to be small and young, not in an enterprise group, not financially strong, located in markets with high profit opportunities, high profit uncertainty and higher market concentration. This suggests that policymakers should focus more on removing barriers to growth for small businesses. Regional factors do not explain the existence of sleeping

gazelles.

A question for further research is *why* all these profitable firms chose not to grow. How much can be explained by growth barriers such as high entry-level wages, legal employment protection, credit constraints, lack of qualified job candidates, or regulatory burden, and how much simply by lack of growth ambition? Our identification strategy could be used to conduct surveys and interviews with sleeping gazelles, which might provide insight into these questions.

Our study focused on observable factors that might influence growth, but unobserved firm-specific factors, such as business models (Cavalcante et al., 2011), firm-level human assets (Schiavone, 2011), firm culture (Barney, 1986), governance modes (Cantarello et al., 2011), and innovative orientation (Rowley et al., 2011), might also explain differences. For example, sleeping gazelles might choose not to grow because of a lack of entrepreneurial skills. These factors also merit further research.

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