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HIGH GROWTH FIRMS

AND JOB CREATION IN FINLAND

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ABSTRACT: The goal of this descriptive paper is to identify which firms add the most employment in Finland. The analysis is based on firm and establishment data from the Finnish Business Register (period 2003–2006). It is found that in 2006 Finland had 750 High Growth Firms (according to the OECD-definition). This represents roughly 5% of the firms with at least 10 employees. As growth has a multi-facetted nature it is crucial to not only focus on how much a firm grows but also how it grows. Not all of those 750 HGF's grew organically. In fact, of all the jobs they created 65% turned out to be organic employment. There seems to be a positive relationship between the initial size of a HGF and what proportion of the employment is acquired. Correcting for acquisition growth leaves us with 642 organic HGF's. The share of HGF's was the highest in the sectors "other business activities", "computer and related activities" and "health and social work". It does look like a substantial number of HGF's have been expanding due to trends in domestic outsourcing. Future research should focus on the causes and consequences of the expansion of those firms. Firm group information should be used as to be able to better capture shifts of employment between firms of the same group.

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1. Introduction

Newspapers often report on firms that are cutting lots of jobs. Recently attention seems to have shifted towards firms that are extremely successful in creating jobs. In Finland domestic policy has increasingly paid attention to the role of high growth firms (HGF) in the creation of jobs[1]. But who are those firms and how do they grow? This descriptive paper wants to identify the HGF's in Finland. Based on firm and establishment data from the Finnish Business Register (statistical years 2003–2006) an overview is given from which firms are responsible for the recent creation of employment. Based on net employment growth, rankings of firms will be constructed.

In an attempt to make our results comparable, generally accepted definitions are used and the recently proposed framework for business demography statistics of the OECD is closely followed (Ahmad, 2006). In doing so,

HGF's are defined as all firms with an average annualised growth in employees greater than 20% per annum, over a three year period (2003–2006), and with 10 or more employees in the beginning of the observation period.

This analysis focuses on employment growth measures as (1) those measures are highly relevant for policy makers and (2) available for the whole population of firms and establishments. The definition of growth firms that is used here considers only firms with at least 10 employees as they are responsible for a major share (75 % in 2006)[2] of the total employment and clearly some firm size threshold is needed as to limit the small firm bias in calculating employment growth. Table 1 shows that not having such a threshold results in many very small firms "wrongly" being defined as a high growth firm. Both absolute and relative employment growth measures are introduced in this paper. Absolute measures tend to ascribe higher growth to larger firms whereas smaller firms reach higher growth in relative terms.

Using one specific measure to identify HGF's has (logically) also drawbacks. Delmar et al. (2003) stress that growth has many dimensions and that the identification of HGF's depends on which measures of firm growth are used (employment, turnover, profit, cash flow, assets). They conclude that there is heterogeneity in the measures of firm growth, in how firms grow and in the demographic characteristics of growth firms. Policy measures should take into account this heterogeneity in firm growth.

Table 1 Number and share (% of population) of High Growth Firms (HGF) in Finland in 2006

Firms that existed in the 2003–2006 period	Measure based on **TOTAL employment** growth		Measure based on **ORGANIC employment** growth	
	Number of HGF's	Share of HGF's	Number of HGF's	Share of HGF's
Firms ≥ 10 employees in 2003	**750**	**5.4%**	**642**	**4.6%**
All Firms	22,139	12.9%	21,854	12.7%

Source: Business Register Statistics Finland, calculations of the author.

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[1] Ministry of Trade and Industry, 2007, p. 41 to 47.
[2] In 2006, 93% of the Finnish firms had less than 10 employees and they represented 25% of the total employment (Finnish Business Register, Statistics Finland).

Coping with that multi-facetted nature of firm growth, this analysis will focus on a particular aspect of growth namely the distinction between organic growth and acquisition growth. A firm that grows organically (internally) creates jobs, whereas a firm that grows by acquisitions receives existing jobs from another firm. But although the effect of acquired growth on net employment may be less strong it can be of great economic importance as it can have a strong effect on productivity growth.

The above table shows that in 2006, the most recent year of observation, Finland counted 750 high growth firms. This figure is reduced to 642 firms if only organic employment growth is taken into account. Those HGF's represent roughly 5% of all firms that have at least 10 employees. This figure may seem to be rather low and a number of those firms may have experienced a high growth in employment due to mergers that could not be traced by changes in the ownership of establishments. Analysing employment growth of firms could certainly become more accurate when the firm group dimension is taken into account. Although the question "how many growth firms there are?" is certainly relevant, current research points out that in the first place our understanding of how firms grow should be further improved by doing solid empirical work (see also Coed, 2007).

As in this paper high growth firms are often looked at as an isolated phenomenon but it is in fact better to compare them to the tip of an iceberg. An important factor for the growth of firms is that the process of creative destruction causes efficient new and expanding firms to attract resources from inefficient firms. As Davis et al. (2008) put it "the reallocation of jobs, workers, and capital to their best use is a major force behind productivity gains over time, and these gains are the main source of improved living standards". Policy makers should facilitate labour and capital mobility across firms, industries, regions and countries as to further enhance efficiency (Henrekson and Johansson, 2008).

Macro-economic context and evolution of employment per business sector:

The macro-economic environment does matter for the growth of firms. During the period 2003–2006 the economic growth (real GDP) in Finland accelerated substantially from 1.8 to 4.9 percentage points (Statistics Finland). During that expansion period the Finnish economy added roughly 23,000 jobs a year. In addition the cost of borrowing has been at historical low levels. Our results on high growth firms have to be interpreted against this background of economic expansion. Several studies analysed how firm growth varies over the business cycle. It was found that the mean growth rate is sensitive to macro-economic fluctuations. Also higher moments of growth rate distribution seem to be sensitive to the business cycle. Smaller firms were found to grow relatively faster during booms, whereas larger firms grow faster during recessions and recoveries.

The growth of firms is expected to vary also across industries for several reasons (cf. table A1–4). As the level of opportunity in mature industries is lower, those industries are likely to have lower average growth rates. Because of the rapid pace of technological progress firms in high-technology industries may have higher growth rates. Growth patterns across industries may also vary as innovation regimes differ considerably across sectors. The growth of net employment across industries obviously also depends on the capital intensity of the industries. Sector specific degrees of competition and concentration can also be linked to the firm specific growth. Coed (2007) mentioned the following sources of industry wide differences in firm growth rates from the literature: the minimum efficient scale (MES), the average size of

establishments, the industry growth, the growth of industry sales, the degree of market concentration, and the firm growth of rivals.

Based on the data of the Finnish business register it is found that the business sectors that expanded during the observation period 2003–2006 are the "other business activities", "health and social work", the "construction sector", "Retail trade except of motor vehicles", the "manufacturing of fabricated metal products", the "supporting of auxiliary transport activities", and "the computer and related activities" (cf. table A2). A rapidly expanding younger industry is the recycling sector (cf. table A3).

The fact that the "health and social work" sector expanded with more than 3000 jobs a year, can be explained for two thirds by the social health activities and for one third by the human health activities (this only concerns firms). This result should be interpreted with care as it is highly probable that many existing public activities were restructured and privatised. In this case jobs from the public sector would suddenly show up as being connected to new or existing business identification numbers.

The expansion of the "other business activities" (74) is mostly explained by the boom of the "labour recruitment and provision of personnel" industry (745). But also the architectural and engineering activities (742) and industrial cleaning (747) are responsible for big shares of that expansion. The employment services industry gained momentum as many companies started outsourcing activities as to become more efficient and flexible. It should be screened more carefully which customers are in the end responsible for the expansion of the providers of those services. Consultancy companies increasingly offer outsourcing solutions to make companies more competitive (supply driven outsourcing). Future research should focus on the analysis of HGF's that belong to the sector "other business activities" as to quantify the characteristics of outsourcing industries and their overall employment effects. In explaining the evolution of the employment in industries in Finland one should a priori stress the (potential) role of domestic outsourcing and international sourcing (cf. Statistics Denmark, 2008).

The outline of the paper is as follows. Part 2 summarizes some key findings on firm growth from the literature. Part 3 describes the data and the sample formation. Part 4 identifies firms that have been recently adding employment in Finland and summarizes the findings in top 30 firm rankings. Chapter 5 concludes.

2. Theory and stylized facts of firm growth

In what follows we summarize existing theories (2.1) and empirical stylised facts (2.2) about firm growth based on a recent literature survey on firm growth by Coed (2007). The review concludes (2.3) by summarizing the main findings of the literature on rapidly growing firms and job creation (Henrekson and Johansson, 2008).

The literature on firm growth consists out of contributions from economics, management and sociology. A major empirical finding is that **firm growth is difficult to predict as it is characterised by a predominant stochastic element**. Indeed previous research on the determinants of firm growth has had limited success. A second observation is that the theory on the growth of firms should be improved. Progress in the analysis of firm growth requires solid empirical work that can serve as a base to improve the theory.

2.1 Theory

As far as the theory of firm growth is concerned Coed (2007) described and assessed 5 diverse contributions. He found that theoretical predictions have been of limited use in understanding the growth of firms.

1. **The Neoclassical theory is based on the notion of growth towards an "an optimal size"** (Viner, 1931, 1952). Firms are attracted to some sort of optimal size, being the profit-maximizing level of production. This implies that growth is seen as a means and is not an aim as such. Both the "transaction cost theory of the firm" (Coase, 1937) and Lucas (1978) can be seen as variations on that "optimal size" theme. The transaction cost theory considers that the optimal boundaries of the firm are based on the trade-off between the coordination via authority in a hierarchy and the coordination through the price mechanism. The predictions made by this transaction costs literature most often concern growth by acquisition in the context of vertical integration. Lucas explains the log-normal distribution of firm size by assuming a log-normal distribution of managerial talent. The concept of an optimal size lacks empirical support. It is therefore of little use in the understanding why firms grow.

2. **Theory of the growth of the firm (Penrose, 1959)**: This theory introduced two new concepts: "Economies of growth" and the "Resource-based view" of the firm. The "Economies of growth" imply that firms are faced with strong incentives to grow because the knowledge of the personnel increases automatically with experience (learning-by-doing). When an optimal growth rate is reached higher operating costs evolve. The so called "Penrose effect" refers to the fact that firms that grow faster have higher operating costs. A second key concept in the theory is that firms are composed of idiosyncratic configuration of resources. These resources can play a role in ensuring durable competitive advantage if they are valuable, rare, inimitable and non-substitutable. A firm's performance depends on its abilities (dynamic capabilities) to create or release resources and to reconfigure their resource portfolio. According to the dynamic vision of Penrose, firms grow because of "economies of growth" that are inherent in the growth process and not because, as in the neo-classical theory, an advantage linked to size as such. Firms are assumed to have constant returns to scale. The contributions of Penrose have especially been influential in the strategic management literature and have been marginalised in the IO literature.

3. **Managerial approach** (Marris, 1963, 1964): The fundamental observation of the managerial theory is that firm size (and firm growth) is seen to be an important factor in the managerial utility function, alongside the financial performance of the firm. A manager's compensation tends to be positively related to the firm size. For some firms, such as young small firms, the pursuit of growth maximization is in line with that of profit maximization, so that there will not arise conflicts between the manager and the shareholders. In other cases managers have to choose between profit maximization (in the shareholders interest) and growth maximization (in their own interest). This stretch of literature assumes utility maximising managers to maximize the growth of the firm subject to the constraint of earning a satisfactory profit rate, which should be large enough to avoid being dismissed by shareholders or being taken over by stock-market raiders. In the managerial model by Marris (1963, 1964) firms are assumed to grow by diversification only. The theory has been extended to the case by conglomerate merger. Mergers are faster (and more expensive) way of growth than internal growth so managerial arguments are certainly relevant for this type of growth.

4. **Evolutionary economics** (principle of growth of the fitter): Evolutionary theory is based on Schumpeter's vision of "creative destruction" and borrows the notions of diversity creation and selection to account for dynamics in economic development. The mechanism of selection explains economic progress, as fitter firms survive and grow, and weaker firms lose market share and exit. The notion of selection via differential growth is also used by Downie (1958) and Nelson and Winter (1982). Downie (1958) models industrial development and assumes that firms grow by reinvesting their earnings. Growth rates thus rise with profitability. In Nelson and Winter's (1982) agent based simulation model, in which firms compete against each other, firms can gain competitive advantage through the discovery of cost-reducing innovations or by imitating the industries best practice. Agent based simulation modelling has since remained a dominant tool in the evolutionary literature. The evolution of industries in this family of models is generally guided by the mechanism of replicator dynamics, by which growth is imputed according to profitability. This kind of models may not find empirical validation for several reasons. (1) It cannot be assumed that all firms have the same propensity to grow. Stricter internal selection will cause high profit firms to overlook opportunities that are taken up by less profitable competitors. In this way growth may be negatively related to profitability. (2) High profits may be made by firms that can exercise market power by restricting their production to obtain a higher price per unit. In this case increasing profits would go hand in hand with capacity reduction. (3) If a firm is active in a niche market it may not be able to expand despite its high profits. (4) A firm may reach a higher profit rate due to efficiency gains by downsizing. As a result the existence of a relation between the profitability and growth is an empirical question. Based on empirical analyses profitability and sales growth seem to be largely independent from each other. More productive firms are not found to be growing faster. Empirical work on the principle of growth of the fitter does not provide encouraging results. Selection works only by elimination of the weaker while firm growth being in the hands of managers. This implies "survival of the fitter" without "growth of the fitter". Since growth of the fitter is generally not observed, economies may not be achieving their full potential. This may be an important point for policy makers. Because reallocations of activity from the less efficient to the more efficient are so important for the optimal use of resources it seems that more evidence is needed on how competitive conditions within an industry affect the speed with which the more efficient displace the less efficient.

5. The **population ecology approach** comes from sociology and is based on a contribution of Hannan and Freeman (1977). Organisations require resources which are specific to niches and

these niches have a specific carrying capacity. A firm that discovers a new niche with a rich resource pool will be able to grow a lot. As new organisations enter the niche the number of firms in the niche will grow. The competition between firms will limit the growth rates of firms if the population grows to a level where the niche's resource pool is saturated. This relationship between the growth of organisations and the competition for resources in a particular niche is known as "density dependence". There are clear limits to a theory of firm growth rates based solely on industry-wide characteristics, because large differences in growth rates can be observed between firms in the same industries.

2.2 Stylized facts of firm growth

- Although there are systemic factors at the firm and the industry levels that affect the process of firm growth, **firm growth is mainly affected by purely stochastic shocks**.

- In most cases a negative relationship between firm size and growth is observed. This finding is not in line with Gibrat's law (1931) or the law of proportionate effect that states that the expected growth rate is independent of its size at the beginning of the period examined. Closely related with the above fact is that the growth rate depends negatively on firm age.

- The empirical literature didn't find a robust relationship between productivity and growth. This can partly be explained by the fact that some firms become productive through expansion, others through downsizing.

- Financial performance (for example profitability) is not found to be a major determinant of firm growth rates.

- The effect of firm-level innovation on employment growth is a priori ambiguous: product innovations have generally a positive impact on employment, whilst the role of process innovations is more ambiguous (Hall and Oriani, 2006).

- Innovation and sales growth: Most of the firms don't grow very much, and their growth is hardly related to their attempts at innovation. Nevertheless, innovation is seen to be of critical importance for a handful of fast growing firms (Coad and Rao, 2006). Firm-level innovation can be expected to have a positive effect on sales growth.

- There does not seem to be an emerging consensus on the autocorrelation of growth rates. Different studies yield conflicting results. New insights on firm growth come from Bottazzi et al. (2002) and Coad (2006b)**.** The latter analysis found that a firms growth dynamics depend on two dimensions: firm size and its lagged growth rate. Smaller firms are more prone to experience negative autocorrelation, whilst large firms have a tendency towards positive autocorrelation. Small firms and large firms operate on a different frequency. This dependence of autocorrelation of firm size helps to explain why the literature yielded different autocorrelation coefficients for databases with different firm-size compositions. Secondly Coad (2006b) demonstrates that the autocorrelation coefficient depends on the growth rate. Firms whose growth rate is close to the average in one year are likely to not experience any autocorrelation in the following year. However, the firms that experience extreme growth rates are likely to experience considerable negative autocorrelation. This is especially true for

fast growth small firms, whose growth patterns are particularly erratic. Large firms display smoother dynamics. They are likely to experience positive autocorrelation irrespective of their growth rate in the previous period. Smaller firms appear to grow relatively faster during booms, whereas larger firms grow faster during recessions and recoveries.

- There is a negative relationship between the growth rate variance and the firm size.

- Ownership: multi-establishment firms have on average higher growth rates than single-establishment-firms. Establishments that belong to larger companies have higher growth than stand-alone establishments. There is weak evidence that foreign owned firms have higher growth rates. Government owned firms seem to grow more slowly.

2.3 High Growth Firms and employment

Autio et al. (2000) found that gazelles increased their employment with more than 400%. They focus on absolute employment that is added by independent, continuing single-establishments in Finland. High growth firms are defined based on relative sales growth.

Delmar et al. (2003) conclude that there is heterogeneity in the measures of firm growth, in how firms grow and in the demographic characteristics of growth firms. They define a population of Swedish growth firms based on several employment and turnover measures. They focus on the process of firm growth by making a difference between organic growth and growth by acquisition.

Henrekson and Johansson (2008) survey the recent literature on gazelles — a few rapidly growing firms — as job creators. In total they identified 19 studies. We decided to summarize their main findings.

- A robust (self-fulfilling) finding is that Gazelles are outstanding job creators. They create all or a large share of new net jobs. This is particularly pronounced in recessions where Gazelles continue to grow.

- Gazelles can be of all sizes, small firms are overrepresented but larger firms are important job contributors in absolute terms.

- Gazelles tend to be younger on average.

- The growth of young and small firms is more organic compared to large and old firms. They make a larger contribution to net employment growth.

- Gazelles exist in all industries. Gazelles seem to be overrepresented in service industries. There is no evidence that gazelles are overrepresented in high tech industries.

It seems plausible that a high inflow of new firms increases the likelihood to generate young gazelles. Crucially net employment growth has to be viewed in a broader perspective of creative destruction, where net employment is generated by churning and restructuring in a

dynamic process of firm entry, expansion, decline and exit. It may be misleading to narrowly focus on a particular piece of this process and claim that only that contributes to a large share of net employment growth. An important factor for the growth of firms is that the process of creative destruction causes efficient new and expanding firms to attract resources from inefficient firms. Turbulence in itself, the entry and exit of firms, boosts job creation. All in all this implies that policy makers can enhance employment by lowering barriers to new firm entry and firm exit. Labour and capital mobility across firms, industries, regions and countries should be facilitated as to further enhance restructuring to gain efficiency (Henrekson and Johansson ,2008).

3. Data

This descriptive analysis of HGF's is based on firm and establishment data of the Finnish Business Register. The analysis focuses on the average annualised evolution between 2003 and 2006. This period offers the most recent available data and the three year period coincides with the timeframe that is used by the OECD to define a HGF.

The evolution of the number of firms and establishments in the register is summarized in tables A5-A6. During those 3 years the number of firms has been rising with almost 10%. The rise of the number of firms in 2006 can partly be explained by the new Limited Liability Companies Act that entered into force on the 1 September 2006. The act introduced a reduction in the minimum share of capital from 8,000 to 2,500 euro's. Since than the Trade Register has registered nearly 60% more limited liability companies than in the 12 months preceding the entry into force the Act (BIS, 2008).

The rankings of industries that were discussed in the introduction were based on the data of all the firms but for the analysis of the employment growth of the firms in chapter 4, a part of the firms in the population had to be dropped. In a first step the firms and establishments with data gaps were dropped. So also reactivations were dropped[3]. In a second step only the firms that existed during the entire period of observation (2003–2006) were selected as to be able to calculate averages that are based on the same observation period. This left us with 172,204 firms which represent about 75% of the firms that existed in 2003.

Table 2 Population* by initial firm size

Firm size in 2003 (number of employees)	Number of firms in population	% of population
0-9	158,247	91.9 %
10-19	7,322	4.3 %
20-49	4,225	2.5 %
50-249	1,921	1.1 %
250-499	275	0.2 %
500+	214	0.1 %
TOTAL	172,204	100 %

* Firms with no data gaps that existed during the entire 2003–2006 period;
Source: Business Register Statistics Finland, calculations of the author.

Table 2 breaks up our firm population by initial firm size and reminds us that 92% of all firms in our population have less than 10 employees. In the next chapter part 4.1 and part 4.2 will be based on that entire population. But part 4.3 is based on a population of 13,957 firms as the relevant population to calculate the HGF's based on the recommended definition of the OECD are the firms that had at least 10 employees in 2003 (cf. introduction). Ideally the high growth firms should be calculated every year as to take into account firms that enter after 2003 or exit before 2006 but do exist at least during 4 statistical years.

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[3] For instance in the US Census Bureau longitudinal database no reactivations are recorded as births, irrespective of the period of dormancy.

4. Identifying growth firms

In the introduction we already described which industries recently added employment in Finland. But which firms are actually behind the adding of employment? This chapter aims at identifying the "driver firms" by ranking the 30 best performing firms based on different employment variables. The methods for ranking those firms will be critically reviewed throughout the chapter as to be able to identify and classify complexities and problems. As stated in the previous chapter we focus on firms that existed during the entire 2003–2006 period as to be able to capture the average annualised performance over a three year timeframe. To be able to identify growth firms we aim at answering 3 questions:

1. Which firms recently added the most net employment in Finland?

2. How are firms adding employment?

3. Who are the high growth firms in Finland?

In answering the first two questions our population of firms includes all size classes and amounts to 172,204 (see table 2). Answering question 3 forces us to exclude the firms with less than 10 employees and that leaves us with a population of 13,957 firms. **HGF's are indeed defined as all firms with average annualised growth in the number of employees greater than 20% per annum, over a three year period. In addition the firm has to have at least 10 employees at the beginning of the growth period as to overcome the small enterprise bias (Ahmad, 2006).**

Firm growth can be defined in terms of several variables the main ones being turnover and employment. In this chapter, 4 employment variables are analysed:

- Absolute employment growth measures:
    1. absolute total growth
    2. absolute organic growth
- Relative employment growth measures:
    3. relative total growth and
    4. relative organic growth.

Total employment growth can either be organic employment growth or employment growth by acquisitions or a combination of those two. Organic growth measures of firms are calculated by correcting the total employment growth by the employment of acquired establishments. During the period of observation, each year roughly 1.3% (about 3500) of all establishments switched firms.

4.1 Which firms recently added the most net employment in Finland?

The 30 firms that added the most net employment between 2003 and 2006 in Finland are listed in table 3. Those firms added together on average 15,453 jobs a year. This ranking is topped by ABB Oy who added on average 2,096 jobs a year.

Ownership: When screening the list it becomes clear that ABB is not the only foreign owned company in the top 30, a third of the list are foreign owned companies, half are private domestic firms and 5 firms are owned by the state or by municipalities.

Table 3 Top 30 of firms that increased their total employment the most (number of employees)*

Ranking	Business ID	Name of the company	Annualised Total Growth
1.	0763403-0	ABB OY	2,096
2.	0906333-1	ISS PALVELUT OY	1,919
3.	1531864-4	SUOMEN POSTI OYJ	1,352
4.	0116510-6	ELISA OYJ	1,003
5.	1741050-8	STAFFPOINT OY	944
6.	0116300-4	METSÄLIITTO OSUUSKUNTA	772
7.	0357502-9	WM-DATA OY	715
8.	0112038-9	NOKIA OYJ	595
9.	0146519-2	YIT KIINTEISTÖTEKNIIKKA OY	475
10.	0430875-8	ARINAN KAUPPA OY	448
11.	0109160-2	FORTUM POWER AND HEAT OY	416
12.	1016060-6	KESLOG OY	385
13.	1091032-3	MANPOWER OY	374
14.	0114452-4	HELSINGIN BUSSILIIKENNE OY	312
15.	1772433-9	SKANSKA TALONRAKENNUS OY	306
16.	0113276-9	RAUTARUUKKI OYJ	297
17.	0790905-7	SOL PALVELUT OY	271
18.	1680140-0	LASSILA & TIKANOJA OYJ	262
19.	1458359-3	VAHINKOVAKUUTUSOSAKEYHTIÖ POHJOLA	261
20.	0536307-0	PIRKANMAAN OSUUSKAUPPA	235
21.	1615779-0	LIDL SUOMI KOMMANDIITTIYHTIÖ	228
22.	1090755-4	ADECCO FINLAND OY	225
23.	0667761-0	TURVATIIMI OYJ	211
24.	0109823-0	KEMIRA OYJ	211
25.	0871339-8	HELSINGIN OP PANKKI OYJ	209
26.	0800415-3	SEURE HENKILÖSTÖPALVELUT OY	196
27.	1755007-6	FONECTA OY	195
28.	0759548-1	TECHNIP OFFSHORE FINLAND OY	195
29.	0712653-8	PROFFICE FINLAND OY	178
30.	1628142-5	CAPGEMINI FINLAND OY	167
TOTAL			15,453

* Ranking based on absolute average annualised TOTAL employment growth in Finland during the 2003–2006 period;
Source: Business Register Statistics Finland, calculations of the author.

Size (in 2003): Ranking firms based on absolute net employment growth logically leads to all firms in the top 30 being big. Indeed, in 2003 half of the companies had at least 500 employees. However, 5 of the 30 companies (ABB OY, Staffpoint Oy, Turvatiimi Oyj, Helsingin OP Pankki Oyj and Fonecta Oy) had less than 10 employees in 2003. It seems very unlikely that those small companies experienced such an impressive employment growth by growing internally.

4.2 How are firms adding employment?

Once the firms that added the most net employment are listed, a logical next step is to ask by which process those companies managed to add so much employment, in other words how did they grow? For that purpose two ways in how to reach firm growth were defined. A company can either grow organically (internally) or it can grow by acquiring new establishments. Based on the total employment per firm, the organic employment per firm

was calculated by subtracting the employment of the acquired establishments. From the 19 empirical papers on high firm growth that were revised by Henrekson and Johansson (2008) only the contributions based on Swedish data went beyond the process of total growth by making a difference between organic (internal) growth and growth by acquisition (see Schreyer (2000), Davidsson and Delmar (2003, 2006) and Delmar et al. (2003)).

Organic growth is often associated with non-diversifying firms while acquisition growth is usually related to diversifying firms but both of them can be used to either expand market share into a specific industry or to diversify into new industries.

Especially bigger firms, or firms belonging to firm groups, typically grow by acquiring other existing establishments (Penrose, 1959). To know which employment is really added and which is transferred from another firm we also list the organic absolute employment growth in table 4.

Table 4 Total employment growth versus organic employment growth* (number of employees)

Ranking	Name of the company	Annualised Total Growth	Annualised Organic Growth	Industry code
1.	ABB OY	2,096	-22	652
2.	ISS PALVELUT OY	1,919	1,594	747
3.	SUOMEN POSTI OYJ	1,352	1,120	641
4.	ELISA OYJ	1,003	635	642
5.	STAFFPOINT OY	944	915	745
6.	METSÄLIITTO OSUUSKUNTA	772	-20	20
7.	WM-DATA OY	715	343	722
8.	NOKIA OYJ	595	595	322
9.	YIT KIINTEISTÖTEKNIIKKA OY	475	144	453
10.	ARINAN KAUPPA OY	448	129	551
11.	FORTUM POWER AND HEAT OY	416	71	401
12.	KESLOG OY	385	385	634
13.	MANPOWER OY	374	374	745
14.	HELSINGIN BUSSILIIKENNE OY	312	312	602
15.	SKANSKA TALONRAKENNUS OY	306	33	452
16.	RAUTARUUKKI OYJ	297	-71	271
17.	SOL PALVELUT OY	271	265	747
18.	LASSILA & TIKANOJA OYJ	262	245	747
19.	VAHINKOVAKUUTUSOSAKEYHTIÖ POHJOLA	261	188	660
20.	PIRKANMAAN OSUUSKAUPPA	235	116	521
21.	LIDL SUOMI KOMMANDIITTIYHTIÖ	228	228	521
22.	ADECCO FINLAND OY	225	225	745
23.	TURVATIIMI OYJ	211	21	652
24.	KEMIRA OYJ	211	-64	741
25.	HELSINGIN OP PANKKI OYJ	209	37	748
26.	SEURE HENKILÖSTÖPALVELUT OY	196	196	745
27.	FONECTA OY	195	60	642
28.	TECHNIP OFFSHORE FINLAND OY	195	-69	351
29.	PROFFICE FINLAND OY	178	87	745
30.	CAPGEMINI FINLAND OY	167	29	722
TOTAL		15,453	8,100	.

* Ranking based on absolute average annualised TOTAL employment growth in Finland during the 2003–2006 period;
Source: Business Register Statistics Finland, calculations of the author.

Table 4 shows that ABB increased their total employment on average with 2,096 jobs a year by acquiring that employment from other firms and not by growing internally. The annualised organic employment growth of ABB Oy was found to be even negative (organic employment fell with 22 jobs). Between 2002 and 2006 ABB Oy indeed merged with several companies. In 2002 with ABB TNP International Oy; In 2004 with ABB Oy[4]; In 2005 with: ABB

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[4]   The latter company its main activity consists out of the management activities of holding companies. It has indeed the same company name but another business identification number (0643134-6). In 2002 firms like ABB Service Oy, ABB Industry Oy, ABB Installaatiot Oy and ABB Motors Oy merged with it. In 2004 it merged with ABB Oy with the firm code 0763403-0 and its original firm code 0643134-6 disappeared.

Strömberg Oy (DO 23), ABB Energy Partner Oy, ABB Strömberg Service Oy (DO 2), Real Current Oy, ABB Strömberg Oy (DO 24); In 2006 with: ABB Current Oy, ABB Strömberg Oy (DO 25), ABB Strömberg Oy (DO 8), ABB Strömberg Oy (DO 9). In 2007 ABB Oy merged with ABB Sähkörinne Kiinteistöosakeyhtiö in 2007.

In addition to ABB Oy, 4 other firms of the list destroyed employment instead of creating it (Metsäliitto osuuskunta, Rautaruukki oyj, Kemira Oyj and Technip offshore Finland Oy). Most of the other firms in the list did partly grow organically and partly by acquiring establishments from external firms or from their group. Table 4 actually shows that only 52% of the net employment growth of the top 30 firms in table 3 was organic growth. Only 7 firms in the top 30 seemed to have grown fully organically (Nokia Oyj, Keslog Oy, Manpower Oy, Helsingin Bussiliikenne Oy, Lidl Suomi Kommandiittiyhtiö, Adecco Finland Oy, Seure Henkilöstöpalvelut Oy).

Mergers: What may occur is that the added employment looks like being organic growth although in reality it concerns a merger. Not all mergers can be traced based on the firm and establishment identification codes. That seems to be especially true for firms that are owned by the state or by municipalities. The recent expansion of Keslog Oy, Helsingin Bussiliikenne Oy and Seure Henkilöstöpalvelut Oy can be partly or fully explained by mergers. Keslog started operating at the beginning of 2006, when the Kesko Group's transport and forwarding company Kesped Ltd and Kesko Food's warehousing operations were merged (employment jumped from about 240 employees in 2005 to over 1391 in 2006). Helsingin Bussiliikenne Oy was born in 2005 when Suomen Turistiauto Oy merged with HKL-Bussiliikenteen (employment jumped from 419 in 2004 to 1487 in 2005). Seure Henkilöstöpalvelut Oy was founded in 2005 based on the merging of Helsingin Työvoimapalvelu Oy with human resource service companies of the city of Espoo and Vantaa. (employment increased remarkable between 2005 and 2006).

Groups: The rankings that are presented are based on a firm perspective. Looking at the organic growth on a firm level helps in approaching the job creation effects of a firm. However, the rankings that have been discussed till now illustrated that employment should be assessed by company group as different firms within a group may shift employees to each other (intra firm group shifts). To know for example what is really going on with the employment within the ABB group in Finland it is necessary to look at all firms within that group and not only at ABB Oy with identification number 076-3403-0. The creation and destruction of employment within Finnish borders has to be analysed from a group-perspective and from a cross-border perspective.

In table 5 firms are listed based on the organic employment they added. It is clear that this ranking clearly differs from the original ranking and that almost half of the companies that were in the original top 30 disappeared.

Table 5 Top 30 of firms that increased organic employment the most (number of employees)*

Ranking	Business ID	Name of the company	Annualised Organic Growth	Annualised Total Growth	Industry code
1.	0906333-1	ISS PALVELUT OY	1,594	1,919	747
2.	1531864-4	SUOMEN POSTI OYJ	1,120	1,352	641
3.	1741050-8	STAFFPOINT OY	915	944	745
4.	0116510-6	ELISA OYJ	635	1,003	642
5.	0112038-9	NOKIA OYJ	595	595	322
6.	1016060-6	KESLOG OY	385	385	634
7.	1091032-3	MANPOWER OY	374	374	745
8.	0357502-9	WM-DATA OY	343	715	722
9.	0114452-4	HELSINGIN BUSSILIIKENNE OY	312	312	602
10.	0790905-7	SOL PALVELUT OY	265	271	747
11.	1680140-0	LASSILA & TIKANOJA OYJ	245	262	747
12.	1615779-0	LIDL SUOMI KOMMANDIITTIYHTIÖ	228	228	521
13.	1090755-4	ADECCO FINLAND OY	225	225	745
14.	0800415-3	SEURE HENKILÖSTÖPALVELUT OY	196	196	745
15.	1458359-3	VAHINKOVAKUUTUSOSAKEYHTIÖ POHJOLA	188	261	660
16.	0146519-2	YIT KIINTEISTÖTEKNIIKKA OY	144	475	453
17.	0950895-1	KONECRANES HEAVY LIFTING OY	134	134	292
18.	1625174-4	MEDONE OY	131	131	745
19.	1833856-0	TARJOUSMAXI OY	131	132	521
20.	1076695-8	CAPITAL MULTISERVICES OY	130	130	745
21.	0968285-3	AIRPRO OY	130	130	632
22.	0430875-8	ARINAN KAUPPA OY	129	448	551
23.	0693536-8	NOKIA TIETOLIIKENNE OY	119	119	518
24.	0140202-8	SCHENKER CARGO OY	118	128	602
25.	0536307-0	PIRKANMAAN OSUUSKAUPPA	116	235	521
26.	1548234-8	ELTEL NETWORKS OY	116	144	452
27.	0872248-9	TURUN VMP PALVELU OY	115	125	745
28.	0172688-2	LUJATALO OY	109	109	452
29.	1801682-8	FOLKHÄLSAN RASEBORG AB	106	109	853
30.	0242522-1	OSUUSPANKKIKESKUS OSK	100	100	671
TOTAL			9,446	11,691	.

* Ranking based on absolute average annualised ORGANIC employment growth in Finland during the 2003–2006 period; Source: Business Register Statistics Finland, calculations of the author.

As organic growth is connected with more net employment, from a policy perspective it could be seen as superior to the growth by acquisitions. This view is not the correct one as growth by acquisitions can contribute in rendering the firm more efficient and competitive. More competitive firms and industries can secure jobs. One interesting case is Lidl (number 12 in the above list) that added on average 228 jobs a year. Activities of Lidl in Finland turned out not to be profitable at all. In that sense the importance of high growth firms for sustainable job creation depends on the sustainability of their activities. The fact that we make a difference between organic growth and growth by acquisition has the sole purpose of quantifying the employment effects of both firm growth processes.

A substantial share of the firms that are characterised by a rapid expansion of their net employment have been able to do so due to current trends in outsourcing. One third of the companies in the list belong to the sector of the other business activities: either to the labour recruitment and the provision of personnel industry (Staffpoint Oy, Manpower Oy, Adecco Finland Oy, Seure Henkilöstöpalvelut Oy, Medone Oy, Turun WMP Palvelu Oy) or to the industrial cleaning industry (ISS Palvelut Oy, Sol Palvelut Oy, Lassila & Tikanoja Oyj). As stated earlier, firms that have a connection to outsourcing should further be analysed as to better understand their overall effects on employment and efficiency.

ISS Palvelut added the most organic employment by either directly acquiring inhouse units of companies or by a less formal transfer of employees. Staffpoint Oy (formerly Extra Personnel Services) was founded in 2002 when CapMan invested in the company. Being a company of less than 10 employees in 2002 and 2003 it jumped to 1412 employees in 2004 and in our period of observation it grew organically with about 900 persons a year. The latter case may be evidence for the fact that a limited number of investors and business service companies can thrive the restructuring of a whole industry (supply driven outsourcing).

Foreign owned companies: Out of 30 firms that added organic employment, there are 6 foreign owned companies, 20 private domestic and 4 that are owned by the state or a municipality. Airpro is a state owned firm (Subsidiary of Finavia Group) that jumped from 226 employees in 2005 to 633 employees in 2006. This can be explained by the establishment of a separate Finnish Civil Aviation Authority at the start of 2006.

To illustrate the possible effects of the restructuring a firm group on the employment of its firms, table 6 lists the firms that recently destroyed the most employment in Finland. The firm Tietoenator with business identification number 0101138-5 tops that list. Those results should be interpreted with care as its firm group created many new firms during the period of observation. The case illustrates that ideally one has to consider the evolution of employment per firm group. In the end it may very well be that Tietoenator had a positive net employment. The next paragraph gives some extra information on which companies that were merged with Tietoenator and which new companies were founded.

Table 6 Top 30 of firms that decreased their total employment the most (number of employees)*

Ranking	Name of the company	Annualised Total Growth	Annualised Organic Growth	Industry code
1.	TIETOENATOR OYJ	-1,703	-1,724	723
2.	TRADEKA-KIINTEISTÖT OY	-1,079	-1,192	521
3.	UPM-KYMMENE OYJ	-760	-1,246	211
4.	ATRIA OY	-728	-728	151
5.	HK RUOKATALO GROUP OYJ	-661	-661	151
6.	ORION OYJ	-507	-507	244
7.	SANOMA OSAKEYHTIÖ	-506	-506	221
8.	RUOKAMARKKINAT OY	-498	-500	521
9.	RUOKAKESKO OY	-453	-453	519
10.	TIELIIKELAITOS	-410	-410	452
11.	VR OSAKEYHTIÖ	-359	-359	601
12.	FINNAIR OYJ	-356	-356	621
13.	STORA ENSO OYJ	-346	-405	211
14.	METSO PAPER OY	-287	-344	295
15.	CLOETTA FAZER SUKLAA OY	-244	-244	158
16.	M-REAL OYJ	-223	-315	211
17.	TEKMANNI OY	-218	-218	453
18.	LEMMINKÄINEN OYJ	-182	-190	452
19.	TELIASONERA FINLAND OYJ	-167	-686	642
20.	SUOMEN OY	-166	-253	521
21.	SILJA OY AB	-157	-757	611
22.	KEMIRA PHOSPHATES OY	-153	-153	241
23.	LUVATA PORI OY	-150	-150	274
24.	OY HARTWALL AB	-137	-137	159
25.	TELLABS OY	-133	-133	322
26.	NORDEA BANK FINLAND ABP	-123	-123	651
27.	SKANSKA EAST EUROPE OY	-121	-121	452
28.	DRAKA NK CABLES OY	-116	-116	313
29.	IF VAHINKOVAKUUTUSYHTIÖ OY	-115	-115	660
30.	NOTEX-YHTIÖT OY	-113	-113	521
TOTAL		-11,171	-13,215	.

* Ranking based on absolute average annualised TOTAL employment growth in Finland during the 2003–2006 period; Source: Business Register Statistics Finland, calculations of the author.

Tietoenator Oyj (0101138-5) recently merged with the following firms: In 2002: Tietoenator Technology Oy (0174592-8), Tieto Innovation Oy (0571966-3); in 2004: Oy Visual Systems Ltd. (0804224-8); in 2005: Octel Oy (0988212-6), Entra e-Solutions Oy (0749215-9), Doctorex Oy.

Within the restructuring of the Tietoenator activities along business sectors, also new firms were created: in 2002: TietoEnator Broadcasting IT Oy (1800166-9); in 2004: TietoEnator

Global Oy (1898738-4); in 2005: TietoEnator Banking & Insurance Oy (1962307-2), TietoEnator Digital Innovations Oy (1962368-9), TietoEnator Forest & Energy Oy (1962359-0), TietoEnator GMR Oy (1966836-9), TietoEnator Healthcare & Welfare Oy (1962365-4), TietoEnator Processing & Network Oy (1962371-8); in 2006: Tietoenator Esy Oy (0107637-3), TietoEnator Retail & Distribution Services Oy (1016946-7); in 2008: TietoEnator 11 Oy (2164902-8).

Ranking absolute employment growth of firms to obtain information on job creation returned the following results:

- Looking at total employment growth can be misleading. Even firms of less than 10 employees can increase their total employment by thousands of jobs a year by acquiring new firms.

- It is there for good to report also organic employment growth as to be able to determine which share of employment growth is due to internal growth and which share due to growth by acquisition.

- What may seem to be organic employment growth in the rankings can turn out not to be. This is because not all mergers and acquisitions can by detected by combining establishment and firm codes over time.

- Firm group information should be taken into account when assessing the employment growth of firms. Looking at firm level data can be misleading as employment can be shifted between different units of the same company group.

- The use of business identification codes by firm groups can be very complex.

- Many firms in the rankings have been able to add employment due to trends in outsourcing.

4.3 Who are the High Growth Firms in Finland?

HGF's in Finland represent a very limited number of firms. Table 7 lists the number and shares of HGF's. As many of the firms that have less than 10 employees easily reach very high percentage growth they were excluded from the reference population.

Table 7   Number and shares of HGF's in 2006

Firms that existed in the 2003–2006 period	Measure based on **TOTAL employment** growth		Measure based on **ORGANIC employment** growth	
	Number of HGF's	Share of HGF's	Number of HGF's	Share of HGF's
Firms ≥ 10 employees in 2003	750	5.4%	642	4.6%

Source: Business Register Statistics Finland, calculations of the author.

In 2006 roughly 5% of the firms (with at least 10 employees) in Finland would be a high growth firm according the definition of the OECD (Ahmad, 2006). When considering organic employment growth instead of total employment growth the share is reduced from 5.4% to 4.6%. Based on total employment growth the number of HGF in 2006 amounted to 750. That number is reduced to 642 if the HGF definition is based on organic employment growth.

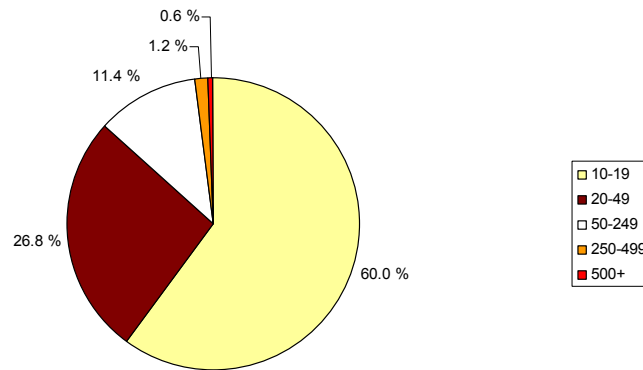Figure 1a   High Growth Firms by initial firm size

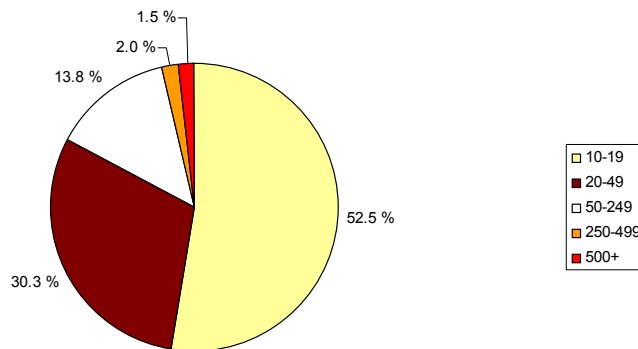Figure 1b   Total population by initial firm size

Figure 1a represents the distribution of the 642 High Growth Firms over the initial firm size; Source: Business Register Statistics Finland, calculations of the author.

Figure 1 shows that most of the HGF's are small in the initial year. Initial size distribution for new firms is particularly right skewed. The skewed nature of the firm size distribution is a robust finding. The Log-size distribution tends to become more symmetric as time goes by. This is consistent with observations that small young firms grow faster than large counterparts (Coad, 2007). Table 8 indeed shows that the share of HGF´s steadily goes down - from 5.3% to 1.9% - as the firms are getting bigger.

Table 8   Number and shares of HGF's by initial firm size

| 2003 Size Class | Number and share* of High Growth Firms | | | |
| | Total employment growth | | Organic employment growth | |
	Number	Share*	Number	Share*
10-19	425	5.8 %	385	5.3 %
20-49	203	4.8 %	172	4.1 %
50-249	102	5.3 %	73	3.8 %
250-499	11	4.0 %	8	2.9 %
500+	9	4.2 %	4	1.9 %
TOTAL	750	5.4 %	642	4.6 %

* hare of HGF's in the total population of firms that had at least 10 employees in 2003;
Source: Business Register Statistics Finland, calculations of the author.

Table 9.1 shows some interesting characteristics of the HGF:

- In three years the 750 HGF's added 62,000 jobs. But only **65%** of those jobs represented organic employment growth.

- HGF's with an initial size of 50 to 249 employees are adding most employment. Medium-sized companies typically have the highest potential to create jobs.

- Bigger firms have a smaller share of organic growth than smaller firms. As McKelvie et al. (2006) recently found there indeed seems to be a very strong empirical relationship between the size of a growing firm on the one hand and what proportion of growth is acquired on the other hand.

Table 9.1   High (total) growth firms by initial firm size: cumulative employment growth

| 2003 Size Class | Number of Cases | | Cumulative Total Employment Growth | | Cumulative Organic Employment Growth | | Organic as Percent of Total |
	n	% of total	employees	% of total	employees	% of total	
10-19	425	56.7 %	9,164	14.8 %	7,612	18.8 %	83.1 %
20-49	203	27.1 %	11,999	19.4 %	8,474	20.9 %	70.6 %
50-249	102	13.6 %	16,776	27.1 %	10,482	25.9 %	62.5 %
250-499	11	1.5 %	9,406	15.2 %	5,949	14.7 %	63.2 %
500+	9	1.2 %	14,567	23.5 %	8,010	19.8 %	55.0 %
Total high growth firms	750	100 %	61,912	100 %	40,527	100 %	65.5 %

Source: Business Register Statistics Finland, calculations of the author.

Table 9.2 also lists the results for the 642 HGF's that were defined based on organic employment growth.

Table 9.2   High (organic) growth firms by initial firm size: cumulative employment growth

| 2003 Size Class | Number of Cases | | Cumulative Total Employment Growth | | Cumulative Organic Employment Growth | | Organic as Percent of Total |
	n	% of total	employees	% of total	employees	% of total	
10-19	385	60.0 %	8,280	17.6 %	7,689	19.5 %	92.9 %
20-49	172	26.8 %	10,681	22.7 %	8,422	21.4 %	78.8 %
50-249	73	11.4 %	12,012	25.6 %	10,414	26.5 %	86.7 %
250-499	8	1.2 %	8,086	17.2 %	5,865	14.9 %	72.5 %
500+	4	0.6 %	7,955	16.9 %	6,980	17.7 %	87.7 %
Total high growth firms	642	100 %	47,014	100 %	39,370	100 %	83.7 %

Source: Business Register Statistics Finland, calculations of the author.

Roughly 90% of the high growth firms are private domestic owned firms whereas 8% are foreign owned firms. Table 10 shows that the shares of HGF's are clearly higher in state owned and foreign owned firms. But employment growth through mergers and acquisitions seems to be relatively more represented in state owned and foreign owned firms. As mentioned earlier (part 2.2), the literature offers weak evidence that foreign owned firms have indeed higher growth rates but government owned firms seem to grow more slowly. The latter finding seems not to be in line with the evidence found for Finland.

Table 10   Ownership of HGF's

Ownership in 2003	Number and share* of High Growth Firms			
	Total employment growth		Organic employment growth	
	Number	Share*	Number	Share*
Private domestic	669	5.3 %	579	4.6 %
State	9	7.6 %	6	5.1 %
Municipality	8	4.2 %	7	3.6 %
Ahvenanmaa	1	50.0 %	1	50.0 %
Foreign owned	63	5.9 %	49	4.6 %
Total high growth firms	750	5.4 %	642	4.6 %

* Share of HGF's in the total population of firms that had at least 10 employees in 2003;
Source: Business Register Statistics Finland, calculations of the author.

Table 11 summarizes the distribution of HGF over two digit industries. The breakdown by industry is important because in many sectors potential growth of enterprises is restricted by development and R&D costs (Ahmad, 2006). Are HGF's overrepresented in certain industries? High growth firms are represented in most of the industries. Only 15 of 57 (26%) two digit industries had no high growth firms in 2006. The five industries which score the best when it comes to the number and share of high growth firms in their industry are:

1. Other business activities (code 74) (also best sector in industry rankings in the introduction): Architectural and engineering activities and related technical consultancy (742), Labour recruitment and provision of personnel (745), Industrial cleaning (747).
2. Computer and related activities (code 72) (seventh best sector in industry rankings): Software consultancy and supply (722)
3. Health and Social work (code 85) (second best sector in industry rankings)
4. Construction (code 45) (third best sector in industry rankings)
5. Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods (code 52) (fourth best sector in industry rankings)

Overall the rankings of the industries based on the occurrence of HGF's fit to the general rankings of the industries described in the introduction. This finding is in line with recent conclusions on the distribution of firm growth rates. The distribution of firm growth rates is fat-tailed. The distribution of firm growth rates follows the symmetric exponential or Laplace distribution (family of Subbotin distributions) (Bottazzi et al., 2002). This is found to be true for both aggregate and disaggregate levels and holds for a variety of firm growth indicators (sales growth, employment growth, value added growth). This results support the fact that extreme growth events can be expected to occur relatively frequently, and make a disproportionately large contribution to the evolution of industries (see Coed, 2007, p. 8).

However, it is remarkable that the wholesale trade and commission trade, except of motor vehicles and motorcycles (code 51) does score very well (6th place) in the HGF ranking but doesn't score well in the industry rankings.

Table 11   Distribution of growth firms over the Finnish business sectors

Distribution of HGF's over the business sectors		Number and share* of high growth firms per industry			
		Total employment growth		Organic employment growth	
Sector code	Business sector	Number	Share*	Number	Share*
2	Forestry, logging and related service activities	5	3.1 %	3	1.9 %
14	Other mining and quarrying	1	2.3 %	1	2.3 %
15	Manufacture of food products and beverages	7	2.3 %	5	1.6 %
20	Manufacture of wood and of products of wood and cork, except furniture; manufacture c	11	3.9 %	10	3.6 %
22	Publishing, printing and reproduction of recorded media	7	2.0 %	5	1.4 %
24	Manufacture of chemicals and chemical products	2	2.1 %	2	2.1 %
25	Manufacture of rubber and plastic products	5	3.0 %	4	2.4 %
26	Manufacture of other non-metallic mineral products	7	4.6 %	4	2.6 %
28	Manufacture of fabricated metal products, except machinery and equipment	36	5.1 %	28	4.0 %
29	Manufacture of machinery and equipment n.e.c.	16	3.1 %	14	2.7 %
30	Manufacture of office machinery and computers	1	12.5 %	1	12.5 %
31	Manufacture of electrical machinery and apparatus n.e.c.	3	2.4 %	3	2.4 %
32	Manufacture of radio, television and communication equipment and apparatus	6	8.2 %	5	6.8 %
33	Manufacture of medical, precision and optical instruments, watches and clocks	4	4.0 %	2	2.0 %
34	Manufacture of motor vehicles, trailers and semi-trailers	2	2.9 %	1	1.4 %
35	Manufacture of other transport equipment	5	6.0 %	4	4.8 %
36	Manufacture of furniture; manufacturing n.e.c.	3	1.3 %	3	1.3 %
37	Recycling	1	8.3 %	1	8.3 %
40	Electricity, gas, steam and hot water supply	4	3.9 %	2	1.9 %
45	Construction	93	5.2 %	85	4.8 %
50	Sale, maintenance and repair of motor vehicles and motorcycles; retail sale of automoti	21	4.9 %	11	2.6 %
51	Wholesale trade and commission trade, except of motor vehicles and motorcycles	49	4.1 %	43	3.6 %
52	Retail trade, except of motor vehicles and motorcycles; repair of personal and househol	78	6.0 %	56	4.3 %
55	Hotels and restaurants	26	4.5 %	15	2.6 %
60	Land transport; transport via pipelines	31	4.1 %	31	4.1 %
61	Water transport	1	2.0 %	1	2.0 %
62	Air transport	3	30.0 %	3	30.0 %
63	Supporting and auxiliary transport activities; activities of travel agencies	18	6.7 %	17	6.3 %
64	Post and telecommunications	7	6.1 %	6	5.2 %
65	Financial intermediation, except insurance and pension funding	5	1.9 %	4	1.5 %
66	Insurance and pension funding, except compulsory social security	3	5.7 %	2	3.8 %
67	Activities auxiliary to financial intermediation	4	7.7 %	4	7.7 %
70	Real estate activities	24	6.1 %	22	5.6 %
71	Renting of machinery and equipment without operator and of personal and household g	2	4.4 %	2	4.4 %
72	Computer and related activities	56	14.8 %	54	14.3 %
73	Research and development	5	11.6 %	4	9.3 %
74	Other business activities	139	9.7 %	129	9.0 %
80	Education	3	3.7 %	3	3.7 %
85	Health and social work	42	12.0 %	41	11.7 %
90	Sewage and refuse disposal, sanitation and similar activities	2	3.2 %	2	3.2 %
92	Recreational, cultural and sporting activities	10	5.4 %	8	4.3 %
93	Other service activities	2	3.0 %	1	1.5 %
		750	5.4 %	642	4.6 %

* Share of HGF's in the total population of firms that had at least 10 employees in 2003;
Source: Business Register Statistics Finland, calculations of the author.

To be able to rank the high growth firms in Finland we focus on the organic relative growth of firms that had at least 10 employees in 2003.

Most of the firms in table 12 are private domestic (90%) and only Atea Finland Oy, Proffice Finland Oy and Manpower Business Solutions Oy are foreign owned. It is found that 18 out of 30 firms were only growing organically whereas 12 firms were growing both organically and by acquiring existing establishments. Based on additional information from the Business Information System (BIS) 8 out of 30 of the above listed firms merged during the period of consideration (Arinan Kauppa Oy, Huurre Finland Oy, Suomen 3C Oy, Componentta Karkkila Oy, Metos Oy AB, Aina Group Oyj and Atea Finland Oy). A second interesting point is that out of the other 22 high growth firms in the list, 4 merged (Proffice Finland Oy, Ionific Oy, Trificom Oy and Mediverkko Oy) in 2007, a year after being classified as a high growth firm. From this finding emerges an interesting hypothesis to be tested: firms that belong to our list of 642 HGF's have a higher probability to be merged in the coming year(s).

Table 12   The 2006 top 30 of High Growth Firms in Finland

		annualised % growth		annualised absolute growth		
Ranking	Name of the company	Organic growth	Total growth	Organic growth	Total growth	Industry code
1.	ARINAN KAUPPA OY	241 %	414 %	129	448	551
2.	HUURRE FINLAND OY	171 %	209 %	67	101	741
3.	INFOCARE FINLAND OY AB	146 %	146 %	68	68	725
4.	NOKIA TIETOLIIKENNE OY	146 %	146 %	119	119	518
5.	MANPOWER BUSINESS SOLUTIONS OY	145 %	145 %	62	62	741
6.	HAIRSTORE OY	122 %	142 %	61	81	523
7.	SUOMEN 3C OY	120 %	148 %	45	66	741
8.	DIGITAL CHOCOLATE OY	114 %	114 %	34	34	722
9.	HTR-STEEL OY	108 %	260 %	2	9	281
10.	JERODOS OY	101 %	101 %	14	14	452
11.	COMPONENTA KARKKILA OY	97 %	131 %	44	75	741
12.	CLAS OHLSON OY	97 %	97 %	44	44	521
13.	PROFFICE FINLAND OY	95 %	141 %	87	178	745
14.	CELECTUS OY	93 %	93 %	71	71	745
15.	MESERA WORKS OY	92 %	92 %	41	41	285
16.	ELISA OYJ	91 %	119 %	635	1,003	642
17.	METOS OY AB	88 %	157 %	37	104	741
18.	AINA GROUP OYJ	86 %	86 %	26	26	642
19.	CIBA SPECIALTY CHEMICALS OY	86 %	127 %	54	107	241
20.	IONIFIC OY	84 %	84 %	28	28	722
21.	FOLKHÄLSAN RASEBORG AB	83 %	84 %	106	109	853
22.	KESLOG OY	81 %	81 %	385	385	634
23.	ATEA FINLAND OY	81 %	90 %	70	84	518
24.	PERSONEL HENKILÖSTÖPALVELUT OY	81 %	81 %	97	97	745
25.	RG LINE OY AB	80 %	80 %	17	17	611
26.	SUOMI-SOFFA SSF OY	78 %	78 %	37	37	524
27.	KP-SERVICEPARTNER OY	78 %	78 %	24	24	703
28.	TRIFICOM OY	77 %	77 %	17	17	452
29.	MEDIVERKKO OY	76 %	76 %	24	24	722
30.	OKO VARAINHOITO OY	74 %	74 %	35	35	671
TOTAL		.	.	2,480	3,509	.

*Ranking based on relative average annualised ORGANIC employment growth in Finland during the 2003–2006 period of firms that had at least 10 employees in 2003; Source: Business Register Statistics Finland, calculations of the author.

Figure 2   Firm growth distribution per firm size
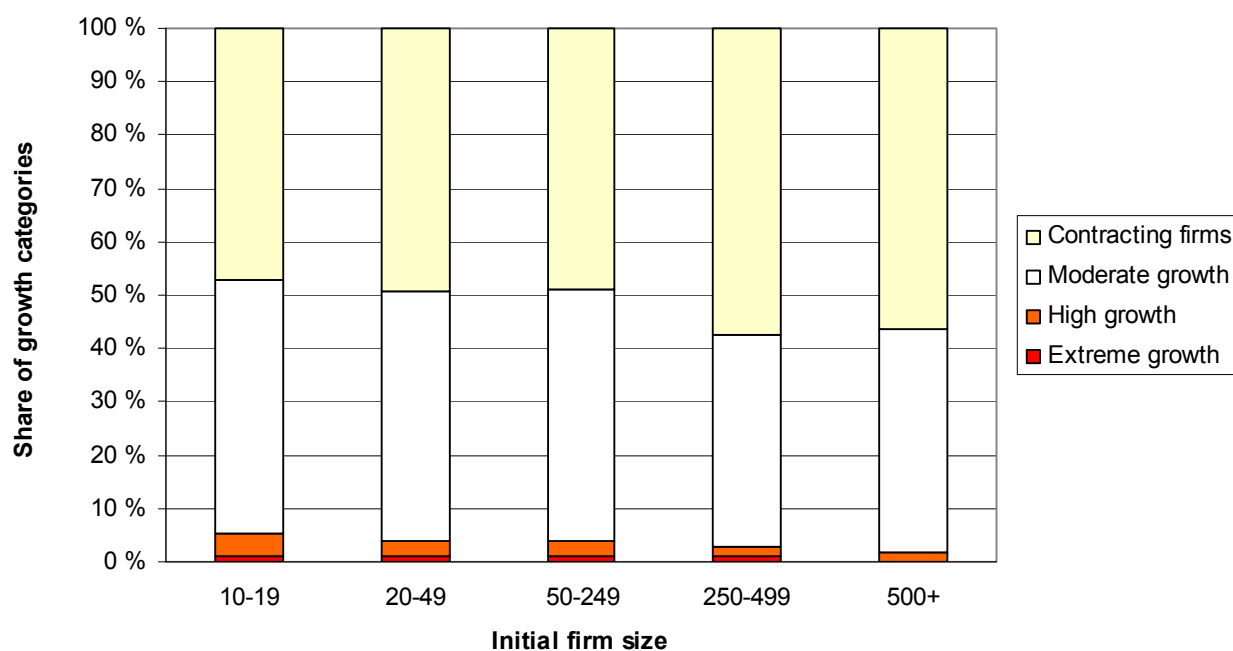
Source: Business Register Statistics Finland, calculations of the author. Contracting firms are firms with a negative average employment growth in the period 2003–2006. Moderate growth: average employment growth <20%, High growth: average employment growth $\geq$ 20% and < 40%, Extreme growth: average employment growth $\geq$ 40%.

High Growth Firms are firms that perform extremely well (according to specific measures) and have therefore been attracting a lot of attention. Not only policymakers are interested in their capacity to for example create jobs, but also investors and business service companies have been eagerly focusing on them in their search for new business opportunities.

In describing the growth of firms it is recommended that information is provided on employment growth broken down by initial size class and employee growth bands (Ahmad, 2006). The existence of high growth firms should indeed be analysed as part of a broader dynamic economic system. Looking at the distribution of the growth of firms puts the HGF's into perspective and can also give extra information on the importance of high growth versus extreme growth.

Figure 2 shows that in the economic expansion period (2003–2006) about half of the firms in all firm size categories were contracting in terms of net employment. The share of contracting firms was even higher for the firms with at least 250 employees. Davis et al. (2008) found that in the US contraction and expansion of continuing establishments are responsible for about two thirds of the turbulence in the economy. More of one third of job creation is due to the entry of new establishments. Sorting successful businesses is a central part of our market economy and it is essential to understand this process. Dynamism and turbulence in the economy have a positive impact on productivity and economic well being. The above figure also shows that about 40% to 50% of all the firms with at least 10 employees did experience a positive employment growth. 35 to 45 % did grow less than 20% a year. The orange and red shares represent the HGF's and extreme growth firms. Except of the firms with at least 500 employees all firm categories also had extreme growth firms.

Further info could be given of a special kind of growth firms, the gazelles. Gazelles are typically referred to as young high growth businesses but the concepts of high growth firms and gazelles are often mixed in the literature. The OECD defines them as all enterprises less than 5 years old with average annualised growth in employees greater than 20% per annum, over a three year period, and with 10 or more employees in the beginning of the observation period.

5. Conclusions

This paper presents a descriptive analysis of which firms recently added jobs in Finland. Using firm and establishment data of the Finnish Business Register (statistical years 2003 to 2006) the firm performance is assessed based on a range of employment measures[5]. Absolute employment growth measures are used to rank industries and firms. Based on relative employment growth measures, a population of high growth firms (HGF's)[6] is identified.

1. As to be able to assess the importance of internal employment growth a distinction is made between organic employment growth and employment growth by acquisitions. In doing so it is found that not all of the HGF's were growing organically. In fact of all the jobs they added only 65% turned out to be organic employment[7]. But although the effect of acquired growth on net employment may be less strong, it can be of great economic importance as it can have a strong effect on productivity growth (cf. Henrekson and Johansson, 2008). There seems to be a negative empirical relationship between the initial firm size and what proportion of the employment growth is organic (cf. Mc Kelvie, 2006). The share of organic employment varies from 83% for the smallest initial firm size to 55% for the biggest.

2. HGF's represent a very limited number of firms. In 2006 Finland counted 750 HGF's (according to the OECD definition). This 750 firms represent roughly 5% of the firms that had at least 10 employees at the start of the growth period. If one corrects for acquisition growth only 642 HGF's are left. To evaluate the job contribution of high growth firms, we benchmark it against the total aggregated employment growth and find that those 750 HGF's (642 HGF's) were responsible for 89% (58%) of that total aggregated growth.

3. There is heterogeneity in firm growth. Dosi et al. (1995) concluded that the fact that firm entries are very heterogeneous implies heterogeneity in post-entry performance. Delmar et al. (2003) found heterogeneity in firm growth measures, in how firms grow and in the demographic characteristics of growth firms. A practical implication of this finding is that several measures should be used when identifying high growth firms. Recent literature suggests that it is more important to know how a firm grows than how much firms are growing. The analysis used therefore several measures of employment growth.

4. The meaning of employment effects per firm can be better understood if firm group information is taken into account. Future research should use firm group information to be able to capture shifts of employment between firms of the same group. The use of business identification codes by firm groups – for example ABB Oy and Tietoenator oy - can indeed be very complex. What looks like organic firm growth can turn out not to be, as with the Business Register data not all mergers and acquisitions can be traced by combining identification codes of firms and establishments.

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[5] The Finnish Business Register has the exact employment figures per firm. Turnover figures are only available per category. The focus of this paper is on employment growth and not on firm performance based on turnover, profitability, productivity or wages.

[6] Based on the definition of HGF's of the OECD - all firms with an average annualised growth in employees greater than 20% per annum, over a three year period, and with 10 or more employees in the beginning of the observation period. Using this standard definition maximizes the comparability with other countries.

[7] As certain mergers could not be traced by combining establishment and firm data, this 65% of organic growth should be seen as an upper limit.

5. Medium sized companies have typically the highest potential to create jobs. HGF's with an initial size of 50 to 249 employees (13.6% of the HGF population) are indeed adding the most of the jobs in Finland (26% of the employment added by all HGF's).

6. Firms that are owned by the state (7.6%) and foreign owned firms (5.9%) have a higher share of HGF's. But in those firms employment growth seems to be relatively more reached through acquisitions and mergers.

7. It is found that most of the industries – roughly three quarters - have HGF's. Overall the rankings of the industries based on the occurrence of HGF's fit to the rankings of the industries based on aggregated net employment growth. This finding is in line with recent conclusions on the distribution of firm growth rates. The distribution of firm growth rates is fat-tailed. This is found to be true for both aggregate and disaggregate levels and holds for a variety of firm growth indicators. This results support the fact that extreme growth events can be expected to occur relatively frequently, and make a disproportionately large contribution to the evolution of industries (see Coed, 2007, p. 8). An exception forms the industry "wholesale trade and commission trade, except of motor vehicles and motorcycles" as it does score well (6th place) in the HGF ranking but ends up as the second worst industry in aggregated employment growth. In 2006 the prevalence of HGF's was the highest in the sectors.

1. "other business activities" (Number of HGF's: 129 ; Share of HGF's in population: 9 %),
2. "computer and related activities" (Number: 54 ; Share: 14.3%),
3. "health and social work" (Number: 41 ; Share: 11.7%),
4. "construction" (Number: 85 ; Share: 4.8%) and
5. "retail trade" (Number: 56 ; Share: 4.3%).

8. The above finding that the industries "computer and related activities" and "other business activities" had a high share and number of HGF's, shows us that recent trends in outsourcing obviously culminated into the high employment growth of several firms in the service sector. It seems that a significant proportion of the 642 HGF's added organic employment as they were the receivers of outsourced employment (for example Proffice Finland Oy). But personnel services can play an important role in making the economy more efficient. The fact that many personnel service firms are growing, may be a sign that the demand and supply of labour is changing fast. Future research should analyse: (1) The evolution of domestic outsourcing as to find out both its causes and consequences. Possible causes are changes in labour market regulations, changes in management practices or organisational innovations. (2) The overall effect of (domestic) outsourcing on firm performance (productivity, profitability) and employees (wages, satisfaction). The latter subject can be analysed by using the employer-employee FLEED database. (3) The growth bottle-necks: Are there any sectors or companies that do have growth aspirations but that are not able to grow because of the lack of inputs?

9. Although there are systemic factors at the firm and the industry levels that affect the process of firm growth, findings from the literature suggest that firm growth is mainly affected by purely stochastic shocks. The way forward in firm growth analysis seems to be robust empirical research as to be able to construct a theoretical framework for studying the growth of companies. This is an important message for policy makers as it implies that there seems not to be a ready-made receipt (yet) for reaching firm growth.

10. The existence of high growth firms should be analysed as part of a broader dynamic economic system. Sorting successful businesses is a central part of our market economy and it is essential to understand this process. Davis et al. (2008) found that in the US expansion and contraction of continuing establishments are responsible for about two thirds of the turbulence in the economy. More of one third of job creation is due to the entry of new establishments. Dynamism and turbulence in the economy have a positive impact on productivity and economic well being. But Coed (2008) stresses that although "survival of the fitter" seems to hold "growth of the fitter" is generally not observed. Economies may therefore not reach their full potential.

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Appendix

Table A1   Overview of employment growth per business sector in the period 2003–2006

TOL 2002 Code	Business sector	Absolute growth	Relative growth
Absolute and relative employment growth in the period 2003 to 2006 (annualised averages) per business sector			
1	Agriculture, hunting and related service activities	732	8.3 %
2	Forestry, logging and related service activities	-104	-1.0 %
5	Fishing, fish farming and related service activities	-10	1.6 %
10	Mining of coal and lignite; extraction of peat	-8	-0.6 %
13	Mining of metal ores	94	17.2 %
14	Other mining and quarrying	-9	-0.5 %
15	Manufacture of food products and beverages	-744	-2.0 %
16	Manufacture of tobacco products	-108	-81.7 %
17	Manufacture of textiles	-157	-3.0 %
18	Manufacture of wearing apparel; dressing and dyeing of fur	-363	-7.7 %
19	Tanning and dressing of leather; manufacture of luggage, handbags, saddlery, h	-85	-4.1 %
20	Manufacture of wood and of products of wood and cork, except furniture; manufa	145	0.5 %
21	Manufacture of pulp, paper and paper products	-2,218	-6.2 %
22	Publishing, printing and reproduction of recorded media	-256	-0.9 %
23	Manufacture of coke, refined petroleum products and nuclear fuel	35	1.3 %
24	Manufacture of chemicals and chemical products	95	0.5 %
25	Manufacture of rubber and plastic products	-135	-0.9 %
26	Manufacture of other non-metallic mineral products	320	2.0 %
27	Manufacture of basic metals	717	4.5 %
28	Manufacture of fabricated metal products, except machinery and equipment	2,114	5.3 %
29	Manufacture of machinery and equipment n.e.c.	351	0.6 %
30	Manufacture of office machinery and computers	8	2.4 %
31	Manufacture of electrical machinery and apparatus n.e.c.	-703	-3.8 %
32	Manufacture of radio, television and communication equipment and apparatus	-117	-0.3 %
33	Manufacture of medical, precision and optical instruments, watches and clocks	27	0.2 %
34	Manufacture of motor vehicles, trailers and semi-trailers	-20	-0.3 %
35	Manufacture of other transport equipment	-450	-3.9 %
36	Manufacture of furniture; manufacturing n.e.c.	-414	-3.0 %
37	Recycling	181	34.0 %
40	Electricity, gas, steam and hot water supply	630	6.2 %
41	Collection, purification and distribution of water	29	6.9 %
45	Construction	3,759	3.0 %
50	Sale, maintenance and repair of motor vehicles and motorcycles; retail sale of au	1,479	3.9 %
51	Wholesale trade and commission trade, except of motor vehicles and motorcycle	-848	-1.0 %
52	Retail trade, except of motor vehicles and motorcycles; repair of personal and ho	3,052	2.6 %
55	Hotels and restaurants	1,008	2.0 %
60	Land transport; transport via pipelines	954	1.4 %
61	Water transport	-181	-2.2 %
62	Air transport	-375	-5.2 %
63	Supporting and auxiliary transport activities; activities of travel agencies	1,641	6.4 %
64	Post and telecommunications	-714	-1.8 %
65	Financial intermediation, except insurance and pension funding	244	0.9 %
66	Insurance and pension funding, except compulsory social security	-78	-0.7 %
67	Activities auxiliary to financial intermediation	-101	-2.3 %
70	Real estate activities	1,139	4.7 %
71	Renting of machinery and equipment without operator and of personal and house	102	2.6 %
72	Computer and related activities	1,676	4.4 %
73	Research and development	-34	-1.4 %
74	Other business activities	6,288	4.8 %
75	Public administration and defence; compulsory social security	13	0.5 %
80	Education	267	3.1 %
85	Health and social work	3,314	10.3 %
90	Sewage and refuse disposal, sanitation and similar activities	138	4.0 %
91	Activities of membership organizations n.e.c.	-127	-4.1 %
92	Recreational, cultural and sporting activities	560	3.1 %
93	Other service activities	483	3.2 %
99	Industry unknown	-4	-21.5 %
TOTAL	Sum for all the above business sectors	23,228	.

Source: Business Register Statistics Finland, calculations of the author.

Table A2   Net employment change per detailed business sector: 20 best performing sectors

Ranking*	TOL 2002 Code	Business sector	Absolute growth	Relative growth
Growth of employment in the period 2003 to 2006 (annualised averages): 20 best performing detailed business sectors
1	745	Labour recruitment and provision of personnel	4,298	24.5 %
2	853	Social work activities	2,244	20.8 %
3	283	Manufacture of steam generators, except central heating hot water boilers	1,153	37.0 %
4	524	Other retail sale of new goods in specialized stores	1,986	4.4 %
5	722	Software consultancy and supply	1,682	6.5 %
6	452	Building of complete constructions or parts thereof; civil engineering	1,619	2.3 %
7	453	Building installation	1,344	4.6 %
8	285	Treatment and coating of metals; general mechanical engineering	1,100	7.5 %
9	602	Other land transport	1,226	2.0 %
10	742	Architectural and engineering activities and related technical consultancy	1,146	4.0 %
11	851	Human health activities	993	4.9 %
12	747	Industrial cleaning	1,023	3.7 %
13	632	Other supporting transport activities	711	14.8 %
14	501	Sale of motor vehicles	838	6.2 %
15	553	Restaurants	868	3.4 %
16	521	Retail sale in non-specialized stores	807	1.4 %
17	401	Production and distribution of electricity	656	7.0 %
18	451	Site preparation	665	5.4 %
19	748	Miscellaneous business activities n.e.c.	631	5.2 %
20	631	Cargo handling and storage	590	7.0 %

* Ranked according to the multiplication of the absolute and relative changes of the industry employment as a way of overcoming the small industry bias inherent in measuring growth rates.
Source: Business Register Statistics Finland, calculations of the author.

Table A3   Relative employment growth per year: 20 best performing (detailed) business sectors

Ranking	TOL 2002 Code	Business sector	Relative growth	Absolute growth
Relative growth of employment in the period 2003 to 2006 (annualised averages): Best performing 20 detailed business sectors
1	355	Manufacture of other transport equipment n.e.c.	59.81 %	74
2	371	Recycling of metal waste and scrap	44.07 %	170
3	283	Manufacture of steam generators, except central heating hot water boilers	37.01 %	1,153
4	245	Manufacture of soap and detergents, cleaning and polishing preparations, p	33.54 %	167
5	726	Other computer related activities	31.39 %	89
6	13	Growing of crops combined with farming of animals (mixed farming)	28.15 %	181
7	745	Labour recruitment and provision of personnel	24.55 %	4,298
8	913	Activities of other membership organizations	21.94 %	53
9	853	Social work activities	20.82 %	2,244
10	233	Processing of nuclear fuel	19.61 %	9
11	273	Other first processing of iron and steel	18.88 %	13
12	132	Mining of non-ferrous metal ores, except uranium and thorium ores	17.12 %	94
13	725	Maintenance and repair of office, accounting and computing machinery	16.71 %	161
14	632	Other supporting transport activities	14.82 %	711
15	12	Farming of animals	14.09 %	337
16	701	Real estate activities with own property	12.21 %	142
17	721	Hardware consultancy	11.79 %	55
18	246	Manufacture of other chemical products	11.53 %	119
19	711	Renting of automobiles	10.49 %	65
20	724	Database activities	10.29 %	164

Source: Business Register Statistics Finland, calculations of the author.

Table A4   Net employment change per detailed business sector: 20 worst performing sectors

Growth of employment in the period 2003 to 2006 (annualised averages): 20 worst performing detailed business sectors				
Ranking*	TOL 2002 Code	Business sectors	Absolute growth	Relative growth
1	211	Manufacture of pulp, paper and paperboard	-2,299	-7.2 %
2	741	Legal, accounting, book-keeping and auditing activities; tax consultancy; market researc	-1,083	-3.8 %
3	642	Telecommunications	-861	-4.7 %
4	311	Manufacture of electric motors, generators and transformers	-616	-6.3 %
5	351	Building and repairing of ships and boats	-485	-4.9 %
6	723	Data processing	-476	-5.3 %
7	361	Manufacture of furniture	-396	-3.7 %
8	621	Scheduled air transport	-378	-5.3 %
9	201	Sawmilling and planing of wood; impregnation of wood	-357	-3.7 %
10	518	Wholesale of machinery, equipment and supplies	-317	-1.2 %
11	519	Other wholesale	-368	-6.2 %
12	513	Wholesale of food, beverages and tobacco	-288	-3.5 %
13	182	Manufacture of other wearing apparel and accessories	-322	-7.5 %
14	601	Transport via railways	-273	-3.4 %
15	151	Production, processing and preserving of meat and meat products	-264	-2.6 %
16	158	Manufacture of other food products	-254	-1.9 %
17	515	Wholesale of non-agricultural intermediate products, waste and scrap	-226	-1.3 %
18	244	Manufacture of pharmaceuticals, medicinal chemicals and botanical products	-230	-4.3 %
19	291	Manufacture of machinery for the production and use of mechanical power, except aircra	-217	-2.4 %
20	551	Hotels	-207	-2.1 %

Table A5   Total number of firms and number of firms with data gaps

Evolution of the number of firms				
Year	2003	2004	2005	2006
Number of firms in population	228,382	232,290	236,433	250,377
% of firms with gaps in observation period	4.2 %	4.1 %	3.9 %	5.2 %
Number of firms in sample	218,798	222,719	227,181	237,292

Source: Business Register Statistics Finland, calculations of the author.

Table A6   Total number of establishments and number of establishments with data gaps

Evolution of the number of establishments (estab.)				
Year	2003	2004	2005	2006
Number of estab. in population	257,533	261,842	266,535	281,695
% of estab. with gaps in observation period	3.5 %	3.5 %	3.3 %	4.1 %
Number of estab. in sample	248,463	252,678	257,835	270,107

Source: Business Register Statistics Finland, calculations of the author.

E L I N K E I N O E L Ä M Ä N   T U T K I M U S L A I T O S   (ETLA)

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