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Author(s): Josef Brüderl and Peter Preisendörfer

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JOSEF BRÜDERL AND PETER PREISENDÖRFER

Fast-Growing Businesses

Empirical Evidence from a German Study

ABSTRACT: *This article investigates the employment effects and the growth potential of newly established businesses. It is argued that the main mechanism of job generation by newcomer firms rests on a small number of fast-growing businesses. Therefore, the crucial question is whether there are any characteristics of a new firm predisposing it to become a fast growing business. Our empirical work is based on a retrospective study of a cohort of 1,849 newcomer firms in Upper Bavaria (Germany). We find that only 4 percent of all newly founded firms show rapid growth, but over one-third of all jobs created by this cohort are located in these rapidly growing firms after four years.*

For many reasons, after a long period of neglect, there is a growing body of research on small and newly established businesses. Revising one of the last, seemingly well-confirmed Marxian predictions, the number of self-employed people is increasing in numerous Western countries, and there is a tendency toward smaller units of employment (Steinmetz and Wright 1989; Leicht and Stockmann 1993; Storey 1994: ch. 2). In the former homelands of Marx, the East European countries, we now observe a huge wave of new business formation. Far-reaching hopes and expectations are coupled with this development. New firms revitalize the spirit of “dynamic capitalism,” contribute to competi-

Josef Brüderl is on the Faculty of Social Sciences at the University of Mannheim. Peter Preisendörfer is affiliated with the Institute of Sociology at the University of Rostock.

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tion and innovation, foster economic efficiency and flexibility, create new jobs, open up chances for upward social mobility, stimulate industrial reorganization, and so on (Birch 1987; Kirchhoff 1994; Portes and Zhou 1996; Licht and Nerlinger 1998).

From this list of hopes and expectations, the generation of jobs has attracted the most interest in terms of theoretical and empirical research. Of course, this is because, since the mid 1970s, many Western economies have been and continue to be confronted with serious unemployment problems. With respect to the East European countries, it is not necessary to go into detailed statistics to see that the unemployment issue is the most crucial challenge. The general "employment crisis" has spawned a broad range of more or less convincing suggestions for its solution; and a favorite topic within this debate is usually the small and medium-sized sector of the economy, which also includes newcomer firms.

Most of these hopes, however, are not placed on newcomer firms in general. It is argued that among a cohort of newly founded firms only a few will show rapid growth. These "dynamic capitalists" (Kirchhoff 1994) are the ones that will restructure the economy and generate new jobs in the long run. In contrast to their importance, however, there is surprisingly little research on these dynamic capitalists. The literature is full of anecdotal evidence derived from case studies of dynamic capitalists like Bill Gates and Steven Jobs. What is missing, however, is systematic evidence derived from large, quantitative studies.

This article is an initial attempt to offset this research deficit. Based on a study of a cohort of 1,849 newly founded businesses in West Germany, we intend to contribute to the discussion of the role of fast growing businesses. The article proceeds as follows. First, we give an overview of the discussion on the generation of jobs and a potential theoretical background for the discussion of fast growing businesses. The second section describes the data and our definition of fast growth. In the third section, we will give a descriptive account of the number of jobs generated (and partly lost) by our sample of firms within a period of four years and the contribution of fast growing firms to the process of generating jobs. The final section concentrates on the central question, which we deal with in bivariate and multivariate analysis: What factors influence the probability of rapid growth and who are the dynamic capitalists?

1. Employment Effects and Growth Potential of Newly Established Firms

The Birch Euphoria and Its Limitations

Initiated mainly by the message of Birch (1979) that 81.5 percent of the net new jobs between 1969 and 1976 in the United States have been created by small

and newly established firms, the small business sector advanced from the fringes to the forefront of the economy. Birch's discovery has been heavily lauded not only by the media but also by serious researchers. Kirchhoff (1994: 119), for example, qualifies Birch's findings and methodology as "a revolution."

Even though nobody denies that Birch's work was agenda-setting, his original findings have been widely criticized (e.g., Storey and Johnson 1987; Brown et al. 1990; Storey 1994; Davis et al. 1996). In addition to considerable deficiencies of his data base (the Dun and Bradstreet data), Birch's "net job change" as a measure of employment change may be inappropriate. His vague differentiation and repeated switches between the enterprise and establishment level were sources of confusion. A simple replication of his results (by Armington and Odle 1982) proved to be an impossible task. Instead of theory, Birch seems to be more interested in telling a political story, that is, the inferences he draws are premature.

Subsequent research clarified some of these issues, and the overall picture emerged as follows. Evidently, Birch's 81.5 percent was an overestimation caused by flaws in his data and some heroic assumptions (Armington and Odle 1982). The net job change strongly covaries with the business cycle in that during recessions a small firm's share is greater (Kirchhoff 1994), and Birch's original time span from 1969 to 1976 coincided with a recession. Compared to other countries, job generation by small and newly established firms is above average in the United States. In his review of international research, Storey (1994: 173) concludes that the contribution of small firms "is nowhere near as high as originally estimated by Birch." For the United Kingdom he gives an estimate of about one-third for the 1980s, and similar figures are reported for West Germany (Fritsch and Hull 1987).

Of course, such global estimated percentages are the result of a very macroscopic view that is difficult to connect with a theoretical rationale. The Birch methodology differentiates four components of job generation (openings, expansions, contractions, and closures), and it should be clear that for a theoretical understanding of the processes and mechanisms at work we need more detailed accounts of each of these components. Although expansions, contractions, and closings can be observed for small and large and for ongoing and new firms, the Birch euphoria tends to shift the attention to newcomer firms in the small business sector. We can see this if we follow the endless stream of "success stories" that Birch evidently likes to tell. Thus, if the small business sector really is the seedbed and training camp of "dynamic capitalism," there should be a considerable quantity of "ambitious or glamorous start-ups" (Kirchhoff 1994: 69), of real "entrepreneurs" as opposed to "income substitutors" (Birch 1987: 29), and of "flyers" instead of "fail-

ures and trundlers” (Storey 1994: 117). But how many of these fast flying newcomer businesses do we have, and what characterizes them?

The Early Death Image and Its Limitations

The Birch euphoria sharply contrasts with findings of empirical studies that have investigated the survival and growth of newly established businesses. These studies tend to draw the following picture. New firms typically start small and have restricted financial resources; more than half of them are one-person businesses; and a considerable percentage do not invest any money. Following the liability of newness or adolescence (Freeman et al. 1983; Brüderl and Schüssler 1990), they tend to die young; estimates of 50 percent in five years represent by no means the worst scenario. Borrowing from a well-known statement of Thomas Hobbes, this view is expressed in the extreme by Geroski (1991: 283): “The average entrant is, it seems, basically a tourist and not an immigrant, enjoying a life that is often nasty, brutish, and, above all, short.”

Out of the group of more or less lucky survivors, no more than one-third show employment growth over time; the majority stay small and do not change their start-up employment levels. Finally, there is empirical evidence that small and/or new firms tend to create so-called low-quality jobs, that is, jobs with relatively low wages, missing fringe benefits, restricted opportunities for promotion, and so forth (for studies and reviews supporting this picture, see Rainnie 1989; Brown et al. 1990; Storey 1994: ch. 4 and 5).

Although this account can (and is often intended to) stimulate a rather pessimistic view, as a simplified overall picture it needs differentiation, and, indeed, a more detailed analysis may change our minds. A first important result in this context is that many studies about failure rates of new firms clearly overestimate this rate. This is because they often refer to registration data and not to observations of real world businesses. Kirchhoff (1994: 146) attacks the widely held belief that “four out of five small firms fail in their first five years” by elaborating the shortcomings and weaknesses of registration data. Many entries in official registers are “fake businesses” that do not start any business activity at all, and their short survival time heavily contributes to the “four out of five fail” fiction. Furthermore, what registration agencies report as deregistration does not mean that a firm actually stopped operation. Entrepreneurs and business founders are creative and intelligent actors who tend to confuse the registration system by their erratic behavior. They change the names of their businesses, their legal forms, their products or services, their locations, their business partners, and so forth, and it is often hard to determine whether we have a termination or a continuance of business activities. Reviewing a couple of prominent data sets, Kirchhoff (1994: 168) concludes

“that something in excess of 50 percent of small business owners survive in their small business ownership experience for eight or more years. And, under the worst set of assumptions, no more than 18 percent terminate with losses to creditors.”

A second fact we should keep in mind is that, when evaluating the success of new businesses start-ups, we should do so on the basis of the expectations and ambitions of the actors involved. Empirical studies show that a large proportion of business founders initiate their firms with rather low and modest aspirations (Gray 1992). For many founders growth of their businesses is not an objective. Summarizing empirical evidence in the United Kingdom, Storey (1994: 119–121) estimates that at least 50 percent of all founders start their enterprises with no intention to grow. If we exclude these “trundlers” from the analysis, or if we define success by comparing growth orientation and actual realization of growth, estimates of successful start-ups usually look much better.

Third, the early death image pertains to the aggregate of new foundings. Nevertheless, we know that there are substantial differences in survival and growth rates depending on elements such as the type of business, its branch of industry, its strategy, personal characteristics of the founder, and the like. Whereas in some configurations chances for success are really poor, in other settings they are good, and to begin a new business seems to involve low risk. Of course, for an individual (would-be) entrepreneur the problem is to find such a low risk configuration. Tailored to our research topic the question becomes: what constitutes a growth constellation?

Fast Flying Businesses

Within the debate on the growth of small businesses, we can observe the empirically based consensus that from a cohort of newcomer firms, less than half of them expand their number of employees over time. Within this group of growing firms, there is still huge heterogeneity. The number of real “take-offs,” that is, of fast flying businesses, seems to be very small, but this scanty group is the driving force in the process of job generation via new firms. In his brilliant book on the small business sector, Storey (1994: 113–119) struggles hard to convince us that from a cohort of newly established firms the fastest growing 4 percent will create 50 percent of the employment in this group over a decade. If Storey’s is correct, it may be good advice to focus theoretical and empirical research on this rapidly growing species. Such “flyer-research” would, on the one hand, be partly in line with the Birch euphoria, and, on the other hand, it could avoid discouraging reiterations of the early death image.

Even though in our empirical analyses we cannot directly test Storey’s

proposition (because our observation period does not span a decade), it leads us to two expectations: first, the number of fast growing businesses should be relatively small; and second, this small group should be responsible for a large part of jobs generated over time.

Our main question will be whether we can predict which newcomer firms will belong to the fast growing category. In this regard, a meaningful prediction should concentrate on characteristics and conditions that can be identified at the time of founding because this is the situation with which people are confronted when they consider setting up a new business. Analytically, this means that we are looking for factors—observable at the time of founding—that influence rapid growth.

Now, although there is a long tradition of research dealing with the growth potential of new firms in general (e.g., Evans 1987; Hall 1987; Dunne et al. 1989; Wagner 1992; Almus and Nerlinger 1999), we do not have theories tailored to the explanation of *rapid* growth. An extreme position may be that fast growth is simply a matter of luck or chance. Many different people initiate new businesses all the time, and it may be argued that, more or less by accident, some people stumble upon unpredictable market niches and their firms expand rapidly. If it is true that the number of fast flyers is very small, the growth process can be compared with a lottery offering a few top prizes in the form of rapid growth. The concept of this random process could lead us to expect that it is difficult to find any significant predictors of rapid growth and that the explanatory power of models investigating the effects of a set of covariates should be small.

Another point of departure may be the minimal proposition that a necessary condition of rapid growth is that the founding persons start their businesses with the intention and ambition to grow (Gray 1992; Storey 1994: 119–21). More generally, this proposition accentuates the psychological attributes of the actors involved. It can be subsumed under the widespread personality-based approaches that qualify the individual characteristics of the founding persons as the key to organizational success (for critiques of these approaches, see Aldrich and Zimmer 1986; Brüderl et al. 1996). Nevertheless, it should be clear that the more or less energetic aspiration to grow cannot be a sufficient condition. Growth is not merely a matter of personal intentions. Instead, individual actors need a certain amount of start-up capital to initiate a promising business; some basic qualifications and human capital resources of the founder may be necessary; there must be a demand for the products or services of the new firm must; and there are other external constraints and restrictions that can prevent an effective realization of the intention to expand (“barriers to growth”). Moreover, even the status of the intention to grow as a necessary condition may be questionable. People can start a new

firm with moderate aspirations, but the detection of opportunities to make a profit may rapidly change their minds.

Given the paucity of special theories concerning fast growth, what can we extract from the general research on the growth of new firms? Summarizing this research, Storey (1994: ch. 5) presents a “theoretical framework” that may be used as a helpful guideline for investigating factors that are possibly associated with the rapid growth of small firms. This framework differentiates three broad components: starting resources of the founder (entrepreneur), strategic orientations and decisions (strategy), and characteristics of the new firm itself (firm).

Storey’s entrepreneur component includes fifteen elements: motivation, unemployment push, education, management experience, number of founders, prior self-employment, family history, social/ethnic marginality, functional skills, training, age, prior business failure, prior sector experience, prior firm size experience, and gender. The strategy component encompasses fourteen elements: workforce training, management training, external equity, technological sophistication, market positioning, market adjustments, planning, new products, management recruitment, state support, customer concentration, competition, information and advice, and exporting. And the firm component is restricted to six elements: firm age, sector, location, legal form, size, and ownership.

Indeed, this is a comprehensive list of variables, and instead of a theoretical framework it may be more appropriate to speak of a heuristic perspective. Checking the empirical evidence with respect to these variables (based on about twenty-five studies published between 1982 and 1994), Storey (1994: 137–54) comes to the following conclusions: The impact of individual resources of the entrepreneur is limited; reported effects of the corresponding variables are “extremely fuzzy.” Of the fourteen strategy elements, only four seem to be important influences on growth, namely, external equity, market positioning, new product introduction, and management recruitment. Firm-specific characteristics are more consistent and definitive predictors of growth than those related to the background and resources of the entrepreneur; younger firms grow more rapidly, there are sectoral differences, and “the most complex results relate to the impact of size.”

Applying this framework to our empirical analyses, we used Storey’s list as a starting point. However, since “environment” figures prominently in some approaches that are relevant for our research topic—organizational ecology (e.g., Freeman and Hannan 1983) and industrial economics (e.g., Audretsch 1995)—we will add a fourth variable group “environmental conditions”—location and sector. Some of Storey’s variables are not included in our analyses because they cannot be observed at the time of founding and/or because

we did not have any measures of them in our study. More details about our variable list will be given at the beginning of the section presenting our results about factors influencing rapid growth.

2. Data and Definition of Rapid Growth

Empirical Data

The data we use are part of the Munich Founder Study. In spring 1990, interviews were conducted with a random sample of 1,849 business founders in the area of Munich and Upper Bavaria (West Germany).¹ The founders interviewed had registered for a new business in the two years 1985 and 1986 at the local Chamber of Commerce. The Chamber of Commerce registration system covers about 80 percent of all local business start-ups. The missing 20 percent are crafts, agricultural businesses, physicians, architects, and lawyers, which are not administered by the Chamber of Commerce and are thus not included in the data.

Based on the total set of 28,646 Chamber of Commerce registrations in 1985–86 in Munich and Upper Bavaria, a stratified random sample of about 6,000 businesses was drawn. Besides a size indicator (differentiating between small tradesmen and incorporated businesses) and a rough type of industry measure (differentiating between manufacturing/construction, wholesale/retail trade, and businesses in the service sector), the main stratification criterion was whether, according to the registration data at the end of 1989, the firms were still in existence or not. Deregistered firms were overrepresented in the sample because we expected that the response rate would be lower in this group. In reporting descriptive results in our empirical analyses (univariate statistics and cross tabulations), we will use the reweighted data set (weighting accounts for sample stratification, which was based on information contained in the official registration data). In the case of multivariate analyses, however, we use the unweighted data, because there is no consensus in the statistical literature about whether weighting actually pays off in multivariate modeling.

In the first step of our study, we had to update the addresses of the 6,000 founders of the sample. The addresses provided to us by the Chamber of Commerce were those of 1985–86, when the founders had registered for their businesses. Of the 6,000 sample addresses, 600 could not be updated. The next step concerned the problem of motivating the founders to participate in the study. As already mentioned above, 1,849 interviews were ultimately conducted. Based on the 6,000 addresses of the original sample, this is a response rate of 31 percent—at first glance a moderate result. However, not all busi-

ness registrations are “real businesses.” For nearly 20 percent of our 5,400 updated addresses, we observed that there was no economic activity at all, and thus these “businesses” were excluded from our interviews. With 1,849 interviews out of 4,320 addresses, the response rate is 43 percent, which is relatively high compared to other studies of German business firms. Moreover, several other types of business had to be excluded (long distance migrants, newly registered firms that did not qualify as “new” businesses, etc.). Fully in accordance with Kirchhoff’s argument (described above), we found that the registration data include a lot of “excess material.”²

Of the 1,849 founders successfully interviewed, 139 had to be eliminated because the founders declared that their firms were started before 1985 or after 1986. Of the remaining 1,710 firms, 32 percent stated that they had given up their businesses by the date of the survey in the first months of 1990 (on average this was four years after founding). The exit rate in the registration data is about 11 percentage points higher. Again, this confirms Kirchhoff’s argument that registration data overestimate the number of firms exiting.

The question program of our interviews was very broad and required an average interview-time of nearly one hour. Basically, the first part of the interview concerned start-up characteristics of the firm and its development over time, the second part dealt with the individual attributes and activities of the founding persons (for more details on the Munich Founder Study, see Brüderl et al. 1996).

Because we are interested in the employment effects and growth potential of a cohort of new firms, we will not use our complete sample of 1,710 firms. Seventy-five percent of these businesses are real newcomer firms, that is, businesses established by their founders from scratch; 25 percent are follower firms, that is, businesses that are new in a legal sense, but that follow in the footsteps of a previously existing firm. In a follower firm, the founder enters a business that was already in operation, making it difficult to determine whether there is any job creation (the founder may even abolish some jobs). To circumvent the problem with follower firms, we confine all our analyses to the firms created *de novo*, which reduces the number of cases to 1,291.

Defining Fast-Growing Businesses

The founders of our study were asked to report the average number of employees for every year the firm was in existence. This number included the founder if he or she worked in the firm. Part-time employees were taken into account as a fraction of one (e.g., two employees, each working twenty hours per week, were counted as one job). These retrospective employment data are the basis for the construction of our dependent variable.

But how exactly can we and how should we define “rapid growth”? Our observation period was roughly four years—firms that did not survive this time span cannot be qualified as successful growers. As a basic prerequisite, we demanded that the firm must have been alive at least forty-eight months; 66 percent of our 1,291 newcomers met this survival criterion (857 firms). At first glance, an appropriate procedure for specifying rapid growth seems to be a relative definition using the employment growth rate for each firm. These growth rates (calculated by referring to the number of employees in 1985 and 1989 for the firms starting in 1985, and to the number of employees in 1986 and 1990 for the firms starting in 1986) varied in our sample of surviving newcomers between –83 percent and +6,900 percent. Based on the univariate distribution, we decided on a cutoff point of +100 percent or more, that is, at least a doubling of the number of employees within the first four years; 20.8 percent of our surviving newcomers fulfilled this criterion (178 firms).

The problem of a relative definition of growth comes from the fact that especially those firms beginning very small have a good chance to pass the 100 percent criterion. From a labor market perspective, however, it is reasonable to introduce, in addition, an absolute criterion, that is, the absolute number of jobs generated over time. Again, by inspecting the univariate distribution, we decided on a limit of at least 5.0 additional employees within the four year period. Thus, in order for a new firm with one job to classify as a fast grower, we require a 500 percent growth rate. For firms with five or more jobs we require at least 100 percent growth in four years.

Taking both growth criteria and the survival criterion together, there are 6.5 percent fast-growing businesses in our sample of surviving newcomers (56 firms); the figure is 4.3 percent for our sample of all newcomers. Fully in accordance with most previous research and with our expectation in the theory section, we thus note a first and important result: From a cohort of newly founded businesses, only a small fraction (about 4 percent) succeeds in expanding its number of employees rapidly; very few qualify as “fast flyers”; rapidly growing businesses are exceptional and rare events. The share of this tiny group of firms in the creation and maintenance of jobs over time will be the topic of the next section.

3. Descriptive Analysis of Employment Effects

This section will describe how many jobs our cohort of 1,291 newcomers originally created and what happened to these jobs over time. At the time of founding, our sample of newcomers generated 2,046 jobs in 1,291 firms. This is a mean of 1.6 jobs per firm. Sixty-five percent of all firms started with at most 1 full-time employee, 19 percent with more than 1–2 jobs, 8 percent with more

than 2–3 jobs, 5 percent with more than 3–5 jobs, and only 3 percent began with more than 5 full-time jobs. The three largest firms had 27, 35, and 90 employees. This distribution confirms the well-known empirical regularity that new firms typically start out small.

Four years later, we find 2,478 jobs in the remaining 857 firms. The average firm size now reaches 2.9 jobs. 50 percent of the survivors have 1 or less full-time employee, 21 percent more than 1–2 jobs, 9 percent more than 2–3 jobs, 8 percent more than 3–5 jobs, and 12 percent have an employment level of more than 5 workers. The three largest firms employ 75, 80, and 90 people (the start-up with 90 employees did not change size). So, despite many failures, there is a surplus of 432 jobs, a growth in the job supply of 21 percent. Evidently, job losses via closings and contractions were more than compensated by job gains via expansions.

What does this mean for the Upper Bavarian labor market? To answer this question, we extend these figures to the complete set of newcomer firms in our region. Between 1985 and 1990, the firms covered by the Chamber of Commerce in Upper Bavaria employed about 800,000 people per year. If we use our sampling weights to project the number of jobs created by all newcomers per year, we obtain a number of about 16,000. This means that new firms generated an additional 2 percent of jobs each year during the second half of the 1980s. This does not seem to be very much. It must be noted, however, that the number of jobs created by a newcomer cohort expands over the years and that these 2 percent are added each year.

In order to obtain more detailed insight into the pattern of job creation, we classified the 1,291 newcomers into five groups: failures, contractors, stayers, slow growers, and fast growers. Failures are the firms that did not pass our survival criterion; contractors reduced their number of employees within the first four years; stayers had no change in their employment level; and slow growers were firms that expanded their number of employees but did not qualify as fast growing businesses according to the above definition. The distribution of newcomers over these five groups and each group's contribution to the total job supply at the time of founding and four years later are shown in Figure 1.

Besides the failure rate of 34 percent, it seems worth mentioning that for newcomer businesses contraction is as rare as fast growth: only 8.1 percent of the survivors contract. Evidently, small-scale start-ups do not have a large potential to shrink; it is only a short step to the zero threshold. The largest of our five groups are the stayers. They constitute 40 percent of all firms and 60 percent of the survivors. Having already noted that new firms typically start small, we can now add that they tend to remain small.

Looking at the job flows in Figure 1, we can see that a quarter of the origi-

Figure 1. Employment Effects of a Cohort of Newcomer Firms

At time of founding	Number of jobs	Number of firms	Number of jobs	Four years later
2,046 jobs in 1,291 firms	519	434 failures	0	2,478 jobs in 857 firms
	186	69 contractors	103	
	726	514 stayers	726	
	432	217 slow growers	789	
	182	56 fast growers	860	

Source: Munich Founder Study, 1990; and authors' computations.

nally created jobs will be lost due to failure within four years. The share of the stayers decreases from 35 percent at the time of founding to 29 percent four years later. The slow growers increase their share from 21 percent to 32 percent. The main “engine” of additional jobs, however, is the scanty group of our 56 fast growers. Starting with a proportion of 9 percent of all jobs, they increase their jobs from 182 to 860, thus reaching a proportion of 35 percent after four years. This finding for the fast growers is in line with Storey’s proposition as well as with our expectation that the “flyers” are responsible for the majority of jobs that will be generated by a cohort of newcomer firms. Certainly, they have not yet reached a proportion of 50 percent, but it seems that they might reach it in the six years still left. We can therefore conclude that to the extent new firms create additional jobs (which they actually do in our sample), the main contribution comes from the fast growing businesses.

4. Factors Influencing Rapid Growth

Variable Description and Expected Effects

As already mentioned in the theory section, we differentiate four groups of factors that will be investigated as possible influences on rapid growth: founder characteristics, business strategies, firm characteristics, and environmental conditions. This section introduces the variables considered and provides information about the effects we expect (see Table 1 [pp. 58–59] for the distributions).

Founder characteristics. Gender and nationality of the founder are the two demographic attributes we include. The other five individual variables, education, work experience, industry-specific experience, self-employment experience, and management experience can be seen as general and specific human capital resources of the founder. Our measure of education refers to

years of schooling, including general education as well as occupational training; its mean is 13.3 years. Work experience at founding is also measured in years. Based on the complete career history of the founders, all episodes within the labor market have been added up; episodes like unemployment, military service, household work, and the like do not count as work experience. The mean of this variable is 13.4 years. Industry-specific experience, self-employment experience, and management experience are dummy variables indicating whether the founder had prior experience in the new firm's industry, prior self-employment stints, and prior experience in supervising employees.

Based on human capital theory (Becker 1975) and on the results of empirical studies employing this theory in the context of the survival and growth of new firms in general (Bates 1985, 1990; Preisendörfer and Voss 1990; Brüderl et al. 1992), we expected that firms of founders endowed with more human capital initiate businesses having a higher probability of belonging to the group of fast growers.

Business strategies. The founders were asked a series of questions regarding their business strategies at the time of founding. We will differentiate these strategies along four dimensions: generalist versus specialist, traditional versus innovative, local market-scope versus national market-scope, and income substitution versus profit seeking. These dichotomous strategy variables represent the subjective assessments of the founders. Generalist businesses have a wide array of products or services aimed at a broad range of customers, whereas specialist businesses concentrate on special products and selected groups of customers. Imitators offer conventional products, but 33 percent of the founders declare that their firms provide new and innovative products or services. Local market-scope businesses confine their activities to the local market, but 44 percent try to reach the national or international market. With respect to their ambitions, 66 percent of the founders can be qualified as income substitutors because their main intention was to earn a sufficient income, whereas the rest explicitly state that they started a business to make money and profits.

Following Storey's list, we include three additional variables in our strategy component: whether the new firm is operated on a full-time or part-time basis, planning, and state support. Full-time is a dummy variable, and 53 percent of our founders were engaged full-time in their new firm. Planning and preparation activities of the founders were captured in our interviews on two separate item lists. The first list explored nine different sources of advice (e.g., from financial institutions, lawyers, tax advisers, etc.); the second list pertains to five special preparation and information activities (e.g., participation in entrepreneurial training courses, observation of the market, etc.). Of these

Table 1

Factors Influencing Rapid Growth: Bivariate Crosstabulations

Variable	Fast grower (%)	Total (%)	Variable	Fast grower (%)	Total (%)
<i>All firms</i>	4.3	N = 1,291	<i>Business strategies</i>		
<i>Founder characteristics</i>			Specialist strategy		
Gender*			Generalist	4.1	46
Female	1.4	32	Specialist	4.6	54
Male	5.7	68	Innovative strategy*		
Nationality			Traditional	2.2	67
Non-German	7.3	11	Innovative	9.2	33
German	4.0	89	National market scope strategy*		
Years of schooling*			Local	3.1	56
Less than 12 years	3.3	45	National	6.0	44
12 up to less than 15	2.8	26			
15 years or more	7.4	29	Profit seeking strategy*		
Years of work experience			Income substitution	3.4	66
Less than 10 years	3.3	41	Profit seeking	6.3	34
10 up to less than 20	6.0	32			
20 years or more	3.8	27	Full-time business*		
Industry specific experience*			Part-time	1.2	41
No	2.6	47	Full-time	6.5	59
Yes	5.8	53	Planning activities*		
Self-employment experience*			Low (less than 2 activities)	2.1	30
No	3.2	74	Medium (2-4 activities)	3.9	43
Yes	7.7	26	High (more than 4 activities)	7.8	27

Management experience*					
No	2.7	49	State support*	4.0	98
Yes	6.0	51	No	19.7	2
			Yes		
Firm characteristics			Environmental conditions		
Amount of capital invested*			Regional location		
Less than 10,000 DM	0.4	50	Munich city	3.7	52
10,000–49,000 DM	3.9	24	Munich periphery	6.4	25
50,000 DM or more	12.2	26	Upper Bavaria	3.6	23
No. of employees at founding*			Market competition		
1 or less	1.1	65	below average	4.4	53
1–1.9	4.9	19	above average	4.3	47
2–2.9	11.1	9			
More than 3	24.3	7			
Legal form*			Market concentration		
Small tradesman	1.5	82	below average	4.6	52
Incorporated firm	17.6	18	above average	4.1	48
Partnership business*			Market dynamics		
No partner	2.4	80	below average	5.3	28
1 or more partners	12.0	20	above average	3.9	72
Independent business*			Price competition		
Affiliated	1.3	10	below average	4.4	58
Independent	4.7	90	above average	4.2	42
			Quality competition		
			below average	3.7	33
			above average	4.7	67

Source: Munich Founder Study, 1990; and authors' computations.

*Difference between subgroups is statistically significant at the 5 percent level. Some variables have missing values.

fourteen dichotomous items, we constructed an additive planning index ranging from 0 to 14. The mean of this index is 3.1. State support refers to information on whether the founder had received money in the form of credits from public self-employment programs. Only 2 percent (30 firms) of our sample succeeded in getting state support!

Based primarily on the results of previous research, there are clear expectations about the effects of some of these strategy variables. Innovation figures most prominently. We would expect that an innovative strategy, though not being a necessary condition of success, at least increases the probability of rapid growth. The same should be true for profit-seeking firms (as compared to income substitutors); this variable can be seen as a proxy for the growth intention of the founder, which plays a prominent role in personality-based approaches (as described above). The careful planning of the new firm also suggests a more ambitious and goal-directed behavior, and thus may be a factor that improves chances for growth. The German system of public support to newcomer firms tends toward a selection of "good risks" (Brüderl et al. 1996), and there are plausible reasons to assume that the growth potential of a new firm influences the decisions of those institutions responsible for granting public money.

Firm characteristics. The firm characteristics we include pertain mainly to different aspects of the initial size of a business. The firm's financial capacity is determined based on the amount of money invested in the business. The mean start-up capital is 69,000 DM, and the median 8,000 DM. Obviously, this variable shows an extremely skewed distribution, and, therefore, in our multivariate models we will use its natural logarithm. The most direct indicator of the initial size of a business is its number of employees in the start-up year. Our third measure, legal form, distinguishes between small tradesmen (*Kleingewerbetreibende*), and incorporated firms (*Handelsregisterfirmen*). Small tradesmen are mostly small businesses. If a business meets certain industry-specific size criteria for large businesses (defined by German law), it must register with both the local Chamber of Commerce and the commercial register. All limited liability commercial partnerships (GmbH) must register with the commercial register, and thus belong to the group of incorporated businesses.

Associated with size and legal form is whether the firm started as a partnership. Eighty percent of our newcomers were initiated by a single founding person, and 20 percent were started by a team of two or more founders. Our final firm characteristic refers to information about whether the new firm was set up as an independent or an affiliated business. Independent businesses have no strong link to an existing firm, whereas affiliated businesses have a strong link (mostly by franchise).

Concerning the effects of start-up size, there are two divergent empirical regularities. On the one hand, the well-known “liability of smallness” (Freeman et al. 1983; Aldrich and Auster 1986; Brüderl et al. 1992) predicts that larger foundings have better survival prospects, and thus size should be an advantage. On the other hand, previous research on organizational growth tends to show that larger firms grow more slowly (Evans 1987; Dunne et al. 1989; Wagner 1992; Almus and Nerlinger 1999). This finding, however, is usually based on samples of surviving units and on analyses of growth rates, that is, on a relative definition of growth. Because our analyses include surviving and nonsurviving units and because our definition of rapid growth accentuates absolute growth, we generally would expect positive effects of initial size.

Our human capital indicators measure only the human capital of the (main) founder. This neglects the fact that partners may bring additional human capital into a firm. Therefore, we would expect that partnership businesses have a higher probability of rapid growth. Affiliated firms might be restricted in their strategic choices, because the “mother” firm mostly standardizes the operation of its subsidiaries (Ingram and Baum 1997). Therefore, we would expect a lower probability of fast growth for affiliated firms.

Environmental conditions. First, we take into account the regional location of the new businesses. Based on the fact that Munich is the economic center of Upper Bavaria, we differentiate three locations: Munich city, Munich periphery, and remaining Upper Bavaria. Conventional wisdom would assume that a location in the periphery of a large city offers the best chances for an organizational expansion.

Second, we try to control for the type of market in which the new firm is founded. We distinguish five dimensions: competition, concentration, dynamics of the market, the importance of price competition, and the importance of quality competition. On a five-point scale, the founders gave us their subjective assessment of these five dimensions concerning the market in which they operated. To increase the reliability of these measures, we do not use the individual founders’ statements, but aggregate them to the industry level. For this, we distinguished forty-six industries and calculated the mean over all founders who operate in each industry (using standardized values). Thus, we have a measure of these five market conditions for forty-six industries. A value of -1 , for instance, means that this industry is one standard deviation below the average for this dimension.

Highly competitive and concentrated markets are presumed to be a bad environment for newly established firms, because they operate primarily on a suboptimal scale (see Audretsch 1995), which makes it difficult for them to compete with larger, established firms. Contrary to this, when market condi-

tions change rapidly, new firms are assumed to have an advantage because they are more flexible and can therefore react more quickly to new opportunities. Thus, in highly dynamic markets we would expect a greater number of fast growers. For similar reasons, new firms are expected to be more successful in markets where quality competition instead of price competition dominates. While their suboptimal scale makes it difficult to succeed in price competition, they might have an advantage in markets where the quality of products and services determines success.

Bivariate Results

The bivariate results in Table 1 show the total effects of these factors on the probability of rapid growth. Most of the expectations that we derived from theory and/or previous research are supported at the bivariate level. Male founders, founders with a high level of schooling, and founders with industry-specific, self-employment, and management experience have a higher probability of initiating a fast growing business. Contrary to our expectation, however, non-German founders do not have a disadvantage; their firms are even slightly more dynamic. With respect to work experience, Table 1 suggests a nonlinear pattern; the percentage of fast growing businesses is highest for middle-aged founders (i.e., with ten to twenty years of work experience).

Fully in accordance with our predictions, an innovative strategy drastically increases the proportion of fast growth. Nevertheless, innovation is not a necessary condition for success, as is demonstrated by the 2.2 percent fast growers with a traditional strategy. Persons who founded a business with profit ambitions also show a higher probability of fast growth. The same is true for full-time and well-planned firms. State-supported firms truly seem to be a very select group: 19.7 percent of them show rapid growth. Only the specialist-generalist dichotomy does not make a difference.

The effects of the firm characteristics are also strong. All four measures of start-up size (amount of capital invested, number of employees at the time of founding, legal form, and partnership foundings) indicate that larger foundings have much better chances of belonging to the group of fast flyers. Finally, as expected, an affiliation to an existing firm (as compared to independent foundings) seems to restrict the growth potential of a newcomer business.

Surprisingly, environmental conditions show the weakest effects. The differences in the six variables are not significant, but we see the following tendencies. Firms located in the periphery of Munich seem to have certain advantages with respect to their potential for growth. As expected, in markets with below average concentration and above average quality competition we

find a greater number of fast growers. However, contrary to our expectations, we find more fast growers in stable markets.

Of the twenty-five covariates, sixteen group differences are statistically significant in our bivariate cross tabulations of Table 1. Based solely on this type of analysis, we might be inclined to conclude that it is possible to draw a fairly accurate picture of the profile of fast growing businesses. But conclusions drawn on such bivariate findings may be premature and misleading because we know that firm characteristics are usually highly correlated (Storey 1994: 125). Therefore, the next step is to use multivariate methods.

Multivariate Results

To estimate the direct effects of our set of covariates on the probability of rapid growth, we can use a binomial logistic regression model because our dependent variable is a 0/1-dummy. The logit effects are given in Table 2. We present four models that introduce in a stepwise fashion our four variable groups. Model 1 primarily repeats the bivariate results concerning the founder's characteristics. The firms of male founders show rapid growth more often, and founders with more human capital also have fast growing firms more often. Only prior self-employment experience loses its effect, because those founders have more schooling, industry-specific, and management experience (this can be seen from the bivariate correlations, not shown). Adding the business strategies in model 2 shows that innovative firms, full-time businesses, and firms with state support have a higher probability of rapid growth. However, national market-scope, profit seeking, and planning no longer have a direct effect on rapid growth. The effect of "male founder" now also vanishes, because female founders have innovative and full-time businesses less often. The gender effect, observed in the bivariate analyses, is thus mainly due to the different strategies chosen by male and female founders. Finally, the effect of industry-specific experience decreases, primarily because these founders more often establish a full-time business.

In model 3 we add the firm characteristics. The size indicators, especially number of employees and legal form, have strong effects. Larger firms show rapid growth more often. The addition of these size indicators has the dramatic consequence that most other effects decrease and become insignificant. Only the effect of an innovative strategy is still significant. Obviously, full-time founders with more human capital and state support start with bigger firms. Finally, in model 4, we add the environmental variables. Contrary to the bivariate results, this improves the model significantly (the CHI^2 -change is 16.2 with 7 degrees of freedom). Firms in the Munich periphery show more often rapid growth. In addition, high market concentration decreases the prob-

Table 2

Factors Influencing Rapid Growth—Logistic Regression Models (N=1185)

Variable	Model (1)		Model (2)		Model (3)		Model (4)	
	logit-coeff.	t-value	logit-coeff.	t-value	logit-coeff.	t-value	logit-coeff.	t-value
Constant	-5.322		-6.856		-6.775		-7.212	
<i>Founder characteristics</i>								
Male founder	1.253*	2.63	.947	1.94	.894	1.76	.969	1.88
German founder	-.568	1.70	-.556	1.58	-.503	1.32	-.701	1.74
Years of schooling	.126*	3.17	.101*	2.37	.069	1.50	.061	1.27
Years of work experience	-.009	.69	-.010	.73	-.023	1.48	-.027	1.69
Industry-specific experience	.771*	2.61	.393	1.26	.225	.68	.218	.64
Self-employment experience	.413	1.69	.487	1.89	.106	.39	.096	.34
Management experience	.794*	2.75	.739*	2.46	.596	1.86	.719*	2.16
<i>Business strategies</i>								
Specialist strategy			-.043	.16	-.059	.21	-.067	.24
Innovative strategy			.993*	3.59	.908*	3.19	.892*	3.02
National market-scope strategy			-.009	.03	-.170	.60	-.235	.79
Profit seeking strategy			.206	.81	-.196	.72	-.173	.62
Full-time business			1.387*	3.47	.565	1.33	.726	1.66
Planning activities			.091	1.87	.033	.64	.015	.27
State support			1.200*	2.79	.677	1.44	.598	1.23

<i>Firm characteristics</i>				
Amount of capital invested (ln)	.092	1.60	.097	1.68
Number of employees at founding (ln)	.508*	2.94	.555*	3.09
Incorporated firm	1.347*	3.57	1.425*	3.69
Partnership business	.100	.36	.220	.75
Independent business	.976	1.50	.807	1.24
<i>Environmental conditions</i>				
Munich periphery			.758*	2.35
Upper Bavaria			.438	1.20
Market competition			-1.308	1.71
Market concentration			-1.264*	2.00
Market dynamics			.237	.35
Price competition			-.501	.84
Quality competition			-.881	1.17
-2 Log-likelihood	541.6	485.1	412.9	
Pseudo R ²	0.115	0.207	0.325	

Source: Munich Founder Study, 1990; and authors' own computations.

*Statistically significant at 5 percent level. Reference groups: see Table 1.

ability of fast growth. With the exception of quality competition, the signs of the other market conditions are also in accordance with our hypotheses.

Overall, the most striking result of model 4 is that only six covariates show significant influences on the probability of rapid growth. Founders with management experience, businesses starting with more employees, having the legal form of an incorporated firm, following an innovative strategy, being located in the periphery of Munich, and in less-concentrated markets more often advance to fast flying businesses. Given these effects, it is surprising that our measure of the fit of the model, pseudo R^2 , reaches a value of 32.5 percent. An inspection of the prediction table reveals that the model makes a correct prediction for only 18 percent of the fast growers; but we have 99.4 percent correct predictions for the non-fast growers. If we simply predict that all firms (included in the model) are non-fast growers, we make an error for 7.2 percent (the percentage of fast growers in the unweighted data) of all cases. Using the model, the error is 6.5 percent, undoubtedly a very small reduction.

5. Discussion and Conclusion

With respect to the employment effects of newly established firms, we found that over a time period of four years, about one-quarter of the jobs of our cohort were lost because of firm closure; job losses because of organizational contractions did not play an important role; and expansions of the surviving firms more than compensated for both reductions. The total job supply in the fourth year was about 20 percent higher than in the first year. Of course, these findings cannot be automatically generalized to other cohorts and other locations. Such elementary figures nevertheless seem to be helpful in characterizing regional labor markets. As is always the case, we would like to have comparable studies of other regions to separate general patterns from local peculiarities. Besides the time and space restriction, there is a second, theoretically even more troublesome restriction of our results. What we have investigated may be called direct employment effects. Our type of data prevented an analysis of indirect employment effects, which may be negative or positive. An analysis of indirect employment effects would enable us to deal with questions such as: What happened to the jobs that the founders and their employees had left (if they had any prior jobs)? Are there crowding-out effects resulting from job losses in ongoing firms engendered by the existence of the new businesses? Did the demand of the new firms and/or the additional income of their employees contribute to additional jobs in other firms? Answers to such questions are extremely difficult, but we are well aware that the debate about job generation by new firms must necessarily move in this direction.

Taking into account the results of other empirical studies, we are confident

in saying that the crucial mechanism of job generation lies in a small number of fast growing businesses. These businesses—constituting about 4 percent of our sample—rapidly expand their number of employees, compensate for job losses of firms that fail and contract, and outperform the stayers and slow growers. Shifting research interest to this group of fast flyers, to their start-up characteristics, their strategies, and their internal functioning, can help us to overcome mere aggregate, macro-analyses of job flows, and it may prevent us from accepting the “born to die” image, which is so often cultivated in small business research, too early. In order to do this, researchers should concentrate their efforts on studying cohorts of newly founded firms, either retrospectively, as we did, or, even better, prospectively. An alternative (easier) strategy for such fast-flyer research could be an *ex post* selection of successful newcomers in connection with detailed analyses of their start-up conditions and their structural changes over time. Despite the lack of a control group, this might be a worthwhile endeavor because our knowledge about “dynamic capitalists” is so meager. However, the final aim of theory-guided work should be better prediction models of fast growing businesses. Besides theory, many actors in the field (entrepreneurs, private, and public credit institutions, etc.) are interested in such models.

Our results concerning a relatively broad set of possible influences on rapid growth do not offer a straightforward interpretation. On the one hand, the findings suggest that the probability of becoming a fast growing business is not simply a random event. On the other hand, the predictive power of our models proved to be poor. The observed profile of a fast growing business suggests some founder characteristics (mainly human capital resources), firm characteristics (mainly start-up size measures), and business strategies (mainly innovation).

Ex post, it may not be surprising that the strongest predictors are size and innovation. However, concerning size, this result can clarify an important point. The prevailing result is that larger newcomers have lower growth rates. This can also be seen in our data. If we define fast growers simply as those firms that managed to double their number of employees, then larger firms have a lower probability of rapid growth (the results can be found in the long version of this article). From this one might conclude that the true dynamic capitalists are the small newcomers. This, however, neglects the fact that these small high-growth firms do not generate many jobs. According to our results, this is done mainly by the large newcomers. Nevertheless, one could still argue that this is only true in the short run (the first few years after entry). In the long run, the jobs will be in the very small high-growth companies. We cannot confirm this point with our data due to its short observation period.

That an innovative idea improves the chances for rapid growth may also

appear trivial, but it surely cannot be expected that this variable “survives” all multivariate controls of founder characteristics, size, and so forth. Thus, there remains a direct effect of innovation. Nevertheless, one should mention that innovation is not a necessary condition for fast growth. Our bivariate results demonstrated that there were also some fast growers that followed a more traditional strategy.

The direct effects of human capital were not very strong. However, it certainly matters, given the strong indirect effects. Founders with more human capital experience fast growth more often because they follow growth-oriented market strategies and establish larger firms. An exception is the negative effect of work experience (actually this effect is \cap -shaped). Older founders with more experience show rapid growth less often. This contrasts with the finding that these firms have a higher probability of survival, as human capital theory would predict (see Brüderl et al. 1996). The reason might be that older founders, though well equipped with labor market experience, are more often income substitutors.

A surprising result was the relatively minor role played by market conditions. This contradicts the often-heard wisdom that the type of founding market is decisive for the success of a new firm. However, we find that irrespective of the competitiveness or concentration of a market, new firms grow faster if they offer an innovative product. Adherents of environmental views might object that our analysis investigated only the main effects. What matters, however, is the fit between environments and strategies (e.g., Freeman and Hannan 1983; Audretsch 1995). Therefore, one would need to examine the interaction effects between market conditions and business strategies. We leave this to future work.

Finally, we must mention a shortcoming of our data: they are limited to an observation period of only four years. Given the often-observed unsteadiness of business growth, this might be too short a period. In addition, it might be that many of our fast growers simply increase their personnel to reach the size they planned to have. “True” fast growers, however, grow because their products or services meet an unforeseen demand. Ten years or so would certainly allow more valid conclusions about the specific definition of a dynamic capitalist. In this regard, our study is only a beginning.

Notes

1. With Munich as its capital city, Upper Bavaria is the largest of seven administrative districts of Bavaria. About 3.8 million people live in Upper Bavaria, and about 60 percent of them are located in the metropolitan area of Munich. Compared to other West German regions, Upper Bavaria is a relatively prosperous region. Its gross domestic product is above the national average, the unemployment rate is below average, and many new firms prefer to settle in this region.

2. The 20 percent of “stillborn” businesses occur for several reasons. Registrations for tax reasons constitute the majority of these (usually short-lived) businesses. Some people intend to use their registration card to purchase goods at wholesale prices. Finally, because there are few barriers to registration, some people register without any concrete idea of how to set up a new business.

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