



# JENA ECONOMIC RESEARCH PAPERS



# 2009 – 092

## **Socioeconomic heritage and rapid firm growth**

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[www.jenecon.de](http://www.jenecon.de)

ISSN 1864-7057

The JENA ECONOMIC RESEARCH PAPERS is a joint publication of the Friedrich Schiller University and the Max Planck Institute of Economics, Jena, Germany. For editorial correspondence please contact [markus.pasche@uni-jena.de](mailto:markus.pasche@uni-jena.de).

Impressum:

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## **Socioeconomic heritage and rapid firm growth<sup>1</sup>**

**Abstract:** The present paper sheds light on how growth of young firms is affected by expansive strategies and the socioeconomic heritage of their main actors. “Socioeconomic heritage” has to do with socialization, prior socioeconomic circumstances, and regional growth conditions; the term is elaborated upon and further defined in this study. The empirical analysis is carried out both for West Germany – a mature market economy – and for East Germany, which operated under a centrally planned economy until German reunification in 1990. The main finding of the paper is that the involvement of West Germans in East German start-ups has a favourable effect on these firms’ chances to grow rapidly. This effect is attributed to the fact that West Germans are more likely to possess person-related and situation-related factors necessary for growing a business in a market economy. The results are more ambiguous as to the influence of expansive strategies on fast growth.

**Keywords:** Entrepreneurship; Rapid firm growth; Strategy; Management; West Germany; East Germany

**JEL Classifications:** L26; M13; O1; O18; P25

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<sup>1</sup> I am indebted to Michael Fritsch and Florian Noseleit for helpful comments and suggestions. The empirical part of the present paper was carried out by me during a stay at the Institute for Employment Research (IAB) in the summer of 2007. Therefore, I want to thank Lutz Bellmann and the colleagues of the research unit “Establishments and Employment” for their support during this stay.

## 1 Introduction

The characteristics of fast-growing firms are a subject of great scientific interest recently (for an overview, see Henrekson and Johansson, 2008), because these so-called “gazelles” turn out to be conducive for regional development (Acs and Mueller, 2008). Thus, high-growth firms are also on top of the agenda of policy-makers (Smallbone et al., 2002; Fischer and Reuber, 2003).

Several researchers surveyed diverse approaches related to the growth of newly founded firms and firm growth in general (see, e.g., You, 1995; Coad, 2007). Hart (2000) summarizes the different approaches. He discusses the neoclassical approach, models dealing with the role of scale economies and the minimum efficient size, models of imperfect competition, evolutionary approaches, and life-cycle models. Altogether, in the literature, it is generally agreed that the determinants of rapid growth can be divided into three types: (1) external factors, (2) internal factors, and (3) strategy (Storey, 1994). This paper focuses especially on the role of strategy.

Strategic decision making in young and small firms is different from that process in larger organizations (Busenitz and Barney, 1997). The type of strategy employed by young firms is heavily influenced by the psychological makeup of the entrepreneur who started the venture. In this paper, an entrepreneur is defined as a “person or a very small group of persons which is in control and which shapes the firm and its future” (Wennekers and Thurik, 1999).

However, a firms’ success may not be entirely dependent on the individual characteristics of the entrepreneur. According to the network approach to entrepreneurship, social context plays an important role in the success of a venture (Aldrich and Zimmer, 1986). Thus, in this paper, an analysis of strategies related to growth ambition and attitude with an investigation of the social context within which the entrepreneur is embedded is combined.

It is hypothesized that the economic system within which a person is socialized will have an impact on that person's probability of running a new business successfully. More specifically, it seems entirely likely that there will be a difference between an entrepreneur who grew up in a market economy and one who grew up in a planned economy. Germany is the perfect environment within which to test this idea. At the time of German reunification in 1990, West Germany, the Federal Republic of Germany (FRG), was already an established market economy, but East Germany, the former socialist German Democratic Republic (GDR), was at that time deeply marked by 40 years of central planning.

The GDR underwent a transition from a centrally planned to a market economy in the course of its unification with the FRG. Due to the decline of state-owned enterprises maintained under a communist regime, the role of entrepreneurs during transition was of crucial importance for industrial restructuring, employment creation, and increases in innovative capability and competition (Smallbone and Welter, 2001). The GDR's transition to a market economy is especially interesting because the unique event of reunification and the immediate adoption of a market economy in East Germany distinguishes it from other transition countries in Eastern Europe (Brezinski and Fritsch, 1995). The existence of different economic systems until 1990 in the two Germanys and the transition of the GDR resulted in different regional growth regimes in East and West Germany in the aftermath of reunification (Fritsch, 2004).

In short, West and East Germans have different social and economic backgrounds, or different "socioeconomic heritages", the term used in this paper. These differences are expected to have an effect on the ability to run a new business successfully and on the role of expansive business strategies.

The structure of the paper is as follows. First, a theoretical framework and the main hypotheses are presented (2). Then, the data are introduced (3), after which follows a discussion of the results (4). The paper concludes with a summary of the main findings (5).

## 2 Theoretical Framework

### 2.1 The role of socioeconomic heritage in Germany

For this study, the concept of socioeconomic heritage needs to be understood in the context of the historical background of the FRG and the GDR, but in principal the context applies on a general level. The FRG was integrated into the Western world after World War II, whereas the GDR was made part of the Eastern bloc. In 1990, the year of the German reunification, the former GDR adopted the Western-style market economy system, which was a radical transition and involved vast structural change.

In its final stages, the GDR suffered economic decline, had a much lower productivity than the FRG, and was burdened with an outmoded industrial structure (see, e.g., van Ark, 1995; Blum and Dudley, 2000). Since reunification economic convergence between West and East German regions has not yet been achieved and is, indeed, progressing very slowly (Kronthaler, 2005; Hall and Ludwig, 2006). It seems that 40 years of socialism are not so easily forgotten, and one of the results is a regional growth regime quite different from that prevailing in the western part of the country (Fritsch, 2004). The concept of regional growth regime encompasses region-specific factors such as “sticky” regional knowledge stock, regional industrial structures and the underlying technological regimes, and the density of economic activity (Audretsch and Fritsch, 2002; Fritsch, 2004).

To be more precise, the GDR had been isolated from knowledge flows of the Western world. Therefore, the stock of knowledge available in the East German economy was vastly different from that in West Germany at the time of reunification (Fritsch, 2004). The industrial mix in East Germany was shaped by the restructuring process that occurred in the early 1990s. This was a process characterised by a top-down transformation, the privatisation of state-owned enterprises, as well as by a bottom-up transformation, the emergence of new businesses (Brezinski and Fritsch, 1995). Many of the former state-owned enterprises were bought up by

West German companies. Frequently, these firms were then either closed or integrated into the West German companies as subsidiary plants, often referred to as “extended workshop benches” (Hall and Ludwig, 1995). Furthermore, many of the state-owned enterprises simply collapsed due to low productivity and competitiveness compared to West German enterprises. The restructuring process set free a lot of workforce that could not be absorbed by new business formation (Fritsch, 2004), even though there had been quite a remarkable spate of entrepreneurial activity in East Germany in the early 1990s (Welter, 2007). Both these trends – shrinking of old state-owned units and increased entrepreneurial activity – are typical of Eastern European countries that underwent transition (see, e.g., Smallbone and Welter, 2001). Altogether, East Germany experienced a sharp rise of unemployment in the course of industrial restructuring.

However, differences between West and East Germany are not restricted to the macro level, but also manifest in individual ability to cope with modes of exchange and production in a market economy. One example of this is the division of labour in the GDR, which was organized to a high degree *within* firms and private households rather than *between* them. Thus the average firm size was much bigger than in West Germany (Fritsch, 2004). Moreover, the GDR regime often directed investments in technology and capital, as well as labour inputs, towards priority sectors, while other parts of the economy had been neglected at the same time (Sleifer, 2006). Moreover, production normally took place in large vertically-integrated state-owned combines set up in accordance to the targets of the central planners (Bannasch, 1990). Private sector activities were mainly restricted to handicraft and retailing. Therefore Immediately after German reunification, the overall rate of self-employment in the former GDR was only about 2.2 percent in relation to the whole workforce (Pickel, 1992).

As a consequence, East Germans had only limited experience with or skill in running a firm. For example, the role model of parental success in self-employment, which is of crucial importance to the choice of it (Dunn and

Holtz-Eakin, 2000), simply did not exist for East Germans, and they could fall back only on a very limited family tradition of entrepreneurship (Utsch et al., 1999). Moreover, experiences with running a business *within the institutional framework of a market economy*, by definition, did not exist. Empirical studies show that more than half of the private firms of the GDR broke down in the early 1990s, due to problems to adapt (Thomas, 1996).

Complicating and worsening this lack of familiarity with entrepreneurship, was a certain rather negative mental attitude towards entrepreneurship due to anti-capitalist indoctrination and socialist idealism in the GDR (Lechner and Pfeiffer, 1993; Utsch et al., 1999). Starting a firm in East Germany immediately after reunification was often viewed as a “heroic task” (Thomas, 1996). Thus, one may think that East Germans have a lower ability to percept new business opportunities, because distinct cognitive properties, which originate from social interactions in the market, and experience-based understanding of user and customer needs are necessary to identify, value, and exploit such opportunities (Shane and Venkataraman, 2000; Levie and Autio, 2008). Differences regarding attitude to entrepreneurship and perception of opportunities are in line with the socialization hypothesis of post materialism. This hypothesis assumes that someones values reflect to a great extent the prevailing circumstances during ones formative years and was applied to entrepreneurship by Uhlaner and Thurik (2007).

By comparison with East Germans, West Germans are much better situated to be successful entrepreneurs and to access markets. As discussed above, most East Germans lacked the skill and experience necessary for running a business in a market economy. Moreover, East Germans usually have fewer financial resources for starting and growing a business due to lower saving rates during the GDR period, which is a typical characteristic of a planned economy (Fritsch, 2004).

The East Germans lack of network relations that can ease market access is a more serious handicap, and one not so easily overcome as the financial one, as constructing networks takes more time than accumulating

financial resources. This situation, too, is related to the transition process. The institutional framework of the market economy in East Germany did not evolve endogenously; rather, its introduction in the course of reunification was more in the nature of an exogenous shock (see, e.g., Hall and Ludwig, 1995; Brezinski and Fritsch, 1995). Due to the GDRs isolation behind the Iron Curtain, East Germans almost by definition were unable to build network relations within the institutions of West Germany until 1989. The GDR economy actually did have network ties and trade relationships with Eastern Europe and its markets, but these network ties weakened and the trade relationships collapsed in the early 1990s due to rising prices, which occurred in the course of the German currency union (Brezinski and Fritsch, 1995), and the increasing costs of production in East Germany due to hard bargaining by the unions (Sinn, 2002).

The differences between East and West Germans in experience, skills, attitude, financial resources, and network links clearly reflect their different socioeconomic heritages. Socioeconomic heritage is defined in the present study as a set of person-related factors learned through socialization in a specific economic system or affected by situation-related factors, like modes of exchange and production in these systems. Additionally, characteristics of specific regional growth regimes that are related to prior socioeconomic circumstances preserve this heritage. The idea of socioeconomic heritage is related to recent research that emphasizes the role of socialization for entrepreneurial issues (see, e.g., Uhlaner and Thurik, 2007). In the case of West and East Germany, the importance of socioeconomic heritage can be seen as rooted in the persistence of different regional growth regimes in both parts of the country (Fritsch, 2004). In the present study it is argued that this heritage explains the ability to make a firm growing. In a broader sense it may also help to explain the ability and likelihood to start a firm. Empirical findings reveal that entrepreneurial activities decline more sharply with increases in age in East European countries with a socialist legacy (Estrin and Mickiewicz, 2009). Obviously older individuals should contain a socioeconomic heritage stronger shaped by the socialist past. However,



starting a firm and growing it are two different things and should not be mixed up.<sup>2</sup>

From the discussion above, it is expected that West Germans are better equipped than East Germans to manage and handle growth processes. It is difficult to compare the ability of West German entrepreneurs in West Germany with the ability of East German entrepreneurs in East Germany due to the prevalence of two completely different growth regimes in both parts of the country. To detect whether there are differences with regard to performance one region needs to be chosen. In this paper it is investigated whether those East German firms where there is some involvement by Westerners have better chances to achieve high growth rates than East German firms where there is no such involvement. According to the line of argumentation above there should be an effect. Thus, the main hypothesis of the paper is:

*(H1) East German young and small firms in which West Germans are involved to a considerable degree have a higher probability to belong to the group of fast growing firms.*

An analysis of firm growth needs to take into account the ambition to grow a firm. The strategy employed by firms at least partially explains ambitions. Further on, socioeconomic heritage and strategy are interrelated, which is elaborated in more detail in the following section. In the context of the present study, the role of strategic variables is likely to differ in East and West Germany.

## **2.2 The role of strategy**

This section explores fruitful high growth strategies in the areas of technology and markets. The term strategy is employed broadly to include business practices that reflect growth aspirations. In the literature, strategy and business practices are each viewed as essential in explaining the growth of young and small businesses (for an overview, see, e.g., Storey,

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<sup>2</sup> The idea of an age relation is elaborated in more detail in another working paper in preparation.

1994; Chrisman et al., 1998; Barringer et al., 2005). According to Storey (1994), strategic factors having an impact on fast growth include training, market positioning, technological sophistication, state support, and exporting. Barringer et al. (2005) state that customer knowledge, product superiority, advanced technology, innovation, and research and development are key business practices that differentiate between rapid growth firms and slow growth firms. Chrisman et al. (1998) provide a detailed classification of strategy and business practices that considers planning and strategy formulation, goals and objectives, strategic direction, entry strategy, competitive weapons, segmentation, scope, investment strategy, and political strategy. In the present study the focus is on technology, state support, and exporting.

Advanced technology can be important in creating superior goods. Superior products and services in turn contribute to rapid growth, albeit somewhat indirectly, by easing market entry and providing a basis of differentiation (Barringer et al., 2005). It thus seems likely that a new venture can successfully challenge incumbents if it employs state-of-the-art production technology. The same should be true, although perhaps to a lesser extent initially, for a new venture that invests in itself to reach the technological frontier (Voulgaris et al., 2005).

However, producing at the technological frontier could mean more capital-intensive production (Bellmann et al., 2003). This type of strategy should become more pronounced in situations of state support, such as high availability of investment and capital subsidies.

Public subsidies can be a way of safeguarding growth because these programs may reduce transaction costs for the firms (Shane, 2002). It is also possible that, for instance, the provision of information and advice enhances the human capital of entrepreneurs (Fayolle, 2000; Delmar and Shane, 2003), which, in turn, might be conducive for high growth.

In East Germany, there is evidence that investment subsidies crowd out labour. Labour-saving production modes became profitable in the 1990s

due to massive capital subsidizing after German reunification (Snower and Merkl, 2006). Therefore, the impact of technology, as well as the influence of capital and investment subsidies, should be less important to high growth in terms of employment in East Germany at least in part because of the diminishing marginal utility of the subsidies. In contrast to capital subsidies, wage subsidies are expected to have a positive effect in both parts of the country simply because they are more often directly related to additional employment. Therefore, the following hypotheses emerge:

*(H2) Wage subsidies and investment have a positive effect on the probability to belong to the group of fast growing firms in both East and West Germany.*

*(H3a) The employing of state-of-the-art technology has a positive effect on the probability to belong to the group of fast growing firms in West Germany but is less important in East Germany.*

*(H3b) Capital and investment subsidies have a positive effect on the probability to belong to the group of fast growing firms in West Germany but are less important for that probability in East Germany.*

With respect to exporting, it is commonly believed that export-oriented firms have stronger growth aspirations and growth ambitions (Kolvereid and Bullvag, 1996; Wiklund and Shepherd, 2003). Small firms may see expansion abroad as a means of compensating for declining local markets and thus look for both growth and cost-reduction opportunities (Aharoni, 1966; Rabino, 1980). The ability to sell products and services abroad is at least to some extent dependent on their quality (Storey, 1994). Export-oriented firms are generally more productive, more innovative, and more efficient than non-exporting firms (Clerides et al., 1998; Kneller and Pisu, 2007). Moreover, exporting firms have access to new knowledge and technology (Yeoh, 2004), which can be used to develop to further enhance their value and skills (Zahra and George, 2002; Barkema and Vermeulen, 1998). Therefore, export-oriented firms should have better prospects for growth.

Socioeconomic heritage may play a role in a firm's export orientation. The former GDR was not only economically and politically integrated into the Eastern bloc (Fritsch, 2004), but its whole society, too. In short, the GDR's identity was formed to a large degree by prevailing norms and values of its alliance partners (Hogwood, 2000) and East Germans were mentally attuned and accustomed to relationships and networks within Eastern Europe.

The increased price of East German products in the aftermath of the German currency union, combined with hard bargaining on the part of unions, led to a severe decline of the trade volume of East German enterprises with its former communist trade partners (Fritsch, 2004). East Germans starting a business after reunification necessarily had to shift their focus to the West if they wanted to grow beyond the limited local market. According to Brixy and Kohaut (1999), in view of the peculiarities of the East German markets, it can be claimed that a start-up there can be thought of as having an export orientation if the start-up "exports" products and services to a considerable degree at least to West Germany. This illustrates the difficulty for East Germans to enter even the West German market.

Therefore, it is hypothesized that those East German firms that did manage to enter the Western European markets are very productive and competitive. Thus, it is expected that an export orientation should have a more pronounced effect on rapid growth in East Germany than it does in West Germany.

*(H4) Export orientation has a positive effect on the probability to belong to the group of fast growing firms and this effect is more pronounced in East Germany than in West Germany.*

### 3 Research design

#### 3.1 Sample

The databases used in this study are the IAB Establishment Panel (IABE) and the Establishment History Panel (EHP), provided by the Institute for Employment Research (IAB). The IABE collects data about general firm characteristics, employment structures, productivity, investment, business policy, education and further education, wage policy, industrial relations, and public support. The IABE has been conducted since 1993 for West Germany and since 1996 for East Germany, with the number of participating establishments increasing over time. The 2006 cross-section includes 9,856 West German and 5,593 East German establishments. The sample is stratified by 17 industries and 10 firm-size ranges and is extracted from the Establishment File of the German Social Insurance Statistics, which covers every German establishment having at least one employee subject to social insurance (Fischer et al., 2008).

A new venture was included in this analysis if it is an original, non-subsidary start-up and five years old. The age criterion was chosen because it generally takes a young firm four to six year to overcome the initial problems of surviving in the market (Acs and Mueller, 2008). Subsidiaries of large, already established firms have been removed from the sample because, obviously, they are not really start-ups.

To identify start-up dates, data from the EHP were used. This data source contains all establishments that employ or employed at least one person subject to social insurance on June 30 of a given year. Data are available for every year since 1975 (Spengler, 2007).

The year of start-up was taken from the questionnaire used in the IABE survey. If the year given in response to the questions was the same as the one in which the venture appeared for the first time in the EHP, the amount of employment in the alleged start-up year was taken from the EHP plus one. When the answer given to the IABE question was a year

before the first EHP appearance, the amount of employees subject to social insurance was set to one for the start-up year.<sup>3</sup> If the start-up employment exceeded 30 employees, the observations were excluded. Bigger start-ups are in general not original start-ups (Fritsch and Brixy, 2004). At the time this research was conducted, IABE data on the exogenous variables were available for the years 1996 to 2005. Thus, start-ups of the years 1991, being five years in the market in 1996, to 2000, being five years in the market in 2005, were investigated. The start-ups can be identified in the EHP and the IABE by the establishment number.<sup>4</sup> The identified observations from the cross-sections 1996 to 2005 were merged together. Growth was measured by the amount of employment five years after start-up. Further refinements regarding strategies, public involvement and industries were carried out.

Successful outsourcing strategies shrink employment levels but because a smaller number of employees in this case is not actually indicative of firm performance. Firms that engaged in organizational changes involving in- and outsourcing were removed from the sample. Public enterprises were excluded as well, because their motivation for being in business is usually far removed from the reasons served by private enterprise. The high ratio of self-employed persons in the farming and forestry sector implies a high probability of underestimating the level of start-up activity in this sector (Blanchflower, 2000) and for this reason it was also removed from the sample. Due to the very low number of entities (in the database)<sup>5</sup> engaged in the energy, mining, and banking and insurance sectors, these industries were also not considered. Another problem has to do with wage subsidies. There are schemes designed to directly support individuals. Individual wage subsidies are not related to the firm and disturb the estimations.

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<sup>3</sup> An amount of zero cannot be used with respect to the applied growth measures. Thus, one employee is added for every venture in the sample to avoid inconsistencies.

<sup>4</sup> Unfortunately, the appearance of a new establishment number does not necessarily indicate a new business formation (for details, see Fritsch and Brixy, 2004). Some adjustments are made in the present analysis to deal with the problem.

<sup>5</sup> Fischer et al. (2008) suggest that every unit of analysis in cross-sections should contain at least 20 entities. The excluded sectors do not fulfil that criterion.

Thus only firms that received wage subsidies at the firm level and firms that received no wage subsidies were included in the dataset.

The final sample contains 813 East German firms and 529 West German firms. Of the East German firms, 81 can be viewed as fast-growing; in West Germany, 53 firms can be so defined (see the following section for the definition of fast-growing).

### **3.2 Measurement**

In the literature there are several studies on employment growth in general using micro data for Germany (for an overview, see Bellmann et al., 2003). Brüderl and Preisendörfer (2000), as well as Almus (2002), investigated fast growth. Almus analyzed East and West German start-ups jointly; Brüderl and Preisendörfer restricted their analysis to the metropolitan area of Munich. Studies on general employment growth using data from the IABE have been conducted by Brixy and Kohaut (1999), Bellmann et al. (2003), and Heckmann and Schnabel (2006).

In the present paper, rapid firm growth was measured by the employment change within firms. The analysis was restricted to employees who are subject to social insurance. Growth rates were calculated by comparing the number of employees in the year of start-up to the number five years later. Employment growth as a measure of performance has its weaknesses. It could be the result of wage subsidies instead of economic performance. Also, it could be that a firm is successful precisely because it employs persons *not* subject to social insurance or practices a flexible system of outside resources, in which case the firm will not show up in the data used for this analysis. Other studies used market shares, output, and/or profits and sales as a measure of economic growth (Delmar et al., 2003). It may be that such indicators are better suited to evaluate performance, but such data are rarely available on large scale.

For the calculations, the Birch index was used (Birch, 1987).  $B_0$  stands for the amount of employment in the start-up year and  $B_n$  for the amount five years later.<sup>6</sup>

$$\text{Birch-Index} = (B_n - B_0) \frac{B_n}{B_0}$$

Often, firms are counted as fast-growing if their growth rates reach the highest percentile of the distribution of growth rates in a special sample (Henrekson and Johansson, 2008) and this classification was followed in the analysis presented in this paper.

It should be noted that using firm characteristics as explanatory variables is not without some ambiguity in that the characteristics could be a consequence rather than a cause of high growth rates (Storey, 1994). An alternative would be to investigate the characteristics of start-ups specifically. However, this is not a trouble-free approach either, as it could be that changes made shortly after start-up are responsible for the firm embarking on a long-term growth path, thus creating a biasing effect.

Because of the mentioned different regional conditions in West and East Germany, it was necessary to construct two different datasets. The variables used to test the hypotheses are as follows. For the East German dataset, a dummy variable indicates whether the majority of ownership is held by West Germans or persons from abroad. The latter group was included because it was found in a previous study that East German firms controlled by foreigners have an approximately 60 percent higher productivity than other firms (Bellmann et al., 2002). A second variable reflects whether the firm is owned by a combination of East Germans and West Germans or persons from abroad, whereby no group is in majority. Such firms were regarded as possessing a combined pool of skills and experiences from owners who have different socioeconomic heritages.

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<sup>6</sup> A famous method proposed by Evans (1987) was tested but failed econometric sufficiency for the West German dataset. So the results are not reported here.



The reference group consists of firms that are majority owned by East Germans.

Thus, nothing can be said about the extent the owners also manage the small firm. But especially in small firms ownership and management are often not separated (O`Gorman et al., 2005). Furthermore the datasets were restricted to *non-subsidiary original start-ups*. So it can be concluded that an unfolding of skills and experience takes place.

The strategy variables were used in both datasets. A firm with more than 5 percent of its turnover occurring on markets abroad was counted as export-oriented. This characteristic was captured by a dummy variable. In their analysis of employment growth, Brixy and Kohaut (1999), using IABE data, counted establishments as export-oriented if they attained more than 5 percent of their turnover in non-East German markets. Unfortunately, no information is available how much exactly is exported.

Firms that declared that their production technology is “very new” were claimed to employ state-of-the-art technology or to have a high “technological status”.<sup>7</sup> One major obstacle in interpreting the variable regarding the state of technology is that the information relies on a self-assessment, which could be biased. Other dummy variables indicate whether firms receive wage or capital and investment subsidies or made investments between the fourth and fifth year of their existence.

### 3.3 Method

A Probit model was employed for the regression analysis, where 1 indicates that a firm is fast-growing, 0 otherwise. Robust estimators, which do not require a normal distribution of standard errors, were used (Huber, 1967; White, 1980). To detect differences in the intensity of the impact the explanatory variables have on rapid growth, marginal effects are reported in this paper.

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<sup>7</sup> “Technological Status“ is the term used by Brixy and Kohaut (1999) in their analysis.

The data from the IABE are subject to a sample selection bias for two reasons: (1) the generally high failure rates of start-ups and (2) the under representation of very small firms (i.e., only firms with at least one employee subject to social insurance are in the panel) (Bellmann et al., 2003). The first problem (1) is known as the survivor bias, and has to do with the fact that firms that start out larger in size are more likely to survive, a fact that has clear implications for this study as it uses firm size as an indication of economic growth.

The survivor bias in the IABE data can be handled by using the two-step Heckman correction (Heckman, 1979), as described by Pfeiffer and Reize (2000). Thereby, only two time periods are taken into consideration. Some observations are represented in both periods; others appear only in one period. First, the probability that an observation is included in both periods is measured by using the data for the first period. The resulting *Mills ratio* (Mills, 1926) then must be regressed in the model for the growth estimation using data for the second period. When the *Mills ratio* is insignificant, there are no differences regarding the probability of fast-growth between firms for which information on growth is available and firms for which such information is not available. However, implementing this procedure here is difficult because the start-up employment, the five-year-later employment, *and* the employment from a common reference point (e.g., the three-year-later employment) are all needed. Unfortunately, only a small fraction of the observations in the sample have data at three different time points available. Indeed, the fraction is too small to allow any useful regression analysis and thus, when interpreting the empirical results, one has to keep in mind the survivor bias. The results are highlighted in the next section.

## 4 Results

### 4.1 Descriptive Results

This section contains some descriptive statistics regarding the strategy and heritage variables. As can be seen in Table 1, there are some quite obvious differences between East and West Germany. 33.1 percent of the East German firms received investment and capital subsidies and 42.2 percent received wage subsidies. In stark contrast, only 10.8 percent of the West German firms received the investment and capital subsidies and only 29.5 percent received wage subsidies. These data reflect the massive subsidizing of the East German economy after reunification. Another difference is the fraction of export-oriented firms: in the West German sample, 17.2 percent of the firms make more than 5 percent of their turnover on exports, whereas this figure is 7.1 percent for the East German firms, some proof that many East German firms do indeed have trouble accessing international markets.

There are only minor differences in the other explanatory variables. For example, 24.2 percent of the firms in the West German sample regard their state of technology as “very new” while this holds for only 20.9 percent of the East German sample. The percentage of East German firms that made investments is slightly lower than their West German counterparts (57.9 percent in the West compared to 54.8 percent in the East).

Most of the East German firms in the sample are majority owned by East Germans. Only 10.6 percent of East German firms are majority owned by West Germans and only 0.7 percent are majority owned by foreigners. Firms in which neither East nor West Germans nor foreigners hold a majority comprise 3.8 percent of the sample.

**Table 1.** Descriptive Statistics for Strategy and Heritage Variables

<b>Variable</b>	<b>Shares of Total</b>	
	<b>East</b>	<b>West</b>
Majority Ownership:		
<i>East German</i>	0.85	
<i>West German</i>	0.11	
<i>Foreign</i>	0.01	
<i>No Majority</i>	0.04	
State-of-the-art Technology (Yes=1)	0.21	0.24
Investment (Yes=1)	0.55	0.58
Investment Subsidy (Yes=1)	0.33	0.11
Wage Subsidy (Yes=1)	0.42	0.30
Turnovers Abroad >5 percent (Yes=1)	0.07	0.17

## 4.2 Multivariate analyses

The regression results reporting marginal effects are shown in Table 2. Only the marginal effects corresponding to strategy and heritage are highlighted in the following paragraphs.

The variable for the ownership structure has a significant effect. Those ventures majority owned by West Germans or foreigners have a higher probability for fast growth compared to ventures where East German owners are in the majority. East German firms appear to improve their growth chances if West Germans participate in the firm to a considerable degree, which confirms the hypothesis that the socioeconomic heritage matters! The marginal effect is about 4 percent. However, it is not possible to discover whether this favourable effect is due to the better access of West Germans to markets abroad, networks or to their experience and skill. It should be noted that simply having West German or foreign owners, is not a guarantee of fast growth, because the dummy variable, which refers to firms where no one group holds a majority interest, has no significant effect on fast growth. It appears that it is the degree of participation, not just the fact of it that is necessary to reap this advantage.

In the East German sample investment and capital subsidies have no effects on fast growth, whereas in the West German sample, such subsidies have a favourable effect. Indeed, West German firms that

received such subsidies are more likely to be fast growing by 7 percent. This confirms the hypothesis that capital and investment subsidies have a less pronounced effect on fast growth in East Germany due the massive public support policy in East Germany after reunification. Nevertheless, the *only* interpretable result is that firms that received such subsidies are less likely to be *rapidly* growing firms. No assertion is made about employment growth in general.

Wage subsidies and investment have a positive significant effect on rapid growth in both datasets, as expected. The marginal effects are 5.6 percent for wage subsidies in East Germany and 12.3 percent in West Germany, and for investment 4.3 percent in East and 4.1 percent in West Germany. However, it should be remembered that this study counts only general wage subsidies on the firm level.

The coefficient of the variable that indicates whether the firm produces with a very new technology is slightly negative but insignificant in both datasets. Therefore, the hypothesis that state-of-the-art technology plays a more important role in West Germany cannot be confirmed.

Export orientation has no impact on fast growth. Serving foreign markets does not benefit rapid growth, at least not in terms of employment. Therefore, the hypothesis that export orientation will have a positive effect on fast growth, especially in East Germany, cannot be confirmed. This result should be interpreted cautiously, however, because the 5 percent-minimum turnover attained abroad requirement for being counted as export-oriented is quite low. Nevertheless, it is difficult to use higher minimums due to the low percentage of firms that exceed the 5 percent-criterion (7.1 percent compared to 17.2 percent in West Germany).

Control variables, which refer to different general external and internal characteristics, are included in the analysis along with the heritage and strategy variables (see Table A.1 for descriptive statistics).

The most important results regarding these variables are that the control for the start-up year reveals effects related to the East German transition. East German firms founded between 1995 and 1997 have a significantly lower probability of being fast-growing ventures compared to firms set up in 1991. This can be explained by the “window of opportunity” that opened in the early 1990s when there was limited competition and a lot of market opportunities due to the shortage of certain goods and, especially, services in the GDR economy accompanied by an increasing consumer demand for the same (see, e.g., Utsch et al., 1999; Almus, 2002).

A variable indicating a firms location in a county bordering West Germany was included for the East German sample. Firms in these areas may be able to serve parts of the neighbouring West German local markets because of the on average lower costs of production in East Germany (Brixy and Kohaut, 1999). This variable turns out to be significant: firms located near West Germany enjoy favourable conditions for fast growth.

**Table 2.** Results for regressions with being in the top 10 percent in terms of employment growth as dependent variable

Variable	East Germany		West Germany	
	dF/dx	z	dF/dx	z
<b>Heritage Variables</b>				
Majority Ownership				
<i>(East German)</i>				
<i>West German/ Foreign</i>	.0401	<b>2.09*</b>		
<i>No majority</i>	.0424	<b>1.11</b>		
<b>Strategy Variables</b>				
State-of-the-art Technology (Yes=1)	-.0019	<b>-0.16</b>	.0085	<b>0.41</b>
Investment (Yes=1)	.0434	<b>2.88**</b>	.0408	<b>2.04*</b>
Investment Subsidy (Yes=1)	.0203	<b>1.50</b>	.0697	<b>2.17*</b>
Wage Subsidy (Yes=1)	.0566	<b>3.72**</b>	.1232	<b>3.34**</b>
Turnovers Abroad >5 percent (Yes=1)	.0374	<b>1.53</b>	.0260	<b>1.16</b>
<b>Control Variables</b>				
ln(start-up size) <sup>2</sup>	-.0051	<b>-1.99*</b>	-.0046	<b>-1.43</b>
Population Density:				
<i>(Agglomeration)</i>				
<i>Urbanized</i>	.0019	<b>0.14</b>	.0216	<b>1.03</b>
<i>Rural</i>	-.0071	<b>-0.43</b>	.0001	<b>0.01</b>

Industry Affiliation:			
<i>(Retailing)</i>			
<i>Manufacturing</i>			.1288 <b>2.68**</b>
<i>Raw Material Manufacturing</i>	.0916	<b>2.43*</b>	
<i>Investment Good Manufacturing</i>	-.0087	<b>-0.44</b>	
<i>Consumption Good Manufacturing</i>	.0111	<b>0.30</b>	
<i>Construction</i>	-.0062	<b>-0.29</b>	.0596 <b>1.14</b>
<i>Transportation</i>	-.0009	<b>-0.02</b>	.1283 <b>1.68</b>
<i>Business Services</i>	-.0038	<b>-0.16</b>	.1058 <b>2.34**</b>
<i>Consumer Services</i>	-.0094	<b>-0.42</b>	.1317 <b>2.87*</b>
Increasing Expected Turnover (Yes=1)	.0504	<b>3.23**</b>	.0699 <b>3.33**</b>
Limited Liability (Yes=1)	.0805	<b>4.61**</b>	.0876 <b>3.66**</b>
Multiple Proprietors (Yes=1)	.0043	<b>0.31</b>	.0246 <b>1.27</b>
Start-up in:			
<i>(1991)</i>			
1992	.0017	<b>0.08</b>	
1993	-.0076	<b>-0.39</b>	
1994	-.0237	<b>-1.27</b>	
1995	-.0354	<b>-2.13*</b>	
1996	-.0426	<b>-3.04**</b>	
1997	-.0365	<b>-2.45*</b>	
1998	.0036	<b>0.14</b>	
1999	-.0215	<b>-1.04</b>	
2000	-.0312	<b>-1.69</b>	
Start-up between:			
<i>(1991-1993)</i>			
1994-1996			-.0286 <b>-1.20</b>
1997-2000			-.0172 <b>-0.77</b>
Border County (Yes=1)	.0567	<b>2.52*</b>	
Share of Qualified Workers	.0407	<b>1.66</b>	.0415 <b>1.28</b>
Wage Agreement (Yes=1)	-.0002	<b>-0.02</b>	-.0287 <b>1.27</b>
Constant		<b>-5.97**</b>	<b>-6.79**</b>
Pseudo R <sup>2</sup>		0.2725	0.2479
Number of Observations		813	529

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*Source:* IAB Establishment Panel  
discrete change of dummy variable from 0 to 1  
*dF/dx:*  
\*: significant at 95 percent level  
\*\*: significant at 99 percent level  
(): reference group

## 5 Concluding Remarks

This paper investigates fast growth of young firms, with a particular focus on the effects of socioeconomic heritage and expansive strategies. Socioeconomic heritage is defined to mean a set of person-related factors learned through socialization in a specific economic system or affected by situation-related modes of exchange and production within these systems, in this case, either a market or a planned economy. These factors include, among others, skill, experience, attitude, and network links. Specific regional growth regimes conserve this heritage. The analysis was carried out for German start-ups between 1991 and 2000. Germany is particularly well suited for such an analysis because of its division into two German states, with different economic systems, between 1949 and 1990. The Federal Republic of Germany (FRG) in the West adopted a Western-style market economy; the German Democratic Republic (GDR) in the East operated under a Soviet-style centrally planned economy.

It could be expected that in a market economy, which is now the system in both parts of Germany since reunification in 1990, start-ups run by persons socialized in the FRG will have better prospects for fast growth compared to those firms shaped by persons who grew up in the former GDR. West Germans have a greater ability to manage growth processes because they have been exposed to the market economy system since childhood, whereas the East Germans grew up under a completely different economic system.

The results of this paper reveal that those young non-subsidary firms that are majority owned by West Germans are more likely to be rapidly growing. In small firms especially ownership and management are often not separated. Therefore, the results confirm that firms managed by West Germans have an advantage in terms of fast growth.

Training and further education targeted at nascent and established East German entrepreneurs, managers, and business owners with the aim of



enhancing their ability to manage growth processes, by provision of skills required to grow a firm (for details, see Honig, 2004), could be a step towards levelling the playing field. Similar programs could be useful in transition countries in Eastern Europe to overcome obstacles related to socioeconomic heritage to stimulate the flourishing of rapidly growing firms, which are important job creators. Despite this, the engagement of West European managers and entrepreneurs in businesses started by East European locals or the participation of West European entrepreneurs in a team start-up together with locals might raise the growth prospects of these ventures. This possibility seems to be worthwhile to discuss against the background of the growing relations of economic actors from Eastern and Western Europe since the Eastern Enlargement of the European Union.

This study investigated also certain strategies associated with growth ambitions in Germany, including export orientation, technology, and investment, as well as looking at the role of subsidies, resulting in the following general and specific conclusions.

Policies aimed at creating “gazelles” in an effort to solve the high unemployment problem in East Germany should not overemphasize public support schemes, especially capital and investment subsidies, for which no positive effect on fast employment growth could be found. In addition, public support schemes should generally avoid disturbing market selection. This applies to investment and capital subsidies as well as to wage subsidies, although the latter type has a positive effect on growth in both data. Investment also has a favourable effect on the probability of being a fast-growing business. Therefore, a venture capital market capable and willing to fund such investment has to be kept functioning. Export orientation does not cause rapid growth in a systematic manner in either West or East Germany and neither does the state of technology. Being at the technological frontier does not affect rapid employment growth.

The limitations of the study should be considered when interpreting the results. For example, sample selection bias could not be addressed here. Moreover, the variable indicating a firm's state of technology was based on a self-assessment and could be biased. Also, a firm achieving 5 percent of its turnover abroad is considered as export-oriented, which is a rather low threshold, although justified by the difficulties East German firms face in entering foreign markets, as exemplified by the low percentage of firms in the sample exceeding this 5 percent-criterion (7.1 percent compared to 17.2 percent in West Germany).

More research on the strategies of new firms and their influence on growth is clearly warranted. This research should focus in much more detail on individual characteristics of the entrepreneur. A more detailed analysis of the effects of socioeconomic heritage of entrepreneurs would be a fruitful line of inquiry in understanding different paths of development of young firms.

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## Appendix

**Table A.1.** Descriptive Statistics for control variables

Variable	Shares of Total	
	East	West
Industry Affiliation:		
<i>Raw Material Manufacturing</i>	0.06	0.04
<i>Investment Good Manufacturing</i>	0.17	0.09
<i>Consumption Good</i>		
<i>Manufacturing</i>	0.04	0.05
<i>Construction</i>	0.21	0.14
<i>Retailing</i>	0.14	0.17
<i>Transportation</i>	0.03	0.04
<i>Business Services</i>	0.13	0.21
<i>Consumer Services</i>	0.21	0.27
Start-up in:		
<i>1991</i>	0.24	0.05
<i>1992</i>	0.10	0.05
<i>1993</i>	0.09	0.11
<i>1994</i>	0.09	0.11
<i>1995</i>	0.12	0.13
<i>1996</i>	0.12	0.11
<i>1997</i>	0.08	0.12
<i>1998</i>	0.04	0.07
<i>1999</i>	0.06	0.09
<i>2000</i>	0.06	0.15
Population Density:		
<i>Agglomeration</i>	0.22	0.57
<i>Urbanized</i>	0.32	0.25
<i>Rural</i>	0.47	0.18
Border County (Yes=1)	0.15	
Increasing Expected Turnover (Yes=1)	0.24	0.32
Multiple Proprietors (Yes=1)	0.22	0.28
Wage Agreement (Yes=1)	0.25	0.36
Limited Liability (Yes=1)	0.42	0.45
Average Share of Qualified Workers	0.56	0.50