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Entrepreneurship, Entry and
Performance of New Businesses
Compared in two Growth Regimes:
East and West Germany

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Contents

Abstract / Zusammenfassung	II
1. Introduction.....	1
2. Regional growth regimes	2
3. Characteristics of the growth regimes in East and in West Germany in the early 1990s	6
3.1 The two Germanys after World War II.....	6
3.2 Characteristics of the East and West German growth regime at the beginning of the transformation process	7
3.3 The period of initial transformation 1989 to 1992.....	8
4. Market dynamics in the 1993-2000 period.....	11
5. Determinants of new business formation in East and West Germany 1993-97	15
6. The performance of newly founded businesses 1993-2000.....	17
7. Summary and conclusions	22
References.....	23

Abstract

The paper provides an outline of the concept of regional growth regimes and empirically illustrates the relevance of the concept. The empirical examples are entrepreneurship, entry and the performance of new businesses in East and West Germany. The differences of the factors determining the formation of new businesses as well as their development between these two growth regimes are immense and clearly demonstrate the relevance of region specific factors.

JEL classification: O11, O18, P25, R11

Keywords: Growth regimes, new business formation, new business performance, location, regional influences

Zusammenfassung

“Entrepreneurship, Marktzutritt und Erfolg neu gegründeter Betriebe in zwei Wachstumsregimen im Vergleich: Ost- und Westdeutschland“

Der Aufsatz skizziert das Konzept regionaler Wachstumsregime und illustriert die Relevanz des Konzepts mit einem empirischen Beispiel. Als Beispiel dienen Entrepreneurship, Marktzutritt und Erfolg von neu gegründeten Betrieben in Ost- und Westdeutschland. Die Unterschiede hinsichtlich der Bestimmungsgründe von Gründungen als auch die Unterschiede ihrer Entwicklung sind immens und belegen klar die Relevanz von regionalspezifischen Faktoren.

JEL Klassifikation: O11, O18, P25, R11

Schlagworte: Wachstumsregime, Betriebsgründungen, Gründungserfolg, Standort, regionale Einflüsse

1. Introduction¹

Empirical research has shown that the forces steering economic development need not necessarily be the same in each industry, region or time period. The concept of technological regimes (Winter, 1984; Audretsch, 1995; Marsili, 2002) tries to explain such differences in the contribution of growth determinants between industries. Audretsch and Fritsch (2002) have made an attempt to extend the concept of the technological regime from the unit of observation of the industry to a geographical unit. The aim of this paper is twofold. First, it will elaborate on the concept of regional growth regimes a bit further. Second, an empirical example for different regional growth regimes is provided by comparing the role of entrepreneurship and the performance of new businesses in East and in West Germany during the 1990s. How and why do entrepreneurship, new business formation and the performance of newcomers differ between East and West Germany? What are the reasons and consequences? In answering these questions I will present evidence for the persistence as well as for the change of growth regimes over time and discuss factors that may be responsible for such developments.

The remainder is organized as follows: section 2 outlines the concept of regional growth regimes and links it with theories of regional and industry development. The following section then provides some basic information about the main developments of the East and the West German growth regime and their main characteristics in the early 1990s (section 3). Section 4 describes the market dynamics in these two regimes in the 1993-2000 period. Determinants of new firm formation in the two regimes are then analyzed in section 5. Section 6 investigates differences in the performance of the new businesses. Finally, the evidence is briefly summarized and conclusions are drawn in section 7.

¹ I am indebted to two anonymous referees for helpful comments on an earlier version and to Pamela Mueller and Antje Weyh for energetic support in preparing the data.

2. Regional growth regimes

The idea that regions may have distinct growth regimes can be based on at least four arguments. One of these is the theory of technological regimes. A second source is the recognition that regions may have a specific knowledge stock that shapes innovative activity. Thirdly, theories of economic development emphasize that regional growth conditions may vary according to such factors as spatial proximity of actors, certain characteristics of these actors (e.g. product program, innovativeness) and the intensity of knowledge spillovers. Fourthly, theories dealing with regional innovation activity have exposed the importance of a number of further regional characteristics for growth performance, particularly with regard to entrepreneurship and innovation. The following provides a brief survey of these approaches and their main implications for a concept of regional growth regimes.

The theory of technological regimes dates back to Winter (1984), who tried to reconcile the earlier work of Schumpeter (1911) with the seeming contradiction posed by his later ideas (Schumpeter, 1942). The main argument is based on the nature of relevant knowledge at different stages of industry evolution (Audretsch, 1995, pp. 47-55; Winter, 1984). The most prominent distinction of technological regimes is between an 'entrepreneurial' and a 'routinized' system. An entrepreneurial regime applies during the early stages of the product life-cycle. In the early stages of an entrepreneurial technological regime there is a high diversity of design, solutions and technological paths. The development is mainly driven by product innovation as compared to process innovation. Relevant knowledge is relatively new and dispersed. Scale economies are of minor importance so that larger firms do not have a significant advantage over their smaller competitors. Therefore, an essential part of the industries' innovative activity is conducted in the smaller firms and innovative new firms play a significant role. A routinized regime applies to the later stages of the product life-cycle when a dominant technological path has emerged. Because this technological path is more developed than in an entrepreneurial regime, the stock of path-specific knowledge is larger. In a routinized regime, products tend to be rather standardized and innovative activity is focused on improved processes. Scale economies do matter and the

relevant knowledge is concentrated in large incumbent enterprises giving them an advantage over smaller firms. Accordingly, small firms make at best a minor contribution to innovation in the industry and new firm entry is relatively rare.

These two concepts of technological regimes suggest that there may be pronounced differences in the main relationships among innovation, entrepreneurship and firm size between industries. While the theory of technological regimes has been developed for industries, it may also be applied to geographical units of observation (Audretsch and Fritsch, 2002; Fritsch and Mueller, 2004). Yet, empirical research has shown that the mode of production of an industry in a particular location may be rather specific and distinct from the way of production that is common in other regions.² This shows that the technological regime of an industry is not necessarily invariant over space but that there may be important differences that can lead to quite divergent performance.

A second source of differences between regional growth regimes is specific knowledge. There are a number of reasons why knowledge is not equally spread across space but rather is 'sticky' and localized (see van Hippel, 1994, for an overview). If, for example, knowledge is not codified, then it can only be communicated by direct interaction between individuals. It may, therefore, stick within the regional workforce (Howells, 2002). The institutions that have emerged in a geographical area and the modes of organizing the division of labor may also represent knowledge that is specific to that region. This region-specific knowledge results from learning in the past and is, therefore, path dependent. An important reason for this path-dependency is the cumulative character of knowledge, i.e. that new knowledge becomes particularly valuable if it is combined with an already existing knowledge stock. According to the characteristics of the existing knowledge stock, regions can have different capabilities and may, therefore, respond to a certain impulse in

² Saxenian's (1994) study of the US computer industry in the Boston area and the Silicon Valley provides an illustrative example for such different regional regimes in an industry. Fritsch and Falck (2002) in an analysis of new firm formation in West Germany find that their indicator for the entrepreneurial character of the technological regime of an industry shows pronounced variation over space.

rather different ways (Antonelli, 2000; 2001; Maskell and Malmberg, 1999; Howells, 2002).

The notion of knowledge spillovers that has been emphasized by the ‘new’ growth theory (cf. Krugman, 1991; Romer, 1994) is closely connected with the regional knowledge base.³ The smaller the regional knowledge stock the smaller also is the potential for knowledge spillovers. Moreover, if the existing stock of knowledge region-specific, then the knowledge that spills over between actors may also be specific to that region. The models of the new growth theory regard knowledge as an important factor for economic development assuming that a high level of knowledge spillovers is conducive to growth. Empirical research has shown that knowledge spillover tends to be concentrated in spatial proximity to the respective source and that they may be largely limited to actors in the respective industry or field of activity (Breschi and Lissoni, 2001; Feldman, 1999). It is, however, largely unclear how such knowledge spillovers take effect. Main candidates for media of knowledge transfers are co-operative relationships between actors, the mobility of labor on the labor market, spin-offs and entrepreneurship, as well as the diffusion of commodities and direct investment (Varga and Schalk, 2004). Another open question relates to the role of regional diversity: is it the spillovers from actors of the same industry that are relevant in this respect (‘Marshall-Arrow-Romer-type’ spillovers) or is it spillovers from other industries (‘Jacobs-type’ spillovers) (Feldman and Audretsch, 1999). One main hypothesis found in the literature on knowledge spillovers and economic development is that a high level of interaction between actors is conducive to knowledge spillovers. A second hypothesis is that regions should be sufficiently connected to the ‘outer world’ in order to have access to relevant knowledge that is generated elsewhere. This includes the requirement that some absorptive capacity exists in the region (Cohen and Levinthal, 1989).

³ In a broad definition of the term, knowledge spillovers denote all kinds of knowledge transfers between individual persons or institution (e.g. firms, research institutes), be it by market transaction or other kinds of interaction (for a review see Breschi and Lissoni, 2001 and Feldman, 1999).

Recent concepts for explaining regional innovation activity such as ‘industrial districts’ (Porter, 1998, and the contributions in Pyke, Beccatini and Sengenberger, 1990), the ‘network’ approach (cf. Camagni, 1991; Grabher, 1993), the theory of ‘innovative milieux’ (Aydalot and Keeble, 1988; Ratti, Bramanti and Gordon, 1997) and ‘regional innovation systems’ (Cooke, Heidenreich and Braczyk, 2004) stress the role of co-operative relationships. High levels of co-operation are associated with high innovativeness and growth. One rationale for this hypothesis is that a high degree of co-operation and interaction indicates a high level of labor division between different organizations (e.g., firms, research institutions). Furthermore, intense contact and division of labor could be important media for knowledge spillovers. Assuming that increasing division of labor yields efficiency gains, the establishment of co-operative relationships may result in higher productivity and welfare. Another explanation could be that co-operation enables firms to overcome size-related bottlenecks. Co-operation may, however, also lead to reduced competition and could, therefore, affect innovation activity in a positive as well as in a negative way. As far as spatial proximity is conducive to labor division and knowledge spillovers, this may lead to clustering of industries in certain locations. Regions with a concentration of certain industries are then characterized by a certain technological regime, a particular knowledge stock, and by specific input markets⁴ that make them rather unique.

This review showed that there are quite a number of reasons why the sources and mechanisms of growth may differ between regions. Accordingly, factors such as new firm formation, large firm presence, innovation, qualification, labor mobility, etc. may not play the same role in all regions. The existence of different growth regimes means that different theories may be required to explain the development. It also has important implications for a policy that is aimed at stimulating growth. If the ways in which economic growth comes about differ between the regions, then distinct policy strategies may be adequate for spurring the regional development. The concept of regional growth regimes extends the notion of a technological regime to the

⁴ E.g. a labor market with certain qualifications, supply of specific services, universities that educate required personnel, public research institutions that provide support and co-operate.

regional dimension. It also encompasses the concepts of milieux, networks, industrial districts and regional innovation systems, but it is considerably broader because it does not only focus on innovative activity.

3. Characteristics of the growth regimes in East and in West Germany in the early 1990s

This section introduces the growth regimes of East and West Germany that shall serve as an empirical example. Section 3.1 gives a brief overview on the basic developments from World War II to the fall of the Iron Curtain that occurred at the end of the year 1989. Section 3.2 provides a characterization of the differences that have emerged during this period and section 3.3 describes the period of initial transformation in the 1990-93 period.

3.1 The two Germanys after World War II

After the end of the Second World War in the year 1945, the allied powers divided Germany into four sectors. In the American, British, and French sectors, economic reconstruction was soon supported by the respective nations. These three sectors were unified in 1949 to form the Federal Republic of Germany (= “West Germany”), a western-type democracy. The economy in the Russian sector suffered from dismantlement and transfer of production equipment to the Soviet Union. At about the same time as the Federal Republic was founded, the Russian sector became the German Democratic Republic (= “East Germany”) with a dictatorial Communist regime. Economically, West Germany developed to a market economy that soon began to prosper. The East German economy was organized according to the Russian model of a centrally planned Socialist system in which bureaucracy tried largely to abandon market forces. Compared to West Germany, growth rates in East Germany were rather low. During the 1950s and the early 1960s, economic and political reasons led to an enormous drain of people and capital out of East Germany that could only be stopped by closing the border in August 1961.

The different types of political-economic systems, as well as the separation by the Iron Curtain with strictly limited mobility of goods and resources, led to

rather divergent developments. While the West German economy became one of the most economically advanced regions of the world, East Germany fell further and further behind. At the end of the 1980s West Germany could be characterized as an open, saturated, mature market economy with well established institutions. Despite relatively high growth rates, there was constantly high unemployment mainly as a result of institutional rigidities. At that time the East German economy, although the most advanced region of the Communist bloc, operated at only about 30 percent of the West German productivity level (van Ark, 1995, 1997; Fritsch and Mallok, 1998). The East German political system collapsed in the autumn of the year 1989. East and West were formally united in October 1990 as one state, the now enlarged Federal Republic of Germany. In this process of unification the West German economical and political system was more or less immediately and completely transferred to the East.

3.2 Characteristics of the East and West German growth regime at the beginning of the transformation process

The reasons for the backwardness of the East German economy are manifold and they considerably helped to shape the transformation process that followed (cf. Fritsch and Werker, 1999, for a detailed exposition). Because the Iron Curtain had largely cut off the East German economy from the West, and thereby from important parts of international knowledge flows, the eastern knowledge stock was considerably different from that in the western part. This isolation was one reason why the technological paths pursued in the East in a number of areas were rather different from those dominating in the West. Another reason was that in the East, selection between technological paths was achieved by bureaucratic decision and not as the result of a competitive process. In the eastern system, bureaucratic selection of solutions happened to be made at a relatively early stage of technological development and it was rather rigorous, so that the chance for a survival of non-selected solutions in niches was relatively low.

Generally, the East German system was characterized by a low degree of variety, not only in terms of technological paths but also in terms of products

and suppliers. The small numbers of suppliers, low product variety and bureaucratic price-fixation resulted in a very limited level of competition. Due to the suppression of market coordination, scarcities frequently led to rationing and queuing. Actors tried to overcome these problems by barter, vertical integration and black market activity. As a consequence, money income and prices were less important than they were in the West. Division of labor took place to a much higher degree within the firms and households than between them. The level of entrepreneurship was rather low, limited to some small and highly regulated craft businesses and to the black market. For the vast majority of East Germans, the entrepreneur was viewed quite negatively and there were virtually no positive examples of productive and prospering self-owned firms. Considering that both parts of Germany were rooted in about the same kind of system, one can say that forty years of a Socialist economic system have left a considerable mark in East Germany.

3.3 The period of initial transformation 1989 to 1992

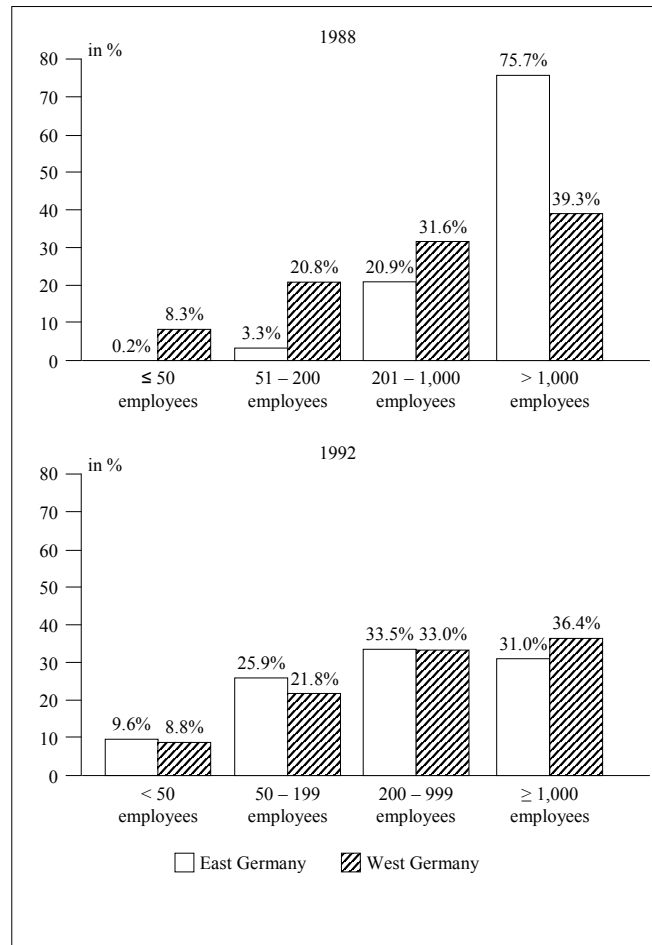
The early phase of the transformation of the East German economy has been characterized as a “jump start” (Sinn and Sinn, 1992) or a “shock treatment” (Brezinski and Fritsch, 1995) because many radical changes occurred rather quickly. In this early stage, the drastic changes of the economic and institutional environment sometimes produced ‘chaotic’ results.

The opening of the border put East German firms under an enormous competitive pressure. Wages rose rapidly which, due to the low productivity in the East, resulted in labor unit costs significantly above the West German level. The development created a particular need for the adoption of new machinery, introduction of new products, vertical disintegration and organizational changes with regard to internal processes. At the same time, the established exchange relationships to partners of the former Communist bloc were largely interrupted because the old partners could or would not pay the new prices in hard currency that became relevant with the introduction of the (West-)German Mark on July 1st, 1990. In the course of these dramatic changes, a considerable part of the East German knowledge stock became obsolete.

Due to these developments many East German firms collapsed and the official unemployment rate was soon well above 20 percent. During the initial phase of transformation (between autumn 1989 and the end of the year 1992), the number of workplaces declined by more than 35 percent. In the manufacturing sector, the decline amounted to more than 65 percent (Brezinski and Fritsch, 1995). The implementation of the new institutional framework in East Germany required considerable time. Not only was it time consuming to build up new public sector institutions and train the respective workforce, but the whole population had to learn and adjust to the completely new rules, management methods and modes of exchange. In the first years after unification, the transformation process was accompanied by an enormous transfer of resources from West to East Germany that equaled the GDP in the eastern part of the unified Germany (Brezinski and Fritsch, 1995; Fritsch and Mallok, 1998).

An instructive illustration of the effect of these market dynamics is the change of size structure in the manufacturing sector (figure 1).⁵ At the end of the year 1988, the size structure of manufacturing employment in East and West Germany was quite different. The planning economy of the GDR was characterized by a dominance of very large production units. The share of manufacturing employment in firms with less than 200 employees amounted to no more than 3.5 percent in East Germany; compared to 29.1 percent in West Germany. Only 0.2 percent of East German manufacturing employment was in firms with less than 50 employees; in West Germany this share was 8.3 percent. At the end of the year 1992, three years after the beginning of the East German transformation process, the size structure of manufacturing employment looked quite similar in both parts of the country (see Fritsch and Werker, 1994, for a more detailed presentation.). This quick equalization shows the high speed of

⁵ Comparable information on the size structure in other sectors of the East German economy is not available.



Source: Statistisches Bundesamt (1990) and (1994, FS 4, R. 4.1.2.).

Figure 1: Employees in mining and manufacturing industry in East and West Germany by enterprise-size categories 1988 and 1992

the development in East Germany in this time and it is the result of two different processes. Firstly, many of the formerly state-owned, large-scale companies were split up, privatized, returned to their previous owners, transferred to municipal ownership, or were closed down (“top-down” transformation). These processes were usually accompanied by huge manpower cuts. Secondly, numerous new businesses were set up, generating new jobs (“bottom-up” transformation). This emerging entrepreneurial sector was, however, not large or dynamic enough to be able to absorb greater parts of the workforce that were set free by the old units.

4. Market dynamics in the 1993-2000 period

Around the end of the year 1992, the initial transformation shock in East Germany was overcome and a more ordered development began. For the years that followed there is much more reliable data on East Germany than was available.⁶

Soon after the opening of the East German border and the liberalization of economic activity, a great number of new businesses emerged in East Germany. Starting from a relatively high level of entries, the number of East German new businesses constantly declined until 1997 (figure 2).⁷ In West Germany the yearly number of entries remained fairly constant in that time period (figure 2). In both regions the majority of start-ups were in the service sector.⁸ For the years 1998 and 1999, the statistics report a significant increase in the number of start-ups in both parts of the country, particularly in the East. The reasons for this change are not entirely clear yet.⁹ In both regions the number of new businesses then decreased again in the year 2000. In East Germany the number of start-ups in this year fell slightly below the 1997 level. Relating the number of entries to the number of workforce population in the respective region yields the entry rate according to the ‘labor market approach’. This entry rate may be interpreted as the propensity of a member of the workforce to start a new business. It is quite remarkable that during the whole period under inspection here this entry rate was always considerably higher in the East than in the West (figure 3).

⁶ If not stated otherwise, data are taken from the establishment file of the German Social Insurance Statistics (see Fritsch and Brixy, 2004, for a description). This data base provides information about all establishments that have at least one employee who is subject to obligatory social insurance. We do not know if the establishment belongs to a larger multi-plant firm and where the headquarter of this firm is located. This is the reason why new establishments in the East that have been set-up by Western firms can not be identified in the data. Because the data base records only businesses with at least one employee other than the owner, start-ups without any employee are not included. Due to problems in the implementation of this reporting system in East Germany the reliability of the data for the initial transformation phase is questionable.

⁷ For information about entry in East Germany during the period of initial transformation see Fritsch and Werker (1994), Brixy (1999) and Brixy and Grotz (2004).

⁸ “Other industries” are construction, agriculture, fishing, etc.

⁹ It can not be completely excluded that some of the newly recorded businesses in the year 1998 resulted from a change of the sectoral classification system of the underlying statistic.

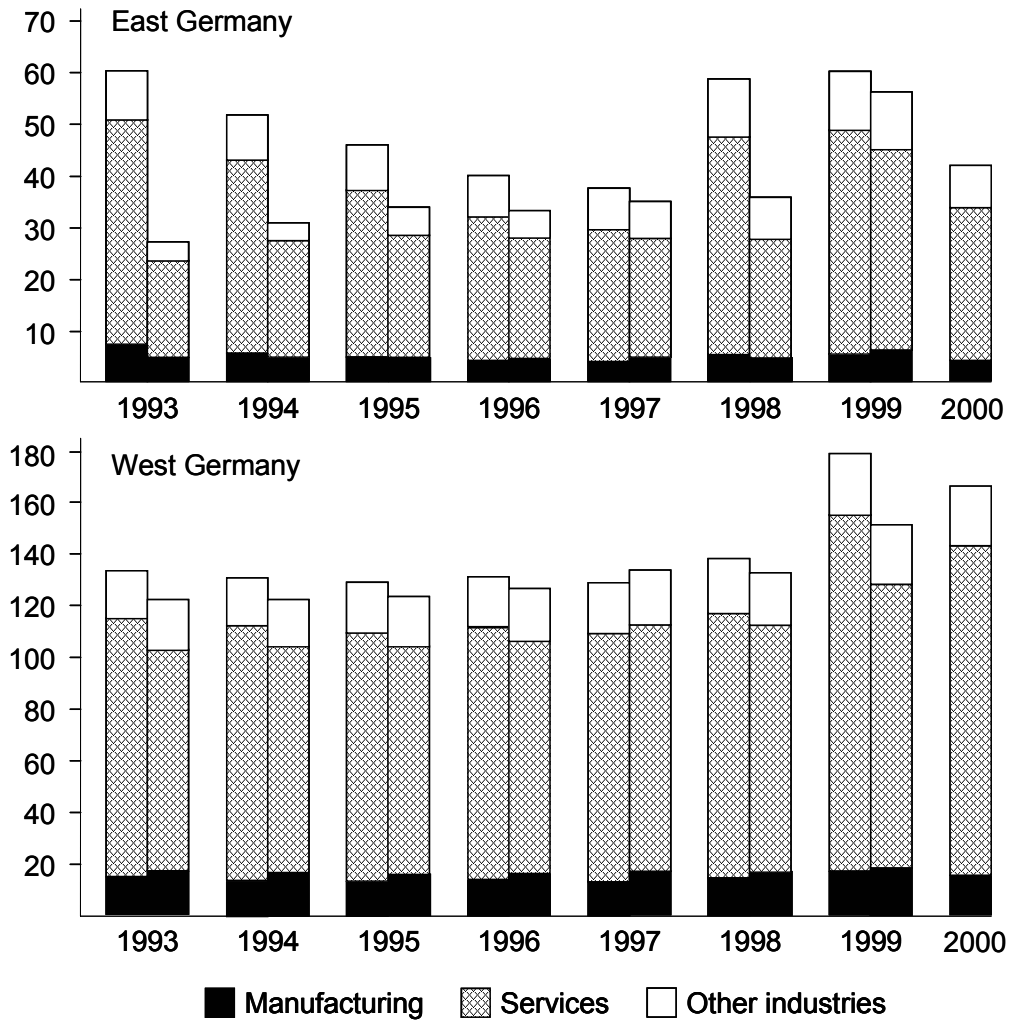


Figure 2: Number of start-ups and closures in West and East Germany 1993-2000

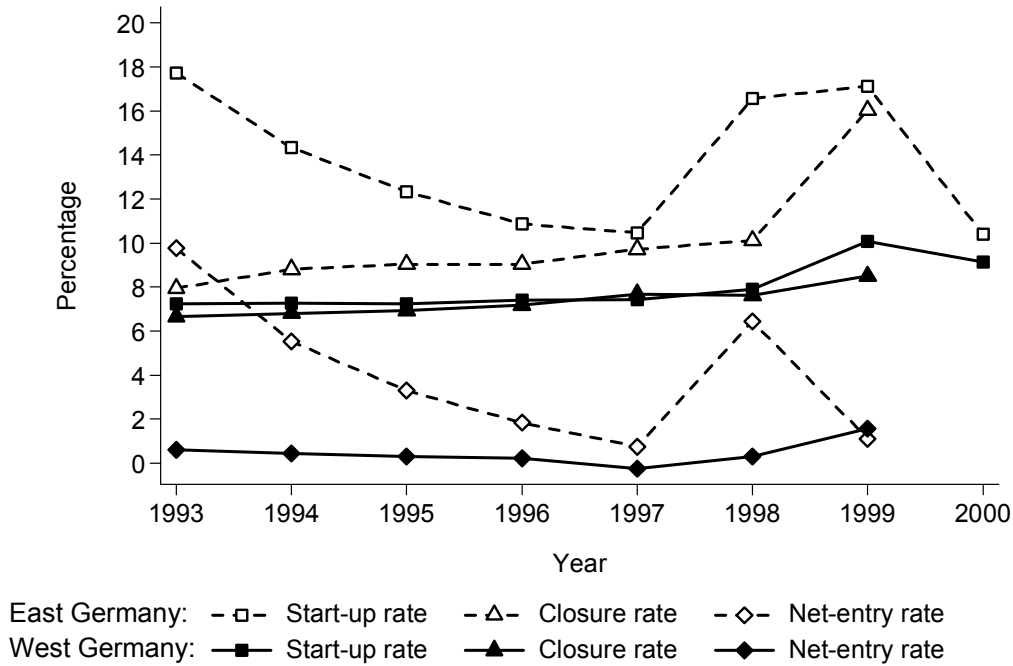
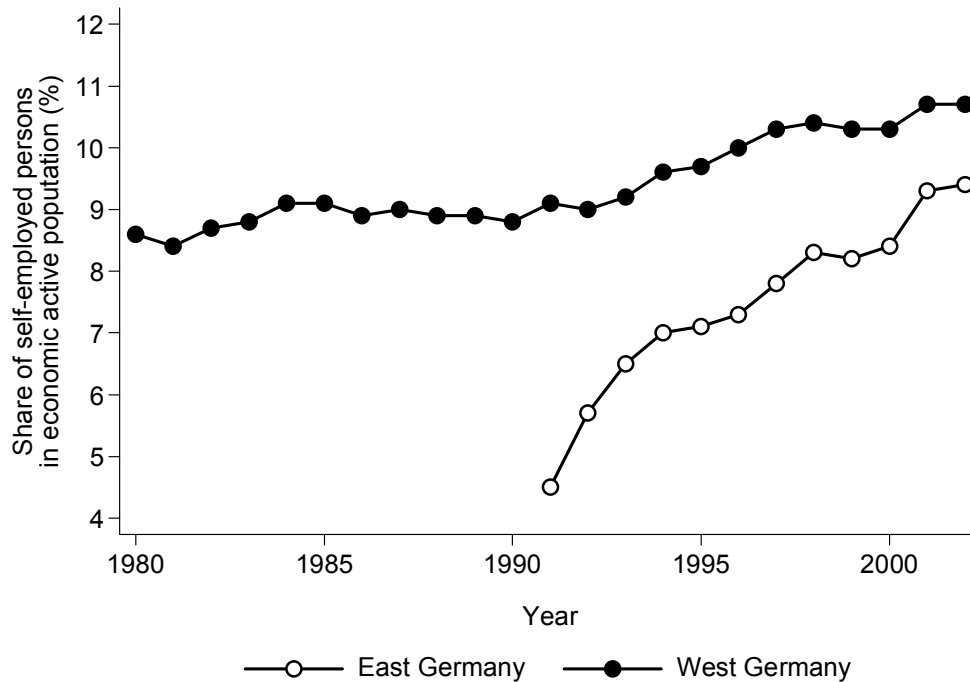


Figure 3: Start-up rates, closure rates and net-entry rates in West and East Germany 1993-2000

In West Germany the number of closures in the 1993-99 period amounted to about the same level as the number of entries (figure 2), so that the resulting net-entry rate (number entries minus number of exits over workforce) was not much different from zero (figure 3).¹⁰ In East Germany the yearly number of closures was in the first years well below the number of entries, so that the net-entry rate attained pronounced positive values. But with the growing number of establishments, the number of exits also increased, so that in 1997 the East German net-entry rate approached the West German level and fell below the West German rate in 1999.

¹⁰ Due to the procedure of identifying exits the establishment file of the Social Insurance Statistics provides no information on exits of the year 2000 at the time of writing this article.



Source: Statistisches Bundesamt (various volumes, FS 1, R 4.1.1, Table 7.9).

Figure 4: Development of entrepreneurship in East and West Germany

The level of entrepreneurship in a region can be determined from the share of self-employed persons in the economically active population. In West Germany, this figure has a slight upward trend that indicates a growing importance of entrepreneurship (Audretsch and Fritsch, 2003). Here, the share of self-employed persons did rise by about two percent over the two decades (figure 4). In East Germany the development was much more dynamic. The share of self-employed East Germans rose from a rather low level of 4.5 percent in 1991 to 6.5 percent in 1993, 7.8 percent in 1997 and 8.4 percent in the year 2000. However, at the end of the 1990s it was still considerably below the West German level (10.3 percent in the year 2000). This means that despite the higher entry rates into the East German economy, the level of entrepreneurship was still lagging behind. The lower pace of the increase in the level of East German entrepreneurship at the end of the 1990s as compared to the earlier years may be taken as an indication that this gap between East and West will persist for a longer period of time.

5. Determinants of new business formation in East and West Germany 1993-97

Although several large western companies like General Motors (Opel) and Volkswagen made some spectacular investment in East Germany, the vast majority of the new establishments had been set up by Easterners. For the average East German who had grown up or at least lived for a long time in a system that declared itself as ‘anti-capitalistic’, the founding of a new business can be considered a heroic task (cf. Thomas, 1996). East Germans had relatively poor experience with the working of a market system and the new rules. They were not used to a Western level of efficiency and not trained in the respective management methods. Furthermore, due to the low level of entrepreneurship in the old system, they had nearly no opportunity to learn from the example of other people who happened to start and successfully manage their own firm. Another factor that worked as a severe impediment for East Germans to start an own business was the low level of individual savings and of private property that was characteristic for a Socialist system. Hence, many of the potential entrepreneurs did not have sufficient personal resources to attain credit from banks. Policy tried to assist the East German firms in a great variety of ways, particularly by financial subsidies.

The comparative empirical analysis of the determinants of new firm formation in East and West Germany was limited to the 1993-97 period for two reasons. First, data on earlier year were not available or, if available, deemed to be not as reliable as the information for later years. Second, later years were not included because of the mentioned disruption in the data due to reasons which are unclear. In order to be able to account for industry-specific factors, we apply a differentiation into 49 private sector industries.¹¹ The dependent variable was the number of new establishments of an industry that have been set up in East and West Germany each year.¹² The models have been estimated as a panel

¹¹ 34 of these 49 industries belonged to the manufacturing sector.

¹² Data on new businesses, number of employees, small firm employment and qualification of employees were taken from German Social Insurance Statistics. Data on the number of unemployed persons is from the Federal Labor Office (Bundesanstalt fuer Arbeit). Information on capital intensity, labor unit cost and capital user cost are from other official statistics. Data sources are reported in more detail in Fritsch (2004).

with negative binomial regression. For attaining robust estimates, the Huber-White-Sandwich-procedure has been applied allowing for region-specific variances.

Table 1: Determinants of new business formation in East and in West Germany 1993-97⁺

<i>Variable</i>	<i>West Germany</i>	<i>East Germany</i>
Constant	-12.28** (4.16)	-19.23** (4.75)
Number (ln) of employees in respective. Industry	1.05** (13.89)	1.16** (22.61)
Number (ln) of unemployed persons	0.23 (1.25)	0.88** (2.84)
Share of industry employees with university degree	4.33* (2.09)	3.31** (2.57)
Share of small business employment (< 50 employees) in industry	4.53** (5.10)	3.04** (6.99)
Capital intensity in industry	0.01 (.94)	0.01 (.78)
Labor unit cost in industry	0.00 (.64)	0.00 (1.14)
Capital user cost in industry	-0.02* (2.01)	-0.12** (6.94)
Overall GDP growth (%)	-0.00 (1.15)	0.00 (.30)
Wald chi2	829.60	1788.61
Number of cases (industries)	245 (49)	245 (49)

⁺ T-statistics in parentheses; *: statistically significant at the 5%-level; **: statistically significant at the 1%-level.

The results reveal a number of differences in the determinants of entrepreneurship between the two regions. The significantly positive coefficient for the number of employees in the respective industry indicates that new establishments are set-up by individuals rather than firms. Including total private sector employment into the model without distinguishing by industry leads to considerably lower values of the respective coefficient, indicating that industry-specific qualification does play some role. The positive coefficient for the number of unemployed persons in the region means that some of the new firms are launched by persons who were unemployed. Because both, the dependent variable as well as the number of unemployed are included with their logarithmic values, the respective coefficients can be interpreted as elasticities that measure the relative increase in the number of new businesses that is

induced by a certain relative increase of the number of unemployed persons. The fact that this elasticity is more than 3.8 times higher in the East than in the West gives an idea about the greater role that was played by unemployment in East Germany as a motive for starting a firm. Obviously, in the East a much greater proportion of founders had been forced into setting up a new business due to unemployment. Capital user cost has a significantly negative impact on new firm formation that is much more pronounced in the East than in the West. This confirms the conjecture that the conditions for the availability of capital have been a much more severe bottleneck for new business formation in the East.

The share of employees in businesses with less than 50 employees as well as the share of employees with a university degree have a positive impact on start-up activity in both regions, with somewhat larger coefficients for West Germany. The small business employment share may be mainly regarded as an indicator for minimum efficient size of the respective industry for two reasons. First, it is closely correlated with other commonly used measures for minimum efficient size (see Fritsch and Falck, 2002).¹³ Second, the alternative interpretation that employment in small businesses leads to a more entrepreneurial attitude of employees resulting in a higher likelihood to start an own business (Johnson and Cathcart, 1979) is rather questionable in the case of East Germany, where a small business sector of significant size had just emerged some few years ago. The positive impact of the share of employees with university degrees points towards the importance of this qualification for starting a new business.

6. The performance of newly founded businesses 1993-2000

In the socialist system, firms were large but only few in number. The market ‘density’, i.e. the number of suppliers in relation to the size of the market, was rather low. This low density of suppliers made entry and survival of newcomers

¹³ E.g., the 75th percentile of establishment size when establishments are ordered by size as measured by the number of employees (Audretsch, 1995, 59; Comanor and Wilson, 1967, 428f.).

relatively easy, particularly in purely local markets. These higher survival chances of entries during the first years of the transformation process is well reflected in the data (figure 5). For the 1993 cohort of East German entries, survival rates are relatively high and above the West German level. Even seven years after start-up the difference between the survival rates of the 1993 East German entry cohort and the average West German cohort is still pronounced. Obviously, early start-ups benefitted from favorable entry conditions for a longer period of time.

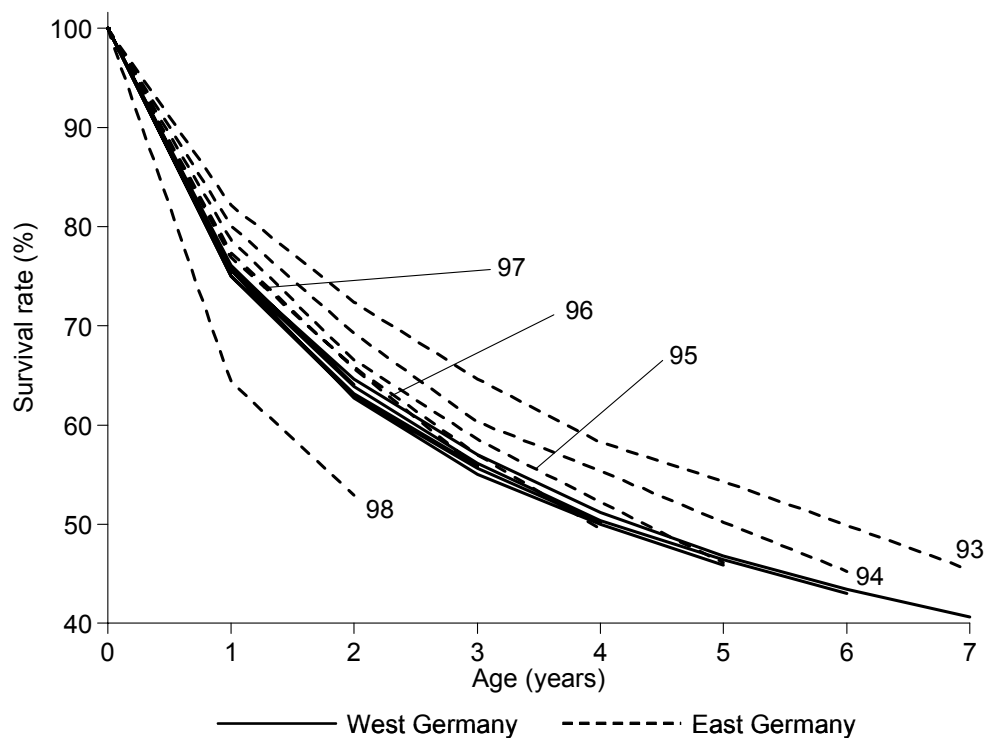


Figure 5: Survival rates of entry cohorts 1993-98 in East and West Germany

The higher survival rates for East German start-ups during the first years of the transformation process can be regarded as a confirmation of the “density delay” hypothesis, according to which organizations that were set up at a time when the industry was not very crowded have higher rates of survival than do organizations founded in periods with higher density (Carroll and Hannan, 1989; 2000). This implies that higher market density leads to a higher intensity of market selection. However, this advantage of early entry into the transforming East German economy seems to have eroded during the period of

analysis. The survival rates for the following cohorts decline year by year so that for the 1995 East German entry cohort the rates are already quite close to the average values for West Germany. For some of these later cohorts, particularly for the 1998 East German entry cohort, we find survival rates that are even below the West German level. For the West German entry cohorts of that time period, survival rates over the different vintages remained fairly constant.

The higher survival rates of entries in East Germany are well reflected in the development of employment in yearly entry cohorts (figure 6). In each cohort initial employment is set to 100 percent in order to make the developments comparable. The employment development for each cohort is displayed until the year 2000. Therefore, the life-span that is recorded here varies between the cohorts. The pronounced decline of employment in each of the East German cohorts during the last year of observation – the year 2000 – points to particular problems of the East German economy at the end of the decade.

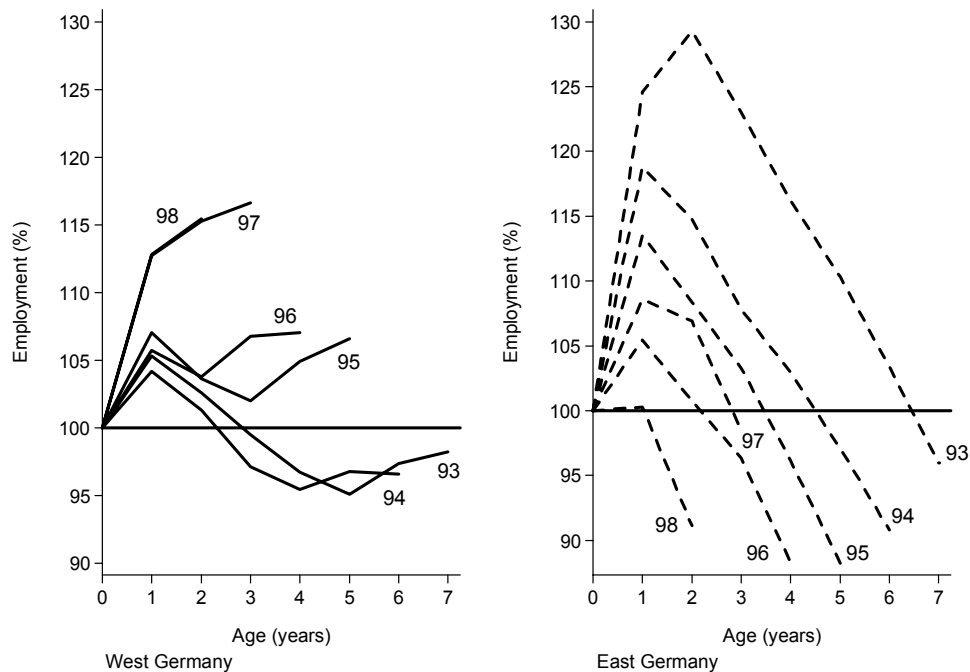


Figure 6: Employment in entry cohorts in East and West Germany

The East German entries for the year 1993, the first year under inspection, performed much better in terms of employment than their West German counterparts – at least over the first six years. In the seventh year, the employment of the East German cohort fell under the level of the West German entries of that particular year. A somewhat similar pattern can be found for the new businesses that had been set up in the following three years. In the cohorts of the years 1994, 1995 and 1996, the East German entries first created more employment, but were then outperformed by their West German counterparts. This difference diminishes for each of the subsequent vintages until 1997 in whose cohorts we see higher employment in the West German entries. These results clearly show that entries into the East German economy of these years had better chances for employment growth than new businesses set up in West Germany – but only in the short and medium run. As soon as the year 1997, the East German entries were clearly outperformed by the new businesses set up in the West. It is quite remarkable that in the 1993-98 period each new yearly East German entry cohort tended to have lower employment growth than its predecessor. In West Germany we observe the opposite pattern. Here each new vintage of new businesses tended to generate more employment than the entries of the year before. Not only were the conditions in the two regions rather different at the beginning of the period under inspection, they also seem to develop in opposite directions!

The reasons for a relatively good or bad performance of a new business may be manifold. However, it does not appear very farfetched, but rather likely to assume that the worsening of employment development in the East German cohorts reflects the legacies of the past, such as deficits in entrepreneurial skills and experiences that were nearly impossible to acquire in a socialist system. It may be relatively easy to run a new business in a sparsely populated market environment where a variety of public subsidies and other support is easily available. But when this favorable constellation phases out, the weaknesses of East German start-ups become clearly visible. Other characteristics of the East German growth regime that may have affected the conditions for development are the still existing backlogs in many areas of infrastructure as well as other factors that are responsible for the yet considerable lower average labor productivity in East Germany at the end of the decade.

It has been shown (section 3.3) that in the year 1992 the size structure of the East and West German manufacturing sector as measured by employment share in different size classes was already quite similar (figure 1). In this comparison, the service sector and other sectors had been left out due to missing data. Looking at the size structures for the whole private sector as is available from the establishment file of the Insurance Statistics, one can see that in mid-1993 the employment share of the large establishments in the East German private sector was already considerably lower than in the West.

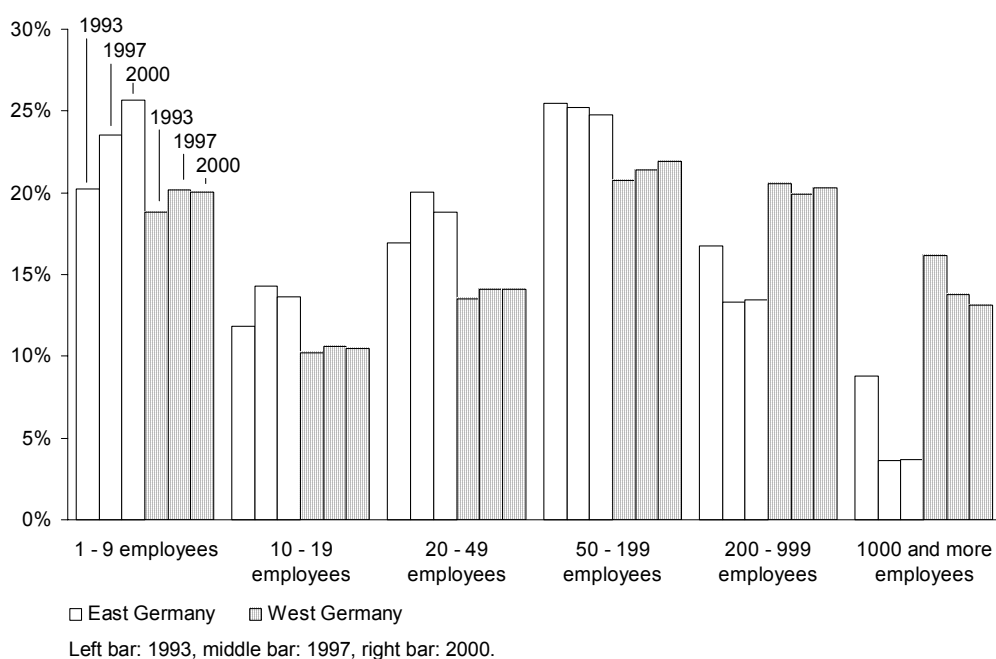


Figure 7: Establishment size structure in East and West Germany 1993 and 1997 - share of employees in different size-categories

As a consequence, the share of small business employment was higher (figure 7). In the 1993-1997 period, the employment share of the large establishments declined in both parts of Germany, but this development was much more pronounced in the East than in the West. The great reduction of large firm employment in East Germany was more or less entirely in old incumbent firms or their legal successors. The rising share of employment in small establishments had two reasons: the continued entry of new small firms and the decline of the larger businesses. As a consequence of these developments, the East German economy of the year 1997 had a much higher share of employment in small establishments than West Germany. The fact that

the changes of the size structure in East Germany between the years 1997 and 2000 have been relatively small can be seen as an indication that a new development phase had begun around this time. The remaining differences between the East and West German economy clearly reflect the history of the two growth regimes. It is not very bold to assume that this history will still have effects in the years if not decades to come.

7. Summary and conclusions

I have argued here that regions may be characterized by different growth regimes in which certain growth determinants have divergent roles. Main reasons for such differences are the region-specific stock of knowledge capital and knowledge spillovers as well as other locational conditions, such as density of economic activity, the industry mix and the characteristics of the regional innovation system. The empirical example of East and West Germany in the 1990s clearly showed enormous differences in the levels of entrepreneurship, the determinants of the decision to start a business and the conditions for the development of new businesses. This example also made clear that the character of a growth regime may change over time, but that the development is path-dependent. Growth regimes do not suddenly evolve from a scratch but rather emerge over a longer period of time. The growth regimes that we currently observe carry their legacy with them and can to some degree be regarded as a reflection of their history. It could clearly be shown that in East Germany, the forty years of socialist planning economy has left deep marks that will persist for a long time. Quite obviously, location and history do matter a lot!

Policies aimed at stimulating development should take such specific characteristics of regional growth regimes into account. The pronounced path-dependency of growth regimes found here suggests that the scope for short-term effects of such policy measures is rather limited. Greater changes can only be achieved in the longer run. Initiating the desired changes requires a good understanding of the characteristics and the mechanism that govern a certain regional growth regime.

References

- Antonelli, Christiano (2000) Collective Knowledge Communication and Innovation: The Evidence of Technological Districts, *Regional Studies* 34, 535-547.
- Antonelli, Christiano (2001) *The Microeconomics of Technological Systems*. Oxford: Oxford University Press.
- Audretsch, David B. (1995) *Innovation and Industry Evolution*. Cambridge: MIT Press.
- Audretsch, David B. and Fritsch, Michael (2002) Growth Regimes over Time and Space. *Regional Studies* 36: 113-124.
- Audretsch, David B. and Fritsch, Michael (2003) Linking Entrepreneurship to Growth: The Case of West Germany. *Industry and Innovation* 10: 65-73.
- Aydalot, P. und Keeble, D. (1988) (eds.) *High Technology and Innovative Environments: The European Experience*, London, Routledge.
- Bundesamt für Bauwesen und Raumordnung (Federal Office for Building and Regional Planning): *Aktuelle Daten zur Entwicklung der Städte, Kreise und Gemeinden, Ausgabe 2002, Berichte, Band 14*.
- Breschi, S. and Lissoni, F. (2001) Knowledge Spillovers and Local Innovation Systems: A Critical Survey. *Industrial and Corporate Change* 10, 975-1005.
- Brezinski, Horst and Fritsch, Michael (1995) Transformation: The Shocking German Way. *Moct-Most* 5 (4): 1-25.
- Brixy, Udo (1999) Die Rolle von Betriebsgründungen für die Arbeitsplatzdynamik („The Role of New Businesses for Employment Dynamics“), Nürnberg: Bundesanstalt für Arbeit (Beiträge zur Arbeitsmarkt- und Berufsforschung, Bd. 230).
- Brixy, Udo and Reinhold Grotz (2004): Differences of the economic performance of newly founded firms in West- and East Germany, in Michael Dowling, Jürgen Schmude and Dodo zu Knyphausen-Aufsess (eds.), *Advances in Interdisciplinary European Entrepreneurship Research*, Muenster: Lit, 143-152.
- Bundesamt für Bauwesen und Raumordnung (2002): *Aktuelle Daten zur Entwicklung der Städte und Gemeinden, Berichte, Band 14*.
- Camagni, Roberto (1991) Local ‘milieu’, uncertainty and innovation networks: toward a new dynamic theory of economic space. In Roberto Camagni (ed.) *Innovation Networks: Spatial Perspectives*, London, Belhaven, 121–144.
- Carroll, G. and Michael Hannan (1989): Density Delay in the Evolution of Organizational Populations, *Administrative Science Quarterly*, 34, 411 – 430.
- Carroll, G. and Michael Hannan (2000): *The Demography of Corporations and Industries*, Princeton (NJ): Princeton University Press.

- Cohen Wesley and Levinthal, Daniel (1989) Innovation and learning: The two faces of R&D - implications for the analysis of R&D investment, *Economic Journal* 99, 569-596.
- Comanor, William S. and Thomas A. Wilson (1967): Advertising Market Structure and Performance, *Review of Economics and Statistics* 44, 423-440.
- Cooke, Philip, Heidenreich, Martin and Braczyk, Hans-Joachim (2004) (eds.), *Regional Innovation Systems - The role of governances in a globalized world*, 2nd edition, London, UCL Press.
- Feldman, M. P. (1999) The New Economics of Innovation, Spillovers and Agglomeration: A Review of Empirical Studies. *Economics of Innovation and New Technology* 8, 5-25.
- Feldman, M.P. and David B. Audretsch (1999) Innovation in cities: Science-based diversity, specialization and localized competition. *European Economic Review* 43, 409-429.
- Fritsch, Michael and Claudia Werker (1994) The Transformation of East Germany's corporate Structure. *East Germany Employment Observatory* No. 13, 3-7.
- Fritsch, Michael and Joern Mallok (1998): Surviving the Transition: The Process of Adaptation of Small and Medium-Sized Firms in East Germany. In Horst Brezinski, Egon Franck and Michael Fritsch (eds.), *The Microeconomics of Transformation and Growth*, Cheltenham: Edward Elgar Publishers, 163-184.
- Fritsch, Michael and Claudia Werker (1999) Systems of Innovation in Transition. In Michael Fritsch and Horst Brezinski (eds.), *Innovation and Technological Change in Eastern Europe – Pathways to Industrial Recovery*. Cheltenham, Edward Elgar Publishers, 5-22.
- Fritsch, Michael and Oliver Falck (2002): New Firm Formation by Industry over Space and Time: A Multi-Level Analysis, Working Paper 11/2002, Faculty of Economics and Business Administration, Technical University Bergakademie Freiberg.
- Fritsch, Michael (2004) Analyse zeitlicher und sektoraler Determinanten des Gründungsgeschehens. In Michael Fritsch and Reinhold Grotz (eds.), *Empirische Analysen des Gründungsgeschehens in Deutschland*. Heidelberg, Physica, 41-57.
- Fritsch, Michael and Udo Brixy (2004): The Establishment File of the German Social Insurance Statistics. *Schmollers Jahrbuch / Journal of Applied Social Science Studies* 124, 183-190.
- Fritsch, Michael and Pamela Mueller (2004) Regional Growth Regimes Revisited, – The Case of West Germany, in: Michael Dowling, Jürgen Schmude and Dodo von Knyphausen-Aufsess (eds.): *Advances in Interdisciplinary European Entrepreneurship Research Vol. II*, Münster: LIT.

- Grabher, G. (1993) Rediscovering the social in the economics of interfirm relations. In: Grabher, G. (ed.) *The embedded firm – On the socioeconomics of industrial networks*, London, Routledge, 1–31.
- Johnson, P.S. and Cathcart, D.G. (1979) The Founders of New Manufacturing Firms: A Note on the Size of their "Incubator" Plants, *Journal of Industrial Economics* 28, 219-224.
- Howells, Jeremy R.L. (2002) Tacit Knowledge, Innovation and Economic Geography, *Urban Studies* 39, 871-884.
- Krugman, P. (1991) *Geography and Trade*. Cambridge (Mass.), MIT-Press.
- Marsili, Orietta (2002): Technological Regimes and Sources of Entrepreneurship, *Small Business Economics* 19, 217-215.
- Maskell, Perter and Malmberg, Anders (1999) Localized learning and industrial competitiveness, *Cambridge Journal of Economics* 23, 167-185.
- Porter, M. (1998) Clusters and the new economics of competition. *Harvard Business Review*, November-December, pp. 77–90.
- Pyke, F., Becattini, G. and Sengenberger, W. (1990) (eds.) *Industrial districts and inter-firm cooperation in Italy*. Geneva, International Institute for Labor Studies.
- Ratti, R., Bramanti, A. and Gordon, R. (1997) *The dynamics of innovative regions: the GREMI approach*. Aldershot, Ashgate.
- Romer, P.M. (1994) The Origins of Endogenous Growth. *Journal of Economic Perspectives* 8, 2–22.
- Saxenian, AnnaLee (1994): *Regional Advantage: Culture and Competition in Silicon Valley and Route 128*, Cambridge (Mass.): Harvard University Press.
- Schumpeter, Joseph Alois (1911) *Theorie der wirtschaftlichen Entwicklung*. Berlin: Duncker & Humblot.
- Schumpeter, Joseph Alois (1942) *Capitalism, Socialism and Democracy*. New York: Harper and Row.
- Sinn, Gerlinde and Hans-Werner Sinn (1992): *Jumpstart: The Economic Reunification of Germany*, Cambridge, MA: MIT-Press.
- Statistisches Bundesamt (1990) *DDR 1990*. Stuttgart, Poeschel.
- Statistisches Bundesamt (various volumes) *Stand und Entwicklung der Erwerbstätigkeit*, Fachserie 1, Reihe 4.1.1, Table 7.9.
- Statistisches Bundesamt (various volumes) *Betriebe, Beschäftigte und Umsatz im Bergbau und im Verarbeitenden Gewerbe nach Beschäftigtengrößenklassen*, Fachserie 4, Produzierendes Gewerbe, Reihe 4.1.2. Stuttgart, Poeschel.

- Thomas, Michael (1996): How to become an entrepreneur in East Germany: conditions, steps and effects of the constitution of new entrepreneurs, in Horst Brezeinski and Michael Fritsch (eds.) *The Economic Impact of New Firms in Post-Socialist Countries - Bottom Up Transformation in Eastern Europe*. Cheltenham, Elgar, 227-232.
- Van Ark, Bart (1995); *The Manufacturing Sector in East Germany: A Reassessment of Comparative Productivity Performance, 1950-1988*, *Jahrbuch für Wirtschaftsgeschichte*, 2.
- Van Ark, Bart (1997) *Convergence and divergence in the European periphery: productivity in Eastern and Southern Europe in retrospect*, in Bart van Ark and Nicholas Crafts (eds.) *Quantitative aspects of post-war European economic growth*, Cambridge: Cambridge University Press.
- Varga, Attila and Schalk, Joachim (2004) *Knowledge Spillovers, Geography and Macroeconomic Growth*. *Regional Studies* 38.
- Von Hippel, Eric (1994): “Sticky information“ and the locus of problem solving: implications for innovations, *Management Science*, 40, 429-439.
- Winter, Sidney G. (1984): *Schumpeterian Competition in Alternative Technological Regimes*, *Journal of Economic Behavior and Organization*, 5, 287-320.

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2004

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