

The Shadows of the Past

How Implicit Institutions Influence Entrepreneurship

Stefan Bauernschuster[†], Oliver Falck^{*}, Robert Gold⁺, Stephan Hebllich[‡]

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[†] University of Jena, Graduate College “The Economics of Innovative Change”, Carl-Zeiss-Str. 3, D-07743 Jena (Germany), Phone: +49 3641 9 43271, Email: stefan.bauernschuster@uni-jena.de.

^{*} Ifo Institute for Economic Research, Poschingerstr. 5, D-81679 Munich (Germany), Phone: +49 89 9224 1370, Email: falck@ifo.de, CESifo, and Max Planck Institute of Economics.

⁺ Max Planck Institute of Economics, Entrepreneurship, Growth, and Public Policy Group, Kahlaischestr. 10, D-07745 Jena (Germany), Phone: +49 3641 686 727, Email: gold@econ.mpg.de.

[‡] Max Planck Institute of Economics, Entrepreneurship, Growth, and Public Policy Group, Kahlaischestr. 10, D-07745 Jena (Germany), Phone: +49 3641 686 733, Email: hebllich@econ.mpg.de.

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Abstract

This paper investigates the impact of implicit institutions on the decision to become an entrepreneur. Implicit institutions are here defined as mindsets that have developed as the result of norms and traditions and we expect they will have an influence on risk attitudes and opportunity recognition. We conduct a natural experiment based on Germany's recent history and compare individuals born and raised in the former socialist East Germany (GDR) with their West Germany (FRG) counterparts. Our analysis confirms the expected difference in values between individuals from East and West Germany and also shows that these differences influence the probability of being self-employed. In the process of our analysis, we also sketch the ongoing economical transition process in East Germany, which severely disturbs a proper analysis of the institutional differences from a macro-perspective.

Keywords: Implicit Institutions, Entrepreneurship, Socialism, Capitalism

JEL classification:

1. Introduction

In 1956, Soviet Union premier Nikita Khrushchev, when addressing Western ambassadors, said “we will bury you.” At the time, such a threat did not seem farfetched; after all, the USSR had just won the space race by launching Sputnik and the West was, indeed, running scared. There was a general consensus that the central planning taking place in the Soviet Union would produce persistently high growth rates (Moore 1992). However, after some 30 years, it became clear that this fear, at least, was baseless. As nicely set out by Audretsch (2007), the socialist planned economy did well at large-scale mass production but lost ground when it came to the creativity necessary for new ideas and growth-enhancing innovation. The socialization of profits worked against Schumpeter’s pioneer rent as motivation for entrepreneurial action and hence individuals lacked any incentive to build on existing knowledge and develop new ideas. Accordingly, technological progress leading to economic growth was comparatively slow, which eventually led to the system’s collapse. In the long run, the free market economy proved to be superior, not the least because it provided individual freedom for entrepreneurial activity.

The general history of these two economic systems is a lesson in the importance of prevailing institutions to entrepreneurship. Delving a little deeper, however, by following North (1990), at least two different kinds of institutions can be discerned. First are the explicit institutions in the form of laws e.g. regarding property rights and individual freedoms. Second are the implicit institutions, in the form of prevailing values and norms, which e.g. help determine an individual’s risk attitude or capacity for opportunity recognition. The collapse of the former socialist countries led to a change in the explicit institutions, with many of these countries heading in the direction of a market economy. But did the implicit institutions change as well? A large body of literature suggests that societal norms and values develop over time, are quite persistent, and change only gradually over the course of one or two generations (Halaby 2003; Alesina and Fuchs-Schündeln 2007). Therefore, even though the explicit institutions are becoming more similar in the East and the West, the degree of entrepreneurial activity in former socialist countries may show less convergence due to still prevailing implicit institutions. Given the intuitive, complex interaction between explicit and implicit institutions, it does not seem feasible to design policy

aimed at enhancing entrepreneurial activity in former socialist countries without disentangling these institutions and their effects.

That is why this paper's goal is to disentangle the effects of implicit and explicit institutions on entrepreneurial intentions. To do so, we take advantage of Germany's recent history, which provides us with an identification strategy. In today's reunified Germany, citizens from both the former German Democratic Republic (GDR) as well as from the Federal German Republic (FRG) face a similar (explicit) institutional framework for entrepreneurs. However, the legacy of a divided Germany may result in the implicit institutions of the past overshadowing the future. In particular, we expect that the experience of a socialist environment, along with an education and socialization according to communist values, will continue to influence the attitudes of individuals who were raised in the former GDR (c.f. Mortimer and Lorence 1979, Hout 1984). As the implicit institutions prevailing in the former GDR were hostile toward a market economy, it seems plausible to suppose that they also influence economic decisions such as the choice to become an entrepreneur. Therefore, we suspect that individuals who were born and raised in East Germany possess less intrinsic motivation to become an entrepreneur than their fellow citizens in West Germany.

However, simply comparing East Germans with West Germans is not sufficient to predict the influence of implicit institutions on entrepreneurship because the conditions and opportunities available in each part of the country could differ significantly due to the reunification process. That this is indeed the case becomes obvious when the number of firm foundations in East German regions is compared to that of West German regions using data from the German Social Insurance Statistic, which accounts for all firms having at least one employee liable to obligatory social insurance. The analysis shows that start up rates are persistently higher in East Germany, which can be explained by an ongoing catch-up process resulting from the implementation and development of market structures after the breakdown of the socialist regime.

Yet the individual motivation to become an entrepreneur as it is influenced by implicit institutions should still vary despite the catch-up process and all the economic incentives offered to affect the same. Using data from ALLBUS, a socioeconomic

survey conducted on a sample of the German micro-census, we therefore compare individuals born in East Germany who emigrated to West Germany in the early days of the GDR, and hence are less likely to have absorbed socialist values, to individuals born in West Germany as well as to those born in East Germany who emigrated or fled to West Germany after the mid 1980s and hence are more likely to be influenced by socialist values. Our analysis confirms the expected value differences between West and East Germany and also finds that these differences have a significant impact on the probability of being self-employed. Particularly, early emigrants from the GDR turn out to be much more similar to individuals born and raised in West Germany, while late emigrants clearly show the effects of being treated with socialist institutions for a longer period of time.

The remainder of the paper is organized as follows. Section 2 develops in more detail the role of explicit and implicit institutions in entrepreneurial activity and relates this to the context of the former socialist East Germany and democratic West Germany. Section 3 explicates the differences in entrepreneurship between East and West Germany as found in macro-level data. Section 4 analyzes the effects of implicit institutions on entrepreneurship using micro-level data, drawing upon German reunification as a natural experiment. Section 5 concludes.

2. Theoretical Background

What Drives Entrepreneurship

The decision to start a business and become an entrepreneur is influenced by various factors, not least by personal characteristics. As Kihlstrom and Laffont (1979) show, these include an individual's risk attitude as well as his or her motivation (Schumpeter 1912) and skills (Lazear 2005), along with the ability to spot niches in the market (Kirzner 1973), raise financial resources (Michelacci and Silva 2007; Guiso *et al.* 2004), and networking ability (Sanders and Nee 1996; Stuart and Sorenson 2005).¹

The decision to start a business is also influenced by external characteristics based in the surrounding institutional framework. This is made obvious in Saxenian's (1994) well-known comparison between the evolution of the famous Silicon Valley in

¹ For an overview, see Parker (2004).

California and Route 128 in Boston, Massachusetts. These are both high-tech districts, but they have evolved in widely divergent ways. Much of Silicon Valley's greater success compared to Route 128 is the result of institutional factors. Massachusetts law contains a provision regulating post-employment covenants not to compete. By contrast, there is no such law in California and, apparently, the complete absence of legal restrictions on job mobility and hence the diffusion of knowledge led to a vertically disintegrated, entrepreneurial business culture in Silicon Valley, where new ideas quickly result in new firms (Gilson 1999, Klepper 2009). Public research facilities, leading to increased knowledge flows, and public funding are other environmental factors that stimulate entrepreneurship. By contrast, an extensive welfare system could affect individual risk-aversion and (leisure) time preferences in ways that lessen the incentive to become an entrepreneur (Parker and Robson 2004; Fölster 2002).

Both personal and external characteristics are factors in an individual's decision-making process, but their relative importance depends on the person's psychological makeup. For instance, entrepreneurial individuals are expected to be more risk accepting, self-confident, and independent (cf. Blanchflower and Oswald 1998; Camerer and Lovallo 1999; Parker 2004). Accordingly, individuals with strong entrepreneurial intentions are likely to overcome financial or other constraints, whereas less entrepreneurial individuals might be discouraged more easily. An individual's self-image is strongly influenced by his or her education and overall socialization (Halaby 2003, Falck *et al.* 2009), which determine how the person understands the prevailing social norms and habits, which in turn shape the individual's view of *who he or she is* and what the individual and others *should* or *should not* do (Bernhard *et al.* 2006). Accordingly, these non-codified social obligations act as implicit institutions that do not explicitly prescribe individual behavior, but nevertheless have a crucial impact on economical decisions and actions (North 1991). Particularly, they affect an individual's tendency to have a rather entrepreneurial or a rather bureaucratic job orientation (Miller and Swanson 1958).

Implicit Institutions and Entrepreneurship

We define implicit institutions as the mindsets individuals develop by being exposed to their society's norms and traditions. With regard to entrepreneurship, these implicit institutions might influence an individual's desire to be self-employed, as well as his or her risk attitude and capacity for opportunity recognition. Consider an individual growing up in an environment of freedom, liberalism, and self-realization. This person might never have read about Schumpeter's (1912) entrepreneurial virtues, but he or she will certainly have a better understanding of them, even if not explicit, than will an individual growing up in an egalitarian society where competition and individual self-realization are proscribed (cf. Alesina and Fuchs-Schündeln 2007). In an environment where self-reliance and self-realization are not rewarded by the expectation of future profits, most people would rather work 9 to 5 for predictable wages. The resulting increase of risk aversion and decrease of individual incentive will eventually crowd out the entrepreneurial spirit altogether.

It is this situation that describes the business environment prevalent in the former socialist countries of the Eastern Bloc. These planned economies had no room for entrepreneurial activity and their suppressive political regimes favored communist ideals and egalitarianism over liberalism and individuality. Private property was nationalized and for nearly 50 years people were raised and educated according to socialist values—a period long enough to develop the belief that conformity was the norm, individuality a form of deviance.² Thus, implicit institutions rejecting entrepreneurship were established and internalized over a fairly long period, making them unlikely to vanish over night, regardless of how the rest of the world changed.

German reunification in 1989 resulted in the present situation where all Germans, regardless of whether they were raised in the GDR or the FRG, now share a common democratic constitution that guarantees the rule of law, property rights, and (economic) freedom. In other words, all market actors in Germany today operate within the same or a very similar institutional framework. However, implicit

² Eventually, this lack of individual incentives also contributed to the low level of productivity in Eastern Bloc countries (VanArk 1996), particularly to the lack of productivity of the GDR as compared to the FRG (VanArk 1995).

institutions (i.e., mindsets and value systems) cannot be changed by edict and we therefore expect persisting differences in the social norms and values of these two formerly separated parts of Germany. Considering further that the socialist ideology systematically oppressed entrepreneurship and entrepreneurial virtues, entrepreneurship in East Germany should differ significantly from that in West Germany. Thus, the prevailing differences in implicit institutions between East Germans and West Germans should result in systematic differences in the desire to become self-employed as well.

In the following empirical part of this paper, we consider Germany's recent history as a natural experiment and exploit the fact that two different mindsets exist within a similar institutional environment. This strategy is supported by Alesina and Fuchs-Schündeln's (2007) findings that East and West Germany were mostly indistinguishable until the exogenously imposed separation in 1945. This setup will eventually allow us to disentangle the influence of explicit and implicit institutions on the decision to start a business.

3. Empirics on the Macro Level

Analytical Framework

We hypothesize that implicit institutions, defined as the common values and beliefs that prevail in a society, have an influence on entrepreneurship. Particularly, the decision to start a business and become an entrepreneur should be affected by implicit institutions. Accordingly, individuals who are raised and educated in an atmosphere of freedom and self-reliance should be more willing to become self-employed than individuals who are constantly confronted with social norms that discourage entrepreneurship. Reunified Germany provides a unique opportunity to test this hypothesis. Since East Germans were brought up in a socialist country, they may be assumed to be more critical toward entrepreneurship than their fellow citizens who grew up in the Federal Republic of Germany. All else equal, this means that there should be fewer new enterprises in the eastern part of Germany than in the western part. However, this *ceteris paribus* condition might be difficult to fulfill when it comes to structural differences between East and West Germany, as we detail next.

As “agents of change and growth” (OECD 1998, p. 11), entrepreneurs can be assumed to play a crucial role in the transition from a central planned economy, such as that of the former GDR, to a free market economy, such as it now exists in reunified Germany. “Entrepreneurs not only seek out potentially profitable economic opportunities but are also willing to take risks to see if their hunches are right” (OECD 1998, p. 11). The immense structural change that occurred in East Germany following the “jump start” of reunification (Sinn and Sinn 1992) certainly created a great many opportunities to start up new businesses and firms. Hence, the very first years after reunification are characterized by intense entrepreneurial activity in the East German regions. Implementation of a market economy in the former socialist region resulted in the privatization of state-owned firms as well as in new firm startups in all sectors. It was, in short, an extraordinary time to be an entrepreneur. The more or less total absence of an established market structure, not to mention a real scarcity of competitors, was fertile ground for new ventures. This turbulent free market environment in the former GDR for the first few years after reunification just leads to much noise in the data. Therefore, we compare founding figures between East and West German regions for the period starting 10 years after the collapse of the socialist regime (1999) until 2004.

We use data provided by the German Social Insurance Statistics. The Social Insurance Statistics requires every employer to report certain information, e.g., qualifications, about every employee subject to obligatory social insurance. The information collected can be transformed into an *establishment file* that provides longitudinal information about the establishments and their employees. As each establishment with at least one employee subject to social security has a permanent code number, startups and closures can be identified. The appearance of a new code number can be interpreted as a startup; the disappearance of a code number can be interpreted as a closure. The unit of measurement is the establishment, not the firm. The empirical data thus derived include two categories of entities: firm headquarters and subsidiaries. As several studies have shown that “real” startups tend to be small, we exclude new establishments with more than 20 employees in the first year of their existence. For a detailed description of this data, see Fritsch and Brixey (2004).

At this point, we need to distinguish between “necessity” entrepreneurship (c.f. Reynolds et al. 2005) and “opportunity” entrepreneurship (c.f. Kirzner 1973). Both

occur at a high rate in the former GDR. The first type, necessity entrepreneurship, arises, as its name implies, out of necessity. When the large state-owned enterprises in the GDR were privatized, many people lost their jobs and even to this day the region has a relatively high unemployment rate. Unemployment does increase start up rates; people start a business as a means to survival (Uusitalo 2001; c.f. Dennis 1996). However, our focus here is on the other type of entrepreneurship, that which arises out of opportunity instead of necessity. We are interested in the deliberate choice to start a new firm and become self-employed and to this ends, we look only at startups that have at least one employee other than the owner in the year of founding. The logic behind this decision is based on the assumption that entrepreneurs who immediately recruit employees when founding a firm are more likely to have longer-term expectations for their business, to be acting intentionally rather than due to lacking alternatives—in short, to be taking advantage of an opportunity instead of being pushed into entrepreneurship by necessity. As mentioned above, we nevertheless omit from our analysis new firms with more than 20 employees in the initial start-up phase, since many of them are likely to be new subsidiaries of existing firms and, by extension, hardly likely to be the outcome of an individual entrepreneur's occupational choice.

We concentrate our analysis on startups in the manufacturing sector, which should also help to focus on opportunity entrepreneurship. Founding a manufacturing firm can be assumed to require at least some capital investment, which is not necessarily the case for other types of businesses, for example a service-related one. Hence, entrepreneurs in manufacturing are very likely to have made a deliberate occupational choice and committed themselves to self-employment. Nevertheless, even the decision to become a manufacturing entrepreneur will be subject to a variety of factors, some of which might be region-specific. Hence we need to identify regions in West Germany and in East Germany that are similar with regard to the regional factors driving entrepreneurship.

Accordingly, we concentrate on regions in western Germany that are near the former border with East Germany. Before reunification, these FRG regions were classified as peripheral and they received reduced public infrastructure investment. Consequently, the private sector also invested rather modestly in the boarder region. In short, the world ended at the Iron Curtain. Business could not be conducted behind it and the

threat of war and loss of property was very real. Thus, the regions at the inner German border were economically underdeveloped and still are to a great extent.

However, a couple of regions near the former boarder always have and continue to do quite well. We omit these particular border regions from our analysis, since entrepreneurial opportunities are much greater in them than in the other areas. Instead, we concentrate on the border regions that are classified as development regions under Objective 2 from 2000-2006 (respectively, Objective 5b from 1994-1999) of the European Structural Funds. This has the advantage of easing our comparison between East and West, as the whole area of the former GDR falls into Objective 1 of the Structural Funds, thus making it eligible for public funding of economic development. To compensate for the gap resulting from the exclusion of the non-funded regions, we additionally include the Objective 2 regions in eastern Bavaria, which did not lie on the inner German border but border on the Czech Republic, former CSFR. Thus, these regions also faced the problems inherent to being on the outskirts of the free world, hemmed in by the Iron curtain. Consequently, we analyze those districts (Landkreise) in West Germany that adjoin the former Iron Curtain plus the counties adjoining these border counties if they also qualify for public funding under Objective 2 (respectively, Objective 5b) of the European Structural Funds.

In East Germany, we concentrate on the counties that adjoin the former border plus those counties that adjoin these border counties. Omitting the remaining counties avoids the possibility that effects of natural regional conditions might influence the results. These conditions differ across the former GDR, whereas the counties along the border are similar to their western counterparts with respect to geography and natural resources. Furthermore, their situation in the GDR was comparable to the conditions for the western counties in one important aspect: all of these counties were located at the far end of the socialist world. Trading, travelling, and even communication only went in one direction; there was no perspective for cross-border development of any type. Thus, the border region is most suitable for comparing East and West Germany, since the counties within these regions are as similar to each other as it is possible to be. Some descriptive statistics for the resulting districts included in our analysis are found in Appendix 1.

Differences in Start-Up Rates

To test whether the implicit institutions of a socialist society have a prevailing influence on entrepreneurship, we calculate start-up rates for every region and for each year from 1999 to 2004 by dividing the number of start ups by number of inhabitants, number of employees and number of firms in manufacturing. According to our hypothesis, implicit institutions should have a negative effect on start-up rates in the eastern regions, but as Table 1 reveals, this is not the case in our data. In fact, the start-up rates in the eastern regions exceed the western start-up rates in every year of analysis, regardless of how the rate is calculated.

Table 1: Start-Up Rates in Manufacturing: Comparison Between East and West German Districts

		1999	2000	2001	2002	2003	2004
Number of start-ups in manufacturing	West	20.54	21.38	17.8	18.88	17.82	16.76
	East	33.32	23.36	20.72	21.96	19.70	19.19
	Diff.	12.78***	1.98	2.92**	3.08*	1.88	2.43*
Start-up rate I (start-ups/employees in manuf.)	West	0.00205	0.00208	0.00177	0.00186	0.00188	0.00190
	East	0.0054	0.00384	0.00346	0.00360	0.00329	0.00325
	Diff.	0.00339***	0.00176***	0.00169***	0.00174***	0.00140***	0.00135***
Start-up rate II (start-ups/inhabitants)	West	0.00017	0.00017	0.00015	0.00016	0.00015	0.00014
	East	0.00030	0.00021	0.00019	0.00020	0.00018	0.00019
	Diff.	0.00013***	0.00004***	0.00005***	0.00005***	0.00004***	0.00004***
Start-up rate III (start-ups/firms in manuf.)	West	0.05626	0.05909	0.05150	0.05456	0.05293	0.05162
	East	0.09629	0.07125	0.06694	0.07123	0.06585	0.06682
	Diff.	0.04003***	0.01216***	0.01544***	0.01666***	0.01291***	0.01519***

Overall, the number of startups in manufacturing decreases in both West and East Germany, albeit not uniformly. Over time, the difference between the eastern and the western regions loses its significance. If we follow a labor market approach and calculate start-up rate I as the number of startups in manufacturing divided by the number of employees in manufacturing, we see a decline in both the West and the East over time. The difference between East and West decreases but remains significant, leaving the eastern regions with a rate in 2004 that is 0.00135 points higher than that in the western regions. Start-up rate II, calculated by dividing the number of startups by the total number of inhabitants, leads to very similar results.³ Under these start-up rates, the probability that an inhabitant (respectively, employee) of the East German regions finds a business in manufacturing is higher every year,

³ Please note that this is only an approximation since the number of inhabitants exceeds the share of the working age population.

even 14 years after reunification. If we take an ecological approach⁴ and calculate start-up rate III as the number of startups divided by the number of manufacturing firms in the respective regions, we obtain a slightly different result with more variance. This start-up rate is relatively stable in the western regions, but it experiences a remarkable decline in the eastern regions from 1999 to 2000. After 2000, the rate continues to decrease in the eastern areas, but also continues to be significantly higher than the start-up rates in the western areas.

Thus, the data suggest that implicit institutions inherited from the socialist era in eastern Germany do *not* lead to less start-up activity in the eastern parts of Germany. There are three possible reasons for this counterintuitive result. It might be that (1) implicit institutions do *not* vary between the two regions at all. Or, perhaps it is that (2) implicit institutions *do* differ between the two regions, but do not affect entrepreneurship. Alternatively, it could also be that (3) implicit institutions are significantly different in East as compared to West Germany and do hinder entrepreneurship in eastern Germany, but that this effect is *overcompensated* by further regional differences such as better opportunities and/or even increased necessity for firm foundations in East Germany. This third explanation would be in line with our original hypothesis.

But unfortunately, the turbulence induced by reunification seems to be producing so much noise in our macro data that it is not possible to clearly identify the effects of implicit institutions. This possibility receives support from a broad range of literature revealing the transition process to still be in progress, thus leading to significant differences in both opportunity and necessity entrepreneurship in the eastern part of our research area (Barro and Sala-i-Martin 1991; Fritsch 2004). The figures presented in Table 2 provide more evidence that East Germany is experiencing an ongoing development process that distorts the empirical analysis of aggregated data.

⁴ For a comparison of the labor market approach and the ecological approach, see Audretsch and Fritsch (1994).

Table 2: Persisting Differences Between East and West Germany (Districts' Averages)

		1999	2000	2001	2002	2003	2004
GDP	West	2713335	2755099	2824650	2837641	2851413	2906028
	East	1810424	1845522	1893191	1926538	1947363	2003500
	Diff.	902911.4***	909576.3***	931459.4***	911102.9***	904050.6***	902527.7***
GDP per capita	West	22.17	22.52	23.13	23.25	23.34	23.89
	East	16.28	16.70	17.32	17.84	18.17	18.76
	Diff.	5.88***	5.82***	5.81***	5.42***	5.17***	5.13***
Firms in manufacturing	West	377.36	374.62	366.4	358.8	353.24	345.18
	East	346.81	335.15	324.91	315.26	307.00	300.53
	Diff.	30.55	39.47	41.49*	43.54*	46.24*	44.6*
Employees in manufacturing	West	12648.62	12674.46	12672.72	12349.86	12080.68	11828.70
	East	6324.23	6488.23	6549.11	6502.64	6418.77	6404.11
	Diff.	6324.39***	6186.23***	6123.61***	5847.22***	5661.91***	5424.59***
Shutdowns in manufacturing	West	28.24	28.16	29.38	28.22	.	.
	East	38.38	34.45	35.89	31.26	.	.
	Diff.	10.14***	6.29**	6.51**	3.04	.	.
Inhabitants	West	123999.1	124078.3	124149	124230.4	124145.7	123910.5
	East	110009	109374.5	108578.7	107783.1	106996	106218.4
	Difference	13990.10*	14703.77*	15570.28**	16447.25**	17149.70**	17692.14**

Table 2 demonstrates that the eastern districts show steady improvement in economic performance and consistent increases in regional GDP as well as GDP per capita. Nevertheless, because the western regions are also growing, East Germany is not able to catch up: the gap between East and West is stable and significant. With respect to the manufacturing sector, we see that, over time, the number of firms decreases in both East Germany and West Germany, but in the process, the differences between East and West become stronger. Simultaneously, the difference in the number of employees in the manufacturing sector decreases, albeit remaining significant. Moreover, from 1999 to 2004, the number of firm shutdowns rapidly decreases in the East, eventually becoming insignificantly different from that in West Germany by 2004.

In sum, the development in the eastern part of the country is consistently moving toward that which obtains in West Germany, but is far from catching up. Hence, the persistent economic dynamics make it impossible to disentangle the influence of implicit institutions on entrepreneurship. The regions are still too different to be compared as we intended. Particularly, start-up rates remain higher in the eastern parts, since the establishment and consolidation of market structures continues and is accompanied by new firm foundations. Analyzing the convergence process within Germany from 1992 to 2005, Schindele (2009) shows that East Germany has a faster growing self-employment rate than does West Germany but that this growth rate is

slowing over time. She estimates that c.p. it will take 50 years for the self-employment rate in the East to reach the same level as in the West. In such an environment, our empirical strategy of identifying implicit institutions by comparing start-up rates is not feasible. Obviously our aggregated macro-level data is no appropriate basis for comparison as long as the denominator of the start up rates is continuously changing. However, Schindele's (2009) findings do appear to support our idea that there is some structural difference between East and West Germany with regard entrepreneurial aspirations. In the remainder of the paper, we hence face up to the problems of macro-level data and turn to micro-level data instead.

4. Empirics at the Micro Level

Occupational Choice and Entrepreneurial Attitude

The aggregated data do not reveal that implicit institutions have any influence on entrepreneurship, thus throwing doubt on our hypothesis that they do. However, in an effort to ascertain whether our hypothesis may still hold, we now adjust our empirical strategy and turn to focus on an individual's choice to become a self-employed entrepreneur, arguing that this choice is influenced by the implicit institutions to which the individual is subject. In particular, the social norms and values an individual adheres to should have an influence on his or her propensity to become an entrepreneur. To measure the effect of implicit institutions on an individual's occupational choice, we make use of individual-level data.

The ALLBUS survey (Allgemeine Bevoelkerungsumfrage der Sozialwissenschaften) is a valuable data source for our research. It is the German equivalent to the U.S. General Social Survey (GSS) and currently covers the period from 1980 to 2006. The ALLBUS program was financially supported by the German Research Foundation (DFG) from 1980 to 1986 and in 1991. Further surveys were financed on a national and federal state (Laender) level via the GESIS network (Gesellschaft Sozialwissenschaftlicher Infrastruktureinrichtungen). The dataset is based on regularly repeated, representative surveys of the German population conducted through personal interviews. ALLBUS covers a wide range of topics pivotal to empirical research in social sciences. A core set of questions is asked in every wave of the survey, with various sets of additional questions added in different years. Terwey

et al. (2007) provide detailed information on the ALLBUS surveys in general and present all variables available in the cumulated dataset from 1980 until 2006.

We use the 1991 wave, which contains information on individual attitudes toward job security, and the 1994 and 2004 waves, which contain information on individual attitudes toward the welfare state. The two relevant statements in the survey are “Job security is very important for me” and “The welfare state reduces incentives to work.” For the first statement, the interviewee can choose an answer on a scale ranging from 1 (not at all important) to 7 (very important); for the second statement, the interviewee can choose an answer on a scale ranging from 1 (completely agree) to 4 (completely disagree). We believe that these two statements best describe individual attitudes toward the welfare state and self-reliance. Including these variables in a simple occupational choice equation,

$$\Pr(y_i = 1 | \cdot) = \alpha + \beta_1 att_i + X_i \beta_2 + \varepsilon_i, \quad (1)$$

leaves us with a testable hypothesis of what Audretsch (2007) describes as the welfare state in an industrialized society dominated by large and stable businesses that eventually crowd out entrepreneurial activity. $\Pr(y_i = 1 | \cdot)$ is the conditional probability of being an entrepreneur. y is an indicator variable that takes the value of unity if person i is an entrepreneur in the year 1991 or 1994 and 2004. If the person is dependently employed, y takes the value 0. att is the level of agreement with one of the two statements on job security or the welfare state. X is a set of individual control variables that might influence a person’s occupational choice. Since research has shown pronounced differences between men and women as to the likelihood of becoming self-employed (e.g., Moog and Backes-Gellner 2009), we implement a gender dummy: 0 for men, 1 for women. To control for immobility, we introduce a dummy variable indicating whether a person is a tenant or owns his or her own home. According to DiPasquale and Glaeser (1999), home ownership decreases mobility, which in turn might hinder an individual from changing occupational status. Another dummy variable is included to capture the effects of marital status on an individual’s propensity to become self-employed. It takes the value 1 if the interviewed person is married and lives with his or her spouse, 0 otherwise. We suspect that singles are more likely to become self-employed, since any risk involved in such an endeavor would be theirs alone, that is, they are not responsible for the safety, financial or

otherwise, of a partner. Or, in other words, one could say that being married shows a time allocation preference for family.

We control for a person's nationality by including a binary variable with the value 1 for non-German, 0 otherwise. To capture human capital effects, we include a person's education and working experience. Information on the respondents' secondary education is available for the entire period analyzed. We generate a categorical variable signifying whether an individual has no secondary school education, lower (Hauptschulabschluss), medium (Mittlere Reife), or higher (Hoch-/Fachhochschulreife) secondary education. As a proxy for working experience, we take an individual's age and subtract the time before school enrollment and the number of years spent in school. Additionally, we control for the effect of unemployment. We use a variable that indicates whether the respondent was unemployed within the last 10 years and, if yes, if he or she was without a job for more than one year. All control variables except work experience differ significantly between East and West Germany. Finally, we include a dummy for East Germany and year dummies if appropriate. We estimate our occupational choice equation by a simple probit model. The results of the model are reported in Table 3.

Table 3: Occupational Choice of Being Self Employed

	OCCUPTIONAL CHOICE	
	Cross section 1991	Repeated cross section 1994, 2004
Job security	-0.184 *** <i>0.042</i>	
Welfare State		-0.208 *** <i>0.035</i>
Controls	Yes	Yes
Number of observations	1,591	3,005
Wald test	93.21 ***	158.12 ***
Pseudo R ²	0.112	0.0779

Robust standard errors in italics.

Full results of the probit estimations can be found in the Appendix. Of greatest import here is that the negative coefficients of both variables of interest confirm Audretsch's (2007) crowding out hypothesis. However, this result might be biased due to

unobserved heterogeneity. Therefore, in a next step, we exploit the natural experiment of past German separation to come closer to a causal identification.

The German Separation as a Natural Experiment

German separation and its termination through reunification can be viewed as an exogenous shock (Bach and Trabold 2000; Frijters et al. 2004; Fuchs-Schündeln and Schündeln 2005). After World War II, Germany was divided into two parts, the Federal Republic of Germany in the West and the German Democratic Republic in the East. By 1952, the inner German border was so fiercely guarded that it was extraordinary difficult for East Germans to enter West Germany. The city of Berlin was the only place where it was still feasible to cross the border quite easily. However, the building of the Berlin Wall in 1961 closed even this gate. During the following decades, the two German states developed very differently. Under the influence of the Western allies, West Germany developed into a democratic state with a free market economy, whereas East Germany became a socialist, centrally planned economy under the influence of the Soviet Union. Naturally, these diametrical contexts influenced their inhabitants' worldviews and attitudes toward the state and society. The German people were not only physically separated by walls and barbed-wire fences, they were also separated from each other by their implicit institutions. It was only when the Berlin Wall fell and Germany was subsequently reunified that this sharp separation of East and West Germans came to an end.

Today, explicit institutions are consistent, for the most part, across all of Germany. However, past differences between the two regions' economic and political systems clearly resulted in differences in socialization between the residents of each region. We suggest that the results of these differences in socialization are still observable today, i.e., the past casts a shadow over the present. And, indeed, a simple mean comparison of several attitudes toward the state and society in general show statistically significant differences between those born and raised as East Germans and those born and raised as West Germans (cf. Table 4).

Table 4: Differences in Attitudes Between East and West Germans

	East Germans	West Germans	Significant difference
<i>Level of agreement on a scale from 1 to 4 (1=fully agree; 4=don't agree at all)</i>			
"Employers' Profits Foster the Economy" (obs.: 900 and 1,704)	2.205556 <i>0.0313849</i>	1.971831 <i>0.0200678</i>	***
"The state has to care for employment and price stability even if this cuts the rights of employers." (obs.: 894 and 1,688)	1.950783 <i>0.0302769</i>	2.28673 <i>0.0216537</i>	***
"The state has to care for the sick, poor, old, and unemployed." (obs.: 2,380 and 3,267)	1.436555 <i>0.0128534</i>	1.802265 <i>0.0133732</i>	***
"The current social security system reduces work incentives." (obs.: 900 and 1,700)	2.992222 <i>0.0305866</i>	2.485294 <i>0.0227024</i>	***
"Economic profits are distributed fairly in Germany." (obs.: 887 and 1,674)	3.363021 <i>0.0210161</i>	2.942055 <i>0.0182559</i>	***
"Everybody should get the money he needs - regardless of any performance." (obs.: 2,327 and 3,230)	2.63902 <i>0.0196446</i>	2.75387 <i>0.0157321</i>	***
"Income differences give incentives to work hard." (obs.: 2,304 and 3,210)	2.563802 <i>0.0187057</i>	2.292835 <i>0.0153488</i>	***
"Rank differences are performance based and therefore acceptable." (obs.: 2,324 and 3,196)	2.726764 <i>0.018529</i>	2.46433 <i>0.014985</i>	***
"Social status differences are just - by and large." (obs.: 2,341 and 3,208)	3.220846 <i>0.0155162</i>	2.629052 <i>0.0148429</i>	***
<i>Level of importance on a scale from 1 to 7 (1=not important; 7=very important)</i>			
"How important is a secure job to you?" (obs.: 859 and 631)	6.661234 <i>0.0293392</i>	6.087163 <i>0.0471086</i>	***

Standard errors in italics.

Table 4 clearly shows that East Germans tend to be less self-reliant, and more reliant on the state, than are West Germans. They also are more skeptical about the role of enterprise in the economy and they have higher levels of risk aversion than West Germans. Thus, implicit institutions as shaped by the socialist regime still appear to exist in the eastern parts of reunified Germany. One might argue that these substantial differences are mainly due to different labor market characteristics, since the level of unemployment in East Germany is much higher than it is in West Germany. However, keep in mind that our dataset includes only the dependently employed and entrepreneurs; the unemployed are excluded. Nevertheless, even for those who are employed, economic conditions may still differ between East and West Germany. Therefore, in order to err on the side of caution, we further refine our analysis to concentrate on those East Germans who moved to West Germany after 1984 and compare them to born and raised West Germans. These individuals were socialized in the former GDR and thus have been "treated" with the communist

ideology but were confronted with the same economic conditions as their West German counterparts after they moved. This strategy could be reasonably criticized on the grounds that the group of movers might be subject to a selection bias in that movers are in general energetic and self-reliant and thus different in attitude compared to the average East German. Table 5 supports the view that this selection problem is present to some degree. Even so, though, the differences between this East German subgroup and the West Germans continue to be in the same direction and some are still statistically significant. These differences constitute a lower bound of the effect on attitudes due to the communist ideological treatment.

Table 5: Differences in Attitudes Between West Germans and East German Late Movers

	East German Movers	West Germans	Significant difference
	<i>Level of agreement on a scale from 1 to 4 (1=fully agree; 4=don't agree at all)</i>		
"Employers' Profits Foster the Economy" (obs.: 62 and 1,704)	2.177419 <i>0.1138811</i>	1.971831 <i>0.0200678</i>	*
"The state has to care for employment and price stability even if this cuts the rights of employers." (obs.: 63 and 1,688)	2.190476 <i>0.112817</i>	2.28673 <i>0.0216537</i>	***
"The state has to care for the sick, poor, old, and unemployed." (obs.: 108 and 3,267)	1.796296 <i>0.0729624</i>	1.802265 <i>0.0133732</i>	
"The current social security system reduces work incentives." (obs.: 63 and 1,700)	2.730159 <i>0.1158383</i>	2.485294 <i>0.0227024</i>	**
"Economic profits are distributed fairly in Germany." (obs.: 63 and 1,674)	3.111111 <i>0.0879624</i>	2.942055 <i>0.0182559</i>	*
"Everybody should get the money he needs - regardless of any performance." (obs.: 109 and 3,230)	2.706422 <i>0.0896464</i>	2.75387 <i>0.0157321</i>	
"Income differences give incentives to work hard." (obs.: 105 and 3,210)	2.447619 <i>0.0834039</i>	2.292835 <i>0.0153488</i>	*
"Rank differences are performance based and therefore acceptable." (obs.: 109 and 3,196)	2.504587 <i>0.0810061</i>	2.46433 <i>0.014985</i>	
"Social status differences are just - by and large." (obs.: 109 and 3,208)	2.862385 <i>0.0754057</i>	2.629052 <i>0.0148429</i>	**
	East German Movers	West Germans	Significant difference
	<i>Level of importance on a scale from 1 to 7 (1=not important; 7=very important)</i>		
"How important is a secure job to you?" (obs.: 16 and 631)	6.875 <i>0.0853913</i>	6.087163 <i>0.0471086</i>	***

Standard errors in italics.

As can be seen in the first column of Table 5, the number of observations for East Germans who moved to West Germany is not large, but is suitable. To obtain these observation figures, we collapsed information on attitudes, if it was available, for different points in time. However, disentangling this information and looking at the

dynamics of attitudes in the subgroup of East Germans who moved to West Germany, we find that, generally, differences in attitude decrease over time.

We are interested in attitudes toward the welfare state and self-reliance, which, in turn, are expected to have an impact on entrepreneurship. We believe that answers to the question on the negative incentive effect of the social security system on the one hand, and answers as to the importance of job security on the other, are the most appropriate to our investigation. We do not have such clear theoretical predictions as to their impact on entrepreneurship for some of the other attitude variables and still others pose the problem of reverse causality, e.g., the question about whether employers' profits foster the economy or whether the state should ensure employment and stable prices even if this would mean limiting the rights of employers. However, we do attempt to overcome this reverse causality problem by looking only at the attitudes of dependently employed people. For this subsample, we find that East Germans have on average more negative attitudes toward entrepreneurs than do West Germans, which might be interpreted as being harmful to any kind of entrepreneurial spirit in a society.

Our focus on the two attitude variables on the welfare state and job security leaves us with a sample of 63 (16) East Germans who were socialized in the GDR and then moved to West Germany after 1984. We include the level differences in these attitude variables into an occupational choice probit model and compute marginal effects according to Equation (2):

$$\Phi(\alpha + \beta_1 att_{mean,west} + X_{mean,west} \beta_2) > \Phi(\alpha + \beta_1 att_{mean,east,mover} + X_{mean,west} \beta_2) \quad (3)$$

A comparison of the probabilities of being an entrepreneur reveals that, when controlling for differences in the control variables, on average the likelihood of being an entrepreneur is higher for West Germans (job security specification: 0.076; welfare state specification: 0.096) than for East Germans who were socialized in the GDR but moved to West Germany (job security specification: 0.057; welfare state specification: 0.088). These differences would be even more pronounced when comparing West Germans to all East Germans. However, exercising caution and thus looking at only those East Germans who moved to West Germany, we estimate a

lower bound of the causal impact of attitudes on the likelihood of being an entrepreneur.

As an anti-test, we look at those East Germans who moved to West Germany before 1964. Generally, these people were socialized in the same economic and political system as the West Germans and we thus expect that their attitudes will not be as different from West German attitudes as are those held by the later movers (i.e., East Germans who moved after 1984). A simple comparison of the means of the attitudes shows that the early movers indeed do not differ from West Germans in most of the attitudes. There are three attitudes where we can find a significant difference between West Germans and those East Germans who moved to West Germany before 1964. However, two out of the three attitude differences are in the direction we would expect when comparing this probably more energetic and self-reliant subgroup of movers to the average West German. It is only the significant difference in the attitude toward the welfare state that is puzzling and out of alignment with our argument.

Table 6: Difference in Attitudes Between West Germans and East German Early Movers

	East Germans	West Germans	Significant difference
	<i>Level of agreement on a scale from 1 to 4 (1=fully agree; 4=don't agree at all)</i>		
"Employers' Profits Foster the Economy" (obs.: 38 and 1,704)	1.736842 0.1289205	1.971831 0.0200678	*
"The state has to care for employment and price stability even if this cuts the rights of employers." (obs.: 35 and 1,688)	2.485714 0.1441954	2.28673 0.0216537	
"The state has to care for the sick, poor, old, and unemployed." (obs.: 81 and 3,267)	1.938272 0.0967778	1.802265 0.0133732	
"The current social security system reduces work incentives." (obs.: 38 and 1,700)	2.868421 0.1607727	2.485294 0.0227024	**
"Economic profits are distributed fairly in Germany." (obs.: 36 and 1,674)	2.944444 0.1049901	2.942055 0.0182559	
"Everybody should get the money he needs - regardless of any performance." (obs.: 109 and 3,230)	2.82716 0.1036228	2.75387 0.0157321	
"Income differences give incentives to work hard." (obs.: 78 and 3,210)	2.064103 0.0918594	2.292835 0.0153488	**
"Rank differences are performance based and therefore acceptable." (obs.: 79 and 3,196)	2.316456 0.1011846	2.46433 0.014985	
"Social status differences are just - by and large." (obs.: 80 and 3,208)	2.525 0.0940896	2.629052 0.0148429	
	East Germans	West Germans	Significant difference
	<i>Level of importance on a scale from 1 to 7 (1=not important; 7=very important)</i>		
"How important is a secure job to you?" (obs.: 26 and 631)	6.269231 0.2692308	6.087163 0.0471086	

Standard errors in italics.

Again, we introduce the attitudes of both groups in the following equation and compute marginal effects of differences in implicit institutions on the propensity to become an entrepreneur.

$$\Phi(\alpha + \beta_1 att_{mean,west} + X_{mean,west} \beta_2) = \Phi(\alpha + \beta_1 att_{mean,east,early\ mover} + X_{mean,west} \beta_2)$$

The comparison between West Germans and the subgroup of East Germans who moved to West Germany before the Iron Curtain closed reveals on average no differences in the likelihood of being entrepreneur in the job security specification when controlling for differences in the control variables (West Germans: 0.076; East German early movers: 0.071). The puzzling significant difference in the attitude toward the welfare state translates into differences in the propensity to become an entrepreneur (West Germans: 0.096; East German early movers: 0.085), an indication of the limitations of our identification strategy. However, due to the small number of observations for the early mover subgroup, this latter result should not be given undue emphasis.

4. Conclusions

The goal of this paper is to disentangle the effects of explicit and implicit institutions on individuals' entrepreneurial intentions. Explicit institutions can change rather quickly; implicit institutions, however, here defined as societal values and norms, develop and change much more slowly. To identify the effect of implicit institutions on an individual's entrepreneurial intentions requires a natural experiment, that is, a situation where people now living under the same explicit institutions were raised and socialized under different regimes and thus—assumedly—developed different observable values and norms. Germany is the perfect natural experiment due to its unique history of separation into two distinct systems and states, the socialist GDR and the non-socialist FRG, following World War II. Because, according to Alesina and Fuchs-Schündeln (2007), both parts of the country were quite comparable before this split, observable differences after the separation are in all probability driven by the prevailing ideologies in each part, which gradually produced different values.

We compare the start-up rates of East Germany with those of West Germany and find that entrepreneurial activity is higher in the former GDR than it is in the regions that always belonged to the FRG. This result holds if we focus on the corridor along the former inner-German border, thus encompassing only regions having similar natural conditions and equal experience with being located so close to the Iron Curtain. This higher level of entrepreneurial activity appears to be the result of significant differences in both opportunity and necessity entrepreneurship in East Germany, and thus perhaps obscures the hypothesized effect of implicit institutions. Indeed, we see some evidence of economic development convergence with West Germany in the former GDR, but the eastern part of the country is still “catching up,” which distorts our analysis. Therefore, we use micro data to disentangle the effect of implicit institutions on entrepreneurship.

To analyze the differing effect of implicit institutions, we focus on those individuals who were born in East Germany and then migrated to West Germany.⁵ We further distinguish among those who left the GDR in the early days (before 1964) and those who grew up in the GDR socialist environment, leaving only in 1984 or later. We find that the early movers adopted the implicit institutions of West Germans to a fairly high degree, whereas the late movers are comparatively more strongly influenced by the socialist environment they experienced so far. We urge caution in generalizing these results, however, as our study was limited by a relatively small number of observations.

Our analyses suggest that implicit institutions in the form of values and mindsets prevail over and above explicit institutions. Individuals in a presently similar environment but who were socialized under different ideologies do differ in their underlying value systems. These differences can affect economic decisions, perhaps most especially the decision about whether to start a business. This finding should be a particularly important consideration in the design of policies geared toward stimulating entrepreneurial activities. Our findings strongly advise against too-general, catch-all policies. Some facets of entrepreneurship are no doubt universal, such as the necessary financing. However, our study shows that the incentives to become an entrepreneur are also affected by social factors which might vary between

⁵ See for migration patterns of East Germans Burda 1993, Burda et al. 1998 and Hunt 2006.

regions. Sometimes it is the shadow of the past that hinders a person to make a deliberate occupational choice. Growing up under a socialist regime appears to be one such shadow, and this is a shadow that will presumably take some more time to dispel. According to Alesina and Fuchs-Schündeln (2007), underlying values, or in our terms, implicit institutions, can take several generations to change. Supporting this change might be another policy issue.

References

- Alesina, A. and N. Fuchs-Schündeln (2007). Good bye Lenin (or not?)—The effect of communism on people's preferences, *American Economic Review*, 97, 1507–1528.
- Audretsch D. B. (2007). *The Entrepreneurial Society*. Oxford: Oxford University Press.
- Audretsch, D. B. and M. Fritsch (1994). On the measurement of entry rates, *Empirica*, 21, 105–113.
- Bach, S. and H. Trabold (2000). Ten years after German monetary, economic and social union: An introduction, *Quarterly Journal of Economic Research*, 69, 149–151.
- Barro, R.J. and Sala-i-Martin (1991). Convergence across states and regions. *Brooking Papers on Economic Activity*, 22, 107–182.
- Bernhard, H., E. Fehr, and U. Fischbacher (2006). Group affiliation and altruistic norm enforcement, *AEA Papers and Proceedings*, 96(2), 217–221.
- Blanchflower, D. G. and A. J. Oswald (1998). What makes an entrepreneur? *Journal of Labor Economics*, 16(1), 26–60.
- Burda, M.C. (1993). The determinants of east-west German migration – some first results, *European Economic Review*, 37, 452–461.
- Burda, M.C., Härdle, W., Müller, M. and A. Werwatz (1998). Semiparametric analysis of German east-west migration intentions. Facts and theory, *Journal of Applied Economics*, 13, 525–541.
- Camerer, C. and D. Lovallo (1999). Overconfidence and excess entry: An empirical approach, *American Economic Review*, 89, 306–318.
- Dennis, W.J. (1996). Self-employment: When nothing else is available?, *Journal of Labour Research*, 17, 645–661.
- DiPasquale, D. and E. L. Glaeser (1999). Incentives and social capital: Are homeowners better citizens? *Journal of Urban Economics*, 45, 354–385.

- Falck, O., S. Heblich, and E. Luedemann (2009). *Identity and Entrepreneurship*. Mimeo.
- Fölster, S. (2002). Do lower taxes stimulate self-employment? *Small Business Economics*, 19, 135-145.
- Frijters, P., Haisken-DeNew, J. and M.A. Shields (2004). Money does matter! Evidence from increasing real income and life satisfaction in east Germany following reunification. *American Economic Review*, 94, 730-740.
- Fritsch, M. (2004). Entrepreneurship, entry and performance of new businesses compared in two growth regimes: East and West Germany, *Journal of Evolutionary Economics*, 14, 525–542.
- Fritsch, M. and U. Brixy (2004). The establishment file of the German Social Insurance Statistics. *Schmollers Jahrbuch/Journal of Applied Social Science Studies*, 124, 183–190.
- Fuchs-Schündeln, N. and M. Schündeln (2005). Precautionary savings and self-selection. Evidence from the German reunification experiment. *Quarterly Journal of Economics*, 120, 1085-1120.
- Gilson, R.J. (1999). The legal infrastructure of high technology industrial districts: Silicon Valley, Route 128, and covenants not to compete. *New York University Law Review*, 74, 575-628.
- Guiso, L., P. Sapienza, and L. Zingales (2004). The role of social capital in financial development, *American Economic Review*, 94: 526–556.
- Halaby, C.N. (2003). Where job values come from: Family and schooling background, cognitive ability, and gender. *American Sociological Review*, 68, 251-278.
- Hout, M. (1984). Status, autonomy and training in occupational mobility. *American Journal of Sociology*, 89, 1379-1409.
- Hunt, J. (2006). Staunching emigration from east Germany. Age and the determinants of migration, *Journal of the European Economic Association*, 4, 1014-1037.
- Kihlstrom, R. E. and J.-J. Laffont (1979). A general equilibrium entrepreneurial theory of firm formation based on risk aversion, *Journal of Political Economy*, 87, 719–748.
- Kirzner, I. M. (1973). *Competition and Entrepreneurship*. Chicago, IL: University of Chicago Press.
- Klepper, S. (2009). Silicon Valley—A chip off the old Detroit bloc. In Audretsch, D. and R. Strom (Eds.), *Entrepreneurship, Growth, and Public Policy*, 79–115. Cambridge, UK: Cambridge University Press.
- Lazear, E. P. (2005). Entrepreneurship, *Journal of Labor Economics*, 23, 649–680.
- Michelacci, C. and O. Silva (2007). Why so many local entrepreneurs? *Review of Economics and Statistics*, 89, 615–633.

- Miller, D.R. and G.E. Swanson (1958). *The Changing American Parent. A Study in the Detroit Area*. New York: John Wiley and Sons.
- Moog, P. and U. Backes-Gellner (2009). Social capital and the willingness to become self-employed: Is there a difference between women and men? *International Studies of Management & Organization*, 39(2) (in press).
- Moore, J. H. (1992). Measuring Soviet economic growth: Old problems and new complication, *Journal of Institutional and Theoretical Economics*, 148(1), 72–92.
- Mortimer, J.T. and J. Lorence (1979). Work experience and occupational value socialization. A longitudinal study. *American Journal of Sociology*, 84, 1361-1385.
- North, D. (1990). *Institutions, Institutional Change, and Economic Performance*. Cambridge, MA: Harvard University Press.
- North, D (1991). Institutions. *Journal of Economic Perspectives*, 5(1), 97-112.
- OECD (Organisation for Economic Co-Operation and Development) (1998). *Fostering Entrepreneurship*. Paris: OECD.
- Parker, S. C. (2004). *The Economics of Self-Employment and Entrepreneurship*. Cambridge: Cambridge University Press.
- Parker, S.C. and M.T. Robson (2004). Explaining international variations in self-employment. Evidence from a panel of OECD countries, *Southern Economic Journal*, 71, 287-301.
- Reynolds, P.D., Bosma, N., Autio, E., Hunt, S., de Bono, N., Servais, I., Lopez-Garcia, P. and N. Chin (2005). Global entrepreneurship monitor. Data collection design and implementation 1998-2003, *Small Business Economics*, 24(3), 205-231.
- Sanders, J. M. and V. Nee (1996). Immigrant self-employment: The family as social capital and the value of human capital, *American Sociological Review*, 61, 231–249.
- Saxenian A. (1994). *Regional Advantage: Culture and Competition in Silicon Valley and Route 128*. Cambridge, MA: Harvard University Press.
- Schindele, I. (2009). How Long Does it Take to Become a (Managed) Entrepreneurial Society? The Case of German Convergence in Self-Employment. Mimeo.
- Schumpeter, J. A. (1912). *The Theory of Economic Development*. New York: Oxford University Press.
- Sinn, G. and H. W. Sinn (1992). *Jumpstart. The Economic Reunification of Germany*. Cambridge: MIT Press.
- Stuart, T. E. and O. Sorenson (2005). Social networks and entrepreneurship. In: Alvarez, S. R. Agarwal, and O. Sorenson (Eds.), *The Handbook of Entrepreneurship: Disciplinary Perspectives*, 211–228. Berlin: Springer.
- Terwey, M., A. Bens, and S. Baltzer (2007). *Datenhandbuch ALLBUS 1980–2006*, ZA-No. 4241, Cologne, Mannheim: GESIS.

- Uusitalo, R. (2001). Homo entrepreneurus?, *Applied Economics*, 33, 1631-1638.
- VanArk, B. (1995). The manufacturing sector in East Germany. A reassessment of comparative productivity performance, 1950–1988. *Jahrbuch für Wirtschaftsgeschichte*, 2, 75–100.
- VanArk, B. (1996). Convergence and divergence in the European periphery. Productivity in eastern and southern Europe in retrospect. In: VanArk, B. and N. F. R. Crafts (Eds.), *Quantitative Aspects of Post War European Economic Growth*, 271–326. Cambridge: Cambridge University Press.

Appendices

Appendix 1: Descriptive Statistics for Research Area

	East			West		
Number of Regions (NUTS2)	47			50		
	Min	Mean	Max	Min	Mean	Max
Total number of firms	1170	3046.82	7337	1480	3008.95	6390
Number of firms in manufacturing	91	321.61	977	115	362.60	687
Total number of employees	16424	18968.79	115063	11681	36704.30	109056
Number of employees in manufacturing	2119	6447.85	17138	2677	12375.84	61546
Total number of startups	103	328.67	1272	105	275.49	745
Number of start ups in manufacturing	4	23.04	79	3	18.86	53
Total number of firm shutdowns	0	279.06	1160	0	197.56	739
Number of shutdowns in manufacturing	0	23.33	97	0	19	57
Inhabitants	44076	108160	237833	49462	124085.50	266070
Population density	40	251.57	1170	42	203.72	1534
GDP	834195	1904423	5811596	858014	2814694	9005517
GDP per capita	12.06	17.51	30.14	12.78	23.05	73.89

Appendix 2: Occupational Choice of Being Self-Employed

	Probit	
	OCCUPTIONAL CHOICE	
	Cross section	Repeated cross section
	1991	1994, 2004
Job security	-0.184 *** (0.042)	
Welfare State		-0.208 *** (0.035)
Gender	-0.084 (0.108)	-0.156 ** (0.067)
Education (base category: no secondary education)		
Lower secondary	0.267 (0.516)	-0.303 (0.320)
Medium secondary	0.559 (0.513)	0.057 (0.318)
Higher secondary	0.977 * (0.530)	0.187 (0.331)
University	0.863 * (0.514)	0.443 (0.321)
Experience	0.011 ** (0.005)	0.023 *** (0.003)
Foreigner	0.644 * (0.337)	-0.015 (0.177)
Previous unemployment (base category: none)		
Less than one year	0.353 ** (0.175)	0.312 *** (0.089)
More than one year	-0.480 (0.444)	-0.076 (0.120)
Marital status	-0.132 (0.116)	-0.033 (0.072)
Houseowner	0.529 *** (0.105)	0.252 *** (0.066)
East Dummy	-0.055 (0.113)	0.149 ** (0.072)
Year Dummy 1994		0.017 (0.065)
Constant	-1.259 ** (0.545)	-1.414 *** (0.342)
Number of observations	1,591	3,005
Wald test	93.21 ***	158.12 ***
Pseudo R ²	0.112	0.0779