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**Entrepreneurial attitudes and start-up attempts
in ten German regions.
An empirical analysis on the basis of
the theory of planned behaviour**

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Shortcuts

DFG	Deutsche Forschungsgemeinschaft (German Research Council)
GEM	Global Entrepreneurship Monitor
REM	Regional Entrepreneurship Monitor

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Abstract

The theory of planned behaviour has already been used successfully to explain start-up intentions. However, as there does not seem to be a direct link between intention and behaviour a slightly modified approach is being proposed. This paper analysis whether start-up attempts rather than start-up intentions can be explained in terms of the theory of planned behaviour. The regional level is added to the analysis and it is examined whether it can contribute to the explanation of start-up attempts. Logistic regression models show that the theory of planned behaviour is with some limitations useful to explain the attempt to start a new business. The regional level does not directly influence this activity, however, attitude and behavioural control variables are significantly influenced by the region of origin.

Keywords: Entrepreneurship, Germany, region, start-up attempt, theory of planned behaviour.

Zusammenfassung

Die Theorie geplanten Verhaltens wurde bereits erfolgreich für die Erklärung von Gründungsabsichten eingesetzt. Da allerdings kein unmittelbarer Zusammenhang zwischen einer Gründungsabsicht und einer tatsächlichen Unternehmensgründung erkennbar ist, wird ein leicht modifizierter Ansatz vorgeschlagen. Diese Arbeit untersucht, ob der tatsächliche Versuch, ein neues Unternehmen zu gründen, im Sinne der Theorie geplanten Verhaltens erklärt werden kann. Weiterhin wird der Beitrag der regionalen Ebene zur Erklärung solcher Gründungsversuche untersucht. Logistische Regressionsmodelle zeigen, dass die Theorie geplanten Verhaltens mit gewissen Einschränkungen auf die Erklärung von Gründungsversuchen angewendet werden kann. Regionspezifische Faktoren haben keinen direkten Einfluss auf den Umfang an Gründungsversuchen, sie wirken aber indirekt, da Einstellungen und die wahrgenommene Handlungskontrolle signifikant von der Herkunftsregion beeinflusst werden.

Schlagworte: Entrepreneurship, Deutschland, Region, Gründungsversuch, Theorie geplanten Verhaltens.

1 Introduction and aims

Although many new-economy start-ups have lost their glamour recently and interest in entrepreneurship has decreased there can still be no doubt that new businesses are important for national and regional economic development. There are a number of government programmes that want to foster entrepreneurship with the aim of creating employment and growth. Nevertheless, the foundation of a new business is a complex procedure and it is therefore not an easy task to determine which factors are relevant for people to become an entrepreneur.

This paper wants to analyse whether attitudes and beliefs matter for entrepreneurship. It seems obvious that views and beliefs about entrepreneurs and also about the personal capability for starting a business differ from one person to another. However, it is still an open question whether these different beliefs and attitudes influence the personal involvement in start-up activities. There are also signs for different regional cultures for entrepreneurship, which means that people in some regions more often have positive attitudes and views about starting a company than in other regions. Still, so far few studies have analysed the relationship between different regional entrepreneurship cultures and start-up rates. The theory of planned behaviour has made some important contributions to entrepreneurship research by linking entrepreneurial attitudes and views to entrepreneurial intentions and subsequently to entrepreneurial activities. Still, the link between an entrepreneurial intention and its realisation needs further clarification.

This paper uses the theory of planned behaviour as theoretical basis for the analysis. However, two modifications are proposed: in contrast to previous studies the direct link between attitude and behaviour is investigated. It seems more important to understand what makes people try to start a new business rather than to understand the mere intention to do so. Furthermore this paper wants to contribute to our understanding of regional influences on start-up processes. It analyses whether regional differences in entrepreneurial activities can be explained in terms of the theory of planned behaviour or whether there is some sort of a region-specific influence which is not captured in the explaining variables of the model. The empirical analysis uses data from a recent research project about entrepreneurship in ten German regions called “Regional Entrepreneurship Monitor (REM)”.

2 Entrepreneurial intentions and activities

2.1 The theory of planned behaviour and its application to start-up processes

Entrepreneurship research has in the last couple of years increasingly dealt with theories, which view start-ups as the result of a cognitive, mainly rational decision process. In psychology the theory of planned behaviour is one of the most widely used theories for the prediction and explanation of human behaviour. This theory and its predecessor, the theory of reasoned action, have been applied to the prediction and explanation of human actions in a number of circumstances, e.g. weight loss, occupational choice, family planning behaviour, consumer behaviour and voting (Ajzen/Fishbein 1980, Ajzen 1991, for an overview of the literature: Ajzen 2002). Recently some studies have analysed the intention to start a new business on the basis of this theory (Tkachev/Kolvereid 1999, Kolvereid 1996, Krueger/Carsrud 1993).

The basic assumption of the theory of planned behaviour is, that people mostly act rational, systematically use the available information and evaluate the consequences of their actions before they make a decision. Behaviours of different kinds are guided by the intention to perform this behaviour while the intention is determined by three independent factors (Ajzen 1991: 188):

- First, the attitude toward the behaviour which refers to the degree to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour.
- Second, the subjective norm. This is a social factor which refers to the perceived social pressure to perform or not to perform the behaviour in question.
- Third, the degree of perceived behavioural control, which deals with the perceived ease or difficulty of performing the behaviour. Past experience as well as anticipated impediments and obstacles are relevant.

The relative importance of these three factors can be expected to vary across situations and behaviours. As a general rule, the more favourable the attitude and the subjective norm and the greater the perceived behavioural control, the stronger should be an individual's intention to perform the behaviour. And, the

stronger the intention to engage in a behaviour, the more likely should be its performance (Ajzen 1991: 181ff).

Krueger and Carsrud (1993) were one of the first who discussed the applicability of this theory for entrepreneurship research. Tkachev and Kolvereid (1999) and Kolvereid (1996) made surveys among Russian and Norwegian students and asked them about their intention to start a new business. They also measured the attitude, the subjective norm and the perceived behavioural control concerning entrepreneurship. Both studies come to the empirical result that these three factors contribute significantly to the explanation of the variance in the employment status choice intention. The intention to start a new business can be predicted from these three factors quite well. Other variables like the family background, sex and former periods of self-employment do not have any additional explanatory power. These demographic characteristics influence the employment status choice intention only indirectly through their effect on attitude, subjective norm and perceived behavioural control. Tkachev and Kolvereid therefore come to the conclusion that the theory of planned behaviour can be applied to the prediction of employment status choice intentions. The intention to start a new business is influenced by attitudes, subjective norm and perceived behavioural control, other variables do not have a direct influence.

2.2 Intentions as predictors of entrepreneurial activities?

However, the intention to start a new business is not the same as actually starting a business. Tkachev and Kolvereid (1999: 278) confirm that the relationship between entrepreneurial intentions and actual behaviour needs to be studied in future research. Ajzen (1991: 181f) argues, that “behavioral intention can find expression in behavior only if the behavior in question is under volitional control, i.e., if the person can decide at will to perform or not to perform the behavior. Although some behaviors may in fact meet this requirement quite well, the performance of most depends at least to some degree on such non-motivational factors as availability of requisite opportunities and resources”. In the case of starting a new business the actual control over the behaviour seems to be critical for the decision why some people start a company while other do not, although both groups might have the intention to do so. It can be assumed that the actual behavioural control is not high with regard to starting a company. The majority of the working population does not have any

start-up experience themselves. There are a number of requirements when somebody wants to start a company: loans have to be obtained, rooms have to be let, machines have to be bought and legal regulations have to be taken into account. All these requirements can make it difficult to start a new business so that it can not be considered as behaviour which is under complete volitional control.

Using data from the German Socio-economic panel (SOEP) Bergmann (2000) shows, that there is no direct link between future employment prospects and their realisation. As a panel study the SOEP allows the comparison of employment prospects in one year and the actual employment status in subsequent years. People were asked: “How probable is it that within the next two years you will become self-employed?” Although this question does not directly ask for an entrepreneurial intention it still allows some important insights into the start-up process. Considering only that group of people who ‘certainly’ expected to become self-employed within the next two years, it can be shown, that more than 70 percent of these people already were self-employed at the time of the interview. The share of self-employed persons does not increase in this group – as one would expect - but decreases in subsequent years (Bergmann 2000: 32ff). The SOEP data also allow to select persons who moved into self-employment from one year to another. It can be shown that only one year before people became self-employed the majority of these founders did not consider it ‘certain’ or ‘probable’ that they would become self-employed within the next two years (Bergmann 2000: 39f). This means that in the majority of cases it is not possible to predict the move into self-employment correctly. People cannot evaluate the practicability of their business idea until they have made first attempts to start this business. There are a number of obstacles in the course of starting a business which can make the initial business idea obsolete and it is therefore almost impossible to say whether one will be self-employed in e.g. one year time.

These two findings show, that there does not seem to be a direct link between the expectation to become self-employed and its realisation. A lot of people can imagine becoming self-employed one day and a lot of people might also have the intention to do so. However, the successful move into self-employment does not only depend on the intention to do so but also on the availability of opportunities, resources and also on the attractiveness of other forms of employment. Situational and random influences seem to play a role as well. There might be some professions where self-employment is the only employ-

ment opportunity. However, for the majority of people there are always the two alternatives self-employment and salaried employment. Thus, the relationship between entrepreneurial intention and its realisation only seems to be vague and indirect. This reduces the applicability of the theory of planned behaviour for entrepreneurship research.

2.3 The entrepreneurial attempt as new measure

The criticism concerning the relation between intention and behaviour is one reason why in this study a slightly modified approach is being proposed. It has been shown that the theory of planned behaviour is useful for predicting start-up intentions. However, as there does not seem to be a direct link between entrepreneurial intention and its realisation it might be worth considering a measure of entrepreneurial activity as dependent variable rather than investigating entrepreneurial intention. It can still be a long way from intention to action. Therefore the focus of analysis is in this paper the attempt to start a new business which is one step further than the mere intention to do so. The relationship between entrepreneurial attitude, subjective norm and perceived behavioural control as explanatory variables and entrepreneurial activity as dependent variable will be analysed. The entrepreneurial attempt shows how serious the intention to start a new business is because it separates people who are more determined from people whose intention might be only very vague and distant. An attempt to start a new business is a major step to the realisation of a start-up although it can not yet be considered finished or successful.

2.4 Regional differences in entrepreneurial activities

It has been shown that empirical studies explain start-up intentions solely on the basis of differences in entrepreneurial attitude, subjective norm and perceived behavioural control. These studies cannot find any direct influence of socio-demographic variables on the intention to start a new business. Studies about the theory of planned behaviour have so far not made any regional comparisons or considered a specific regional influence. However, attitudes and beliefs vary between regions and some regions have a more entrepreneurial culture than others. Davidson and Wiklund (1995) find that values and beliefs have an effect on regional new firm formation rates. Although they find only little cultural variation in Sweden they admit that it might be bigger in other countries. Miegel (1991) shows that there are measurable differences in work-

related values between German regions and that these values relate to the regional economic and employment situation. The Global Entrepreneurship Monitor finds considerable differences in entrepreneurial attitudes between countries and also between German regions which seem to be related to the level of entrepreneurial activity (Sternberg 2001, Sternberg/Bergmann/Tamásy 2001).

A number of studies investigate differences in start-up activities among regions in Germany and in other industrialised countries (Audretsch/Fritsch 1994, Reynolds/Storey/Westhead 1993, Sternberg 2000). However, these studies do not use the theory of planned behaviour. In this paper it will therefore be analysed whether regional differences in start-up rates can be explained in terms of the theory of planned behaviour or whether there is a separate regional influence which is not captured by differences in entrepreneurial attitude, subjective norm and perceived behavioural control.

3 The empirical study

3.1 The Regional Entrepreneurship Monitor

The following analysis is based on data from a recent telephone survey in ten German Regions. This telephone survey is part of a research project called „Regional Entrepreneurship Monitor (REM)“ which is financed by the German Research Foundation (Deutsche Forschungsgemeinschaft DFG) as well as other sponsors. The concept of the Regional Entrepreneurship Monitor (REM) is similar to that of the Global Entrepreneurship Monitor (GEM) (Reynolds et al. 2001). However, while GEM investigates differences in the level of entrepreneurship among countries, REM has set out to do the same for regions within a country.

The REM telephone survey was carried out in summer 2001. In ten regions each 1000 people were interviewed about their involvement in entrepreneurial activities and about attitudes concerning entrepreneurship. The random sampling process ensures that the interviewed sample of people is representative for the population in the respective region. Due to financial constraints only ten regions could be investigated. However, these ten regions were selected in a way to maximise the representativity for Germany as a whole. Regions from different parts of Germany (North, East, South West) and also of different type (agglomerations, urbanised areas and rural areas) were selected according to their population shares in Germany.

3.2 Measures

The REM telephone survey contains a number of questions about entrepreneurial activities and entrepreneurial attitudes. Some of these questions can be used to model the theory of planned behaviour. This section explains which questions are used to measure the variables of the theory. The exact wording of the relevant questions can be found in the appendix of this paper. The questionnaire just allowed the answers ‘yes’, ‘no’ or ‘don’t know’. A ‘yes’ answer is interpreted as having a certain attitude or doing a certain activity whereas a ‘no’ answer shows the opposite. It should however be kept in mind that the described measurement of variables is not as extensive as in previous studies dealing with the theory of planned behaviour. The costs of a representative

telephone survey limit the number of questions that can be incorporated into the questionnaire.

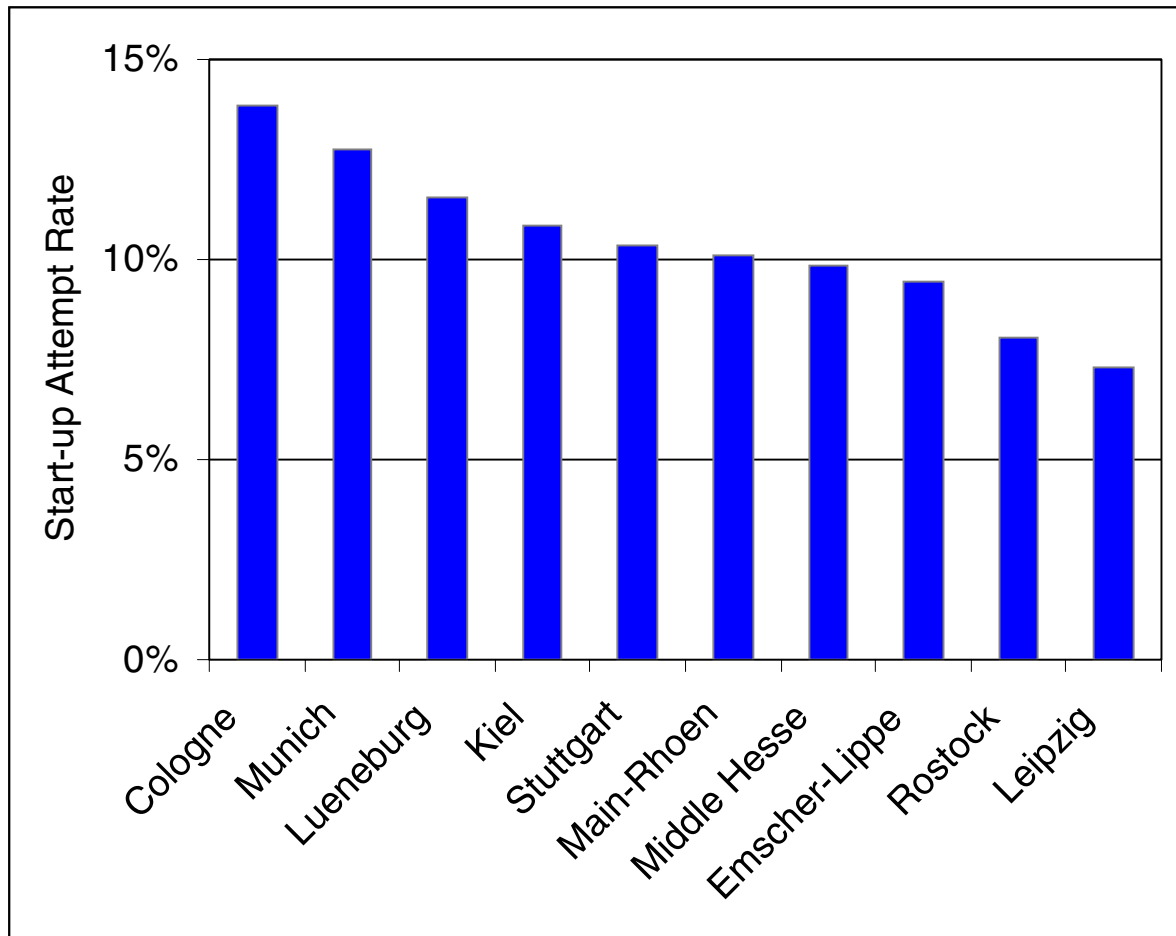
The main difference of this study to previous studies on the theory of planned behaviour is that the start-up attempt rather than the start-up intention is used as dependent variable. A start-up attempt can be defined as an attempt to start a new business, without taking into account how far this attempt has already been proceeded and whether it will be successful or not. The REM survey asks whether people currently try to start a new business. This can be alone or with partners and it can also be together with an employer as part of a job. All these different activities are counted as attempts to start a new business.

Figure 1 shows that there are considerable differences in start-up attempts among the ten German regions. The ratio of people who are currently trying to start a new business ranges from slightly more than 7 percent in Leipzig to almost 14 percent in Cologne. It is the aim of this paper to examine whether these differences can be explained on the basis of the theory of planned behaviour alone or whether a region-specific influence can be established. The start-up attempt rate might appear relatively high. However, it should be kept in mind that any attempt to start any kind of business is counted. This attempt rate is not a real start-up rate because a number of people who say that they are currently trying to start a new business cannot be counted as real entrepreneurs, e.g. because they are not actively pursuing their attempt at the time of the interview. The start-up rate is therefore considerably lower than the start-up attempt rate. There will be other publications on the REM project that deal with differences in start-up rates among the ten regions.

The theory of planned behaviour uses three factors as predictors of the intention to perform a specific behaviour: The personal attitude towards the behaviour, the subjective norm and the degree of perceived behavioural control. In this study these three factors are used to explain entrepreneurial attempts. The following section will explain the measurement of these factors.

The degree of perceived behavioural control deals with the perceived ease or difficulty of performing the behaviour. People who think that they have “the knowledge, skill and experience required to start a new business” can be regarded as having a high degree of perceived behavioural control.

Figure 1: Start-up attempt rate in ten regions in Germany



Note: Share of the adult population (18-68 years) who is currently trying to start a new business, including any type of self-employment. Source: REM population survey.

The subjective norm to perform a behaviour is not easy to measure with respect to starting a business. In a country like Germany starting a business is more an exception than the rule. There might be a social pressure to find a new job if somebody is unemployed but there is hardly any social pressure to start a new business in this situation. However, it can be argued that there is some kind of a social pressure not to start a business, if successful entrepreneurs are not being respected in the region where they live. In Germany equality and a comparable standard of living are important values. Some people have a negative opinion of entrepreneurs because they regard them as capitalists or exploiters. The image of entrepreneurs thus varies from person to person and it also varies from region to region (Sternberg/Bergmann/Tamásy 2001). The question concerning the respect for

successful entrepreneurs is therefore used as an indicator for the perceived subjective norm not to become an entrepreneur.

The personal attitude towards entrepreneurship is not directly captured in the REM questionnaire. However, Ajzen and Fishbein (1980) argue that the attitude towards the behaviour depends on expectations and beliefs about the likely personal outcome when performing the behaviour. People who see good opportunities for starting a business in the region where they live will have a more positive expectation about the likely outcome of a start-up attempt and it can therefore be argued that they also have a more positive attitude towards entrepreneurship. Furthermore, if somebody admits that the fear of failure would prevent him or her from starting a business this can be regarded as an indicator for a negative attitude towards starting a business. In this study these two variables are therefore used to measure the attitude towards starting a business.

4 Start-up attempts and their explanation

4.1 The logistic regression model

The aim of this paper is to investigate factors that influence the decision to attempt to start a new business. The dependent variable in this model has got only two possible values. A person can either try to start a new business (coded as 1) or it can not (coded as 0). A logistic regression model is used which is suitable for binary qualitative dependent variables.

The logistic regression procedure cannot be explained in detail here.¹ However, a few remarks seem necessary in order to be able to interpret the results. An important measure in this model are odds, which express the likelihood of the occurrence of an event relative to the likelihood of a non-occurrence. A logistic regression model regards the logged odds of the dependent variables as linear dependent from the explanatory variables. In a ‘normal’ linear regression model the regression coefficients show the influence of a one-unit change of the independent variable on the dependent variable. In contrast to that the logistic regression coefficients show the change in the predicted logged odds of an event for a one-unit change in the independent variable (Pampel 2000: 19) This regression coefficient B is difficult to interpret and it is therefore common to calculate the antilogarithm $\text{Exp}(B)$ which is easier to understand. The $\text{Exp}(B)$ coefficient shows the influence of the independent variable on the odds of the dependent variable. A value of 1 leaves the odds unchanged, a value of greater than 1 increases the odds and a coefficient of smaller than one decreases the odds. The greater the distance from 1 the greater the effect in changing the odds (Pampel 2000: 21f). Logistic regression models are similar to probit models, which deliver equivalent results.

¹ For an introduction to the logistic regression analysis see: Menard (1995), Long (1997), Pampel (2000).

4.2 The estimation of the start-up attempt model

The calculated models use a binary dependent variable and binary as well as metric independent variables. Table 1 shows the results of the logistic regression concerning the attempt to start a new business. Two different models are presented. In model 1 the regional level is neglected while in the second model 9 region dummies are included as additional independent variables.² Both models do not differ very much in their results. The R-square value as well as the predictive accuracy are almost the same. This means that the region dummies do not have any additional explanatory power concerning the start-up decision. None of the nine region dummies is significant. Thus there does not seem to be a direct regional influence on the decision to attempt to start a new business.

The theory of planned behaviour predicts that attitude, subjective norm and perceived behavioural control determine start-up intentions. Table 1 shows that the two questions concerning the entrepreneurial attitude are both significant. People who see good opportunities to start a new business are more likely to start a new business and people who admit that the fear of failure would prevent them from starting a business are less likely to do so. The question concerning the perceived behavioural control is also highly significant. People who think that they have the knowledge, skill and experience required to start a new business are more frequently involved in start-up attempts. This variable has got a large impact on the decision to start a new business. However, the third explanatory factor of the theory of planned behaviour, the subjective norm, does not influence start-up attempts. The intention to start a new business thus does not seem to depend on what people think others think about entrepreneurs. This results differs from the results of previous studies which found that start-up intentions are significantly influenced by the subjective norm.

Empirical studies on the theory of planned behaviour come to the conclusion that the intention to start a new business is only influenced by attitudes, subjective norms and the perceived behavioural control while other variables do not have a direct influence. In contrast to that this study shows that the attempt

² The tenth region (Emscher-Lippe) is used as a reference region. The results of the regression do not depend on the choice of the reference region.

to start a new business is also significantly influenced by some socio-demographic and also occupational variables. The sex of the respondents has an impact which is not directly captured in other variables. The propensity of women to start a new business is significantly lower compared to men even if their general attitudes towards entrepreneurship are the same. Age has got a slightly negative effect on the probability to start a new business which is also not captured in other variables. Household income and the educational attainment are not significant. However, the current employment status, i.e. whether somebody is working or not, and a former or current self-employment both have a large impact on the decision to start a new business.

Table 1: Estimation results for determinants of a start-up attempt

Dependent variable: attempt to start a new business							
	Modell 1 : regions excl.				Modell 2 : regions incl.		
	B	Exp(B)	Sig.		B	Exp(B)	Sig.
Sex (1=female)	-0.39	0.68	***		-0.39	0.68	***
Age (years)	-0.02	0.98	***		-0.02	0.98	***
Household income (9 groups)	-0.02	0.98			-0.02	0.98	
High education (1= yes)	-0.02	0.98			-0.04	0.96	
Working (1= yes)	0.38	1.46	***		0.38	1.46	***
Self-employment (1=yes)	0.95	2.58	***		0.95	2.58	***
Good opportunit. (1=yes)	0.60	1.83	***		0.58	1.79	***
Fear of failure (1=yes)	-0.57	0.57	***		-0.55	0.57	***
Respect (1=yes)	-0.14	0.87			-0.14	0.87	
Know-how (1= yes)	1.07	2.93	***		1.08	2.95	***
Cologne (1=yes)					0.26	1.30	
Lueneburg (1=yes)					0.03	1.03	
Middle Hesse (1=yes)					-0.30	0.74	
Rostock (1=yes)					-0.24	0.79	
Munich (1=yes)					-0.12	0.89	
Kiel (1=yes)					-0.01	0.99	
Stuttgart (1=yes)					-0.12	0.89	
Leipzig (1=yes)					-0.29	0.74	
Main-Rhoen (1=yes)					-0.08	0.92	
Constant	-1.07	0.34	***		-0.91	0.40	**
Chi-square	501.3		***		514.6		***
Nagelkerkes R-square	0.167		-		0.171		-
Predictive accuracy	88.9 %		-		88.9 %		-
Number of cases	5680		-		5680		-

Note: Logistic Regression Model; selected age group: 18-68 years; ***: significant on the 0.01 level; **: significant on the 0.05 level; *: significant on the 0.10 level.

4.3 The explanation of entrepreneurial attitudes and behavioural control

Entrepreneurial attitudes and behavioural control have been found to influence start-up attempts. In this section it will be analysed whether these variables are itself influenced by socio-demographic and occupational characteristics. It has furthermore been shown that - although there are large differences in start-up rates among regions - no direct regional influence on the decision to start a new business can be measured. There are however considerable regional differences in entrepreneurial attitudes and also in the know-how concerning starting a new business and it can well be imagined that there is a regional influence on these variables.

Table 2 shows the estimation results for determinants of a positive entrepreneurial attitude. Again, the results of two different models are compared: In model 3 the regional level is neglected while in model 4 the 9 region dummies are included. In contrast to the estimation above, these two models differ in their results. The R-square value as well as the predictive accuracy are higher when the regional level is taken into account. Some of the region dummies are highly significant and also have a considerable influence on whether people see good opportunities or not. The regional level also improves the fit of the estimation models on perceived behavioural control (start-up know-how) and the second attitude variable (fear of failure) (table 3). For simplicity reasons table 3 only shows the estimation results when the regional level is included.

Socio-demographic variables influence the attitude towards entrepreneurship as well. Again, female respondents less often see good opportunities for starting a business (Table 2). Furthermore, they more often admit that the fear of failure would prevent them from starting a business and that they do not have the knowledge required to start a new business (Table 3).

It has already been shown that the household income and a high educational level are not directly related to the start-up attempt. However, these two variables positively influence the attitude towards entrepreneurship (Table 2) and they also influence the perceived behavioural control (know-how) and the fear of failure, as indicator of a negative entrepreneurial attitude (Table 3).

To sum up, all socio-demographic and occupational variables which are incorporated in the different models either directly or indirectly influence the attempt to start a new business. It still needs to be shown why some variables

exercise a direct influence while other influence attitudes and views only, which then are related to entrepreneurship activities.

Table 2: Estimation results for determinants of a positive entrepreneurial attitude (good opportunities)

Dependent variable: good opportunities for starting a business.							
	Model 3: Region excl.				Model 4: Region incl.		
	B	Exp(B)	Sig.		B	Exp(B)	Sig.
Sex (1=female)	-0.20	0.82	***		-0.20	0.82	***
Age (years)	0.00	1.00			-0.00	1.00	
Household income (9 groups)	0.15	1.17	***		0.11	1.12	***
High education (1= yes)	0.32	1.38	***		0.33	1.39	***
Working (1= yes)	-0.16	0.85	**		-0.18	0.83	***
Self-employment (1=yes)	0.22	1.24	**		0.18	1.20	*
Cologne (1=yes)					0.65	1.91	***
Lueneburg (1=yes)					-0.20	0.82	
Middle Hesse (1=yes)					-0.02	0.98	
Rostock (1=yes)					-0.93	0.40	***
Munich (1=yes)					1.18	3.26	***
Kiel (1=yes)					-0.02	0.98	
Stuttgart (1=yes)					0.98	2.67	***
Leipzig (1=yes)					0.06	1.06	
Main-Rhoen (1=yes)					-0.01	0.99	
Constant	-2.89	0.06	***		-2.52	0.08	***
Chi-square	219.7		***		591.9		***
Nagelkerkes R-square	0.051		-		0.133		-
Predictive accuracy	73.0 %		-		74.7 %		-
Number of Cases	6164		-		6164		-

Note: Logistic Regression Model; selected age group: 18-68 years; ***: significant on the 0.01 level; **: significant on the 0.05 level; *: significant on the 0.10 level.

Table 3: Estimation results for determinants of a high perceived behavioural control (know-how) and for determinants of a negative entrepreneurial attitude (fear of failure)

	Model 5: Know-how as dependent variable				Model 6: Fear of Failure as dependent variable		
	B	Exp(B)	Sig.		B	Exp(B)	Sig.
Sex (1=female)	-0.69	0.50	***		0.43	1.53	***
Age (years)	0.02	1.02	***		0.00	1.00	
Household income (9 groups)	0.10	1.11	***		-0.11	0.90	***
High education (1= yes)	0.37	1.45	***		-0.31	0.73	***
Working (1= yes)	0.50	1.65	***		0.18	1.20	***
Self-employment (1=yes)	1.57	4.81	***		-0.51	0.60	***
Cologne (1=yes)	0.15	1.16			-0.26	0.77	**
Lueneburg (1=yes)	0.19	1.21			-0.25	0.78	**
Middle Hesse (1=yes)	0.13	1.14			0.00	1.00	
Rostock (1=yes)	0.22	1.25	*		0.04	1.04	
Munich (1=yes)	0.27	1.31	**		-0.33	0.72	***
Kiel (1=yes)	0.29	1.34	**		-0.34	0.71	***
Stuttgart (1=yes)	0.14	1.15			-0.19	0.83	*
Leipzig (1=yes)	0.07	1.08			0.32	1.37	***
Main-Rhoen (1=yes)	0.17	1.18			-0.13	0.88	
Constant	-2.42	0.09	***		0.93	2.52	***
Chi-square	913.9		***		370.3		***
Nagelkerkes R-square	0.167		-		0.071		-
Predictive accuracy (%)	67.5 %		-		60.2 %		-
Number of Cases	6943		-		6817		-

Note: Logistic Regression Model; selected age group: 18-68 years; ***: significant on the 0.01 level; **: significant on the 0.05 level; *: significant on the 0.10 level.

5 Conclusion

This paper has shown that start-up attempts can to some degree be explained in terms of the theory of planned behaviour. Attitudes towards entrepreneurship and the perceived behavioural control significantly influence the decision to start a new business. However, results are less clear cut compared to previous studies, which used the intention to start a new business as dependent variable. In contrast to start-up intentions differences in start-up attempts cannot completely be explained in terms of differences in entrepreneurial attitude, subjective norm and perceived behavioural control. Some socio-demographic and occupational variables have a direct influence on the start-up attempt as well. Furthermore, there is no significant relationship between the subjective norm measure and the start-up attempt.

However, even if the theory of planned behaviour does not completely fit the data on start-up attempts, it has been shown that differences in entrepreneurial climate variables have a considerable impact on the decision to enter self-employment. Attitudes and views about entrepreneurship are not predetermined but can be changed. This means that there are possibilities to influence start-up decisions.

The results of this paper show the necessity to include the regional level when examining start-up processes. The regional level might not be important to explain differences in start-up rates on its own, however, differences in entrepreneurial attitudes and other climate variables do influence the decision to start a new business and these variables are to some degree dependent on the region where the person lives. The regional influence thus works via attitudes and views which corresponds to the prediction of the theory of planned behaviour.

Studies about regional differences in start-up rates explain these differences to a large extent on the basis of differences in socio-demographic variables and the regional industry structure. Although the industrial structure of the ten survey regions was not taken into account in this study, one important conclusion is that regional start-up activities are not only predetermined by structural variables but to some degree also influenced by attitudes and norms. One might argue that the industry structure of a region has an influence on entrepreneurial attitudes. However, it seems hard to imagine that e.g. the fear of

failure is predetermined by the industrial structure of a region. Cultural differences between regions seem to be of importance as well.

A number of questions concerning this regional influence still remain unresolved. Entrepreneurial attitudes are to some extent dependent on the region of origin. One important question is whether attitudes are influenced by the quality of the regional infrastructure for start-ups (supply of capital, availability of government programmes, existence and quality of business incubators etc.). If there is a link it furthermore needs to be analysed which factors might be most important to improve attitudes and views about entrepreneurship. The REM project aims to contribute to this discussion. Further research will investigate the importance of entrepreneurial framework conditions for attitudes and start-up activities.

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Appendix

Appendix 1: Relevant questions from the REM population survey.

- „You are, alone or with others, currently trying to start a new business, including any type of self-employment.“
- „You are, alone or with others, currently trying to start a new business with your employer – an effort that is part of your normal work.“
- “You have the knowledge, skill and experience required to start a new business.”
- “In the next six months there will be good opportunities for starting a business in the region where you live.”
- “In the region where you live successful entrepreneurs enjoy a good reputation and are being respected.”
- “Fear of failure would prevent you from starting a business.”

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