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ENTREPRENEURIAL STRESS AND LONG TERM SURVIVAL: IS THERE A CAUSAL LINK?

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ABSTRACT

This study explores the relationship between strain, performance, and survival of small-scale business owners. 201 business owners were observed across a 10 years period. We used a control theoretical framework and argued that strain (psychosomatic complaints, susceptibility to stress) activates strategies that have positive effects on long-term survival and performance. Our research showed that psychosomatic complaints have positive effects on survival. Moreover, psychosomatic complaints were not related to growth but related to dissatisfaction in cross sectional analyses. Finally, low satisfaction was affecting susceptibility to stress. We conclude that while entrepreneurs may try to reduce stress reactions, owners need to proactively strive for desired goals at the same time.

INTRODUCTION

Entrepreneurs are generally being considered to face a lot of stress in their task of running a business. For example, entrepreneurs usually have long working hours, high time pressure, role conflicts, they have to react to many economic demands and, eventually, to cope with past failures. Such a high amount of stress may very well result in health complaints which, in turn, may affect performance. Surprisingly, the impact of stress and strain on the performance of business ventures was seldom explored in entrepreneurship research. However, it is worth to pay more attention to this relationship. First, in face of running a business successfully knowledge about the stress-performance relationship is of practical relevance. Moreover, high competition and task requirements of entrepreneurs may make some entrepreneurs susceptible to stress-related health problems (strain). On the other hand, managing stressful events successfully may result in a strong market position, success, and long term survival.

There is a large amount of literature available that indicates that stress affects health. The number of studies addressing the relationship between strain and performance is much smaller. We think that studying this relationship is interesting in entrepreneurship research, because strain may very well be associated with business survival and failure. Therefore, the objective of our study is to study the relationship between strain, performance and survival of small business ventures.

THEORETICAL FRAMEWORK AND HYPOSTHESES

Success versus Long-Term Survival

While firm performance is an essential dependent variable in entrepreneurship research, there is little consensus in the field about the appropriate performance indicator. Empirical studies in entrepreneurship research used a vast amount of different performance criteria and many studies did not provide an appropriate justification of the selected indicator (Brush & Vanderwerf, 1992) (Murphy, Traylor, & Hill, 1996). Although many business start-ups fail within a relatively short period of time (Lorrain & Dussault, 1988), the majority of empirical studies did not address survival but rather used a variety of different performance indicators. One can conceptualize firm performance as either a multidimensional construct or a collection of multiple constructs that are weakly correlated with each other (Combs, Crook, & Shook, 2005). On a broad level, one can distinguish between financial and operational performance – the former referring to economic goals and the latter to non financial key organizational success factors that might

lead to financial performance (Venkatraman & Ramanujam, 1986) (Combs et al., 2005). Survival is only weakly related with financial and operational performance (Combs et al., 2005). Thus, survival should be conceptualized as an independent performance criteria. Moreover, survival is a result of prior business creation and success (Hudson, 1986). Therefore, survival is an important performance criterion for newly founded enterprises that reflects successful business creation.

We draw on two approaches to explain long term survival of newly founded enterprises: the ecological approach and occupational stress. The ecological approach assumes that founding conditions affect survival rates of newly founded enterprises. Thus, environmental conditions rather than individual level variables select enterprises that are successful and survive in a market. The liability of smallness hypothesis assumes that business size at the start up affects the probability of business survival because larger organizations have more resources to manage bad times. The liability of smallness hypothesis was supported in a number of studies (e.g., Brüderl, Preisendörfer, & Ziegler, 1992) (Aldrich & Auster, 1986)}. Therefore, we assume that

H1: The size of enterprise affects the survival chances of newly founded enterprises. Enterprises that are bigger at the time of the start up have higher survival chances than enterprises that start small.

The Relationship between Strain and Performance

In contrast to the ecological approach, a theory of occupational stress would not assume business outcomes being directly determined by environmental conditions, but rather by the reaction of individual business owners to perceived stressors. Thus, strain is assumed to impact performance. In general, there are three alternative views about the direction of the relationship between stress/ strain and performance: a negative relationship, a u-shaped relationship and a positive relationship. Most authors argued for a negative relationship between stress and performance. For example in classical stressor-strain-outcome models (e.g., (Koeske & Koeske, 1993), perceived stressors have effects on strain, exhaustion and ill-health. Strain, in turn, influences outcomes, such as poor performance. A negative relationship between strain and performance is expected because strain limits ones regulation capacity and the ability to influence the environment. A stressor-strain-outcome model is only weakly supported in entrepreneurship research. There is evidence that business owners have a lot of stressors in their work. For example, entrepreneurs work longer than non entrepreneurs (Naughton, 1987); (Eden, 1975)) and have more role conflict and role ambiguity (Jamal, 1997); (Eden, 1975). However, empirical evidence suggests that entrepreneurs perceive less stress than non-entrepreneurs (Buttner, 1992) (Tetrick, Slack, Sinclair, & DaSilva, 2000). Moreover, while a positive relationship between stressors and strain is empirically well established in organization behaviour (Van der Doef & Maes, 1999) the few studies in entrepreneurship research found only partial support for such a relationship (Tetrick et al., 2000) (Gorgievski-Duijvesteijn, Giessen, & Bakker, 2000) (Prottas & Thompson, 2006). While some studies addressed the relationship between stress and ill-health, the strain performance relationship was less frequently addressed in entrepreneurship research. Therefore, this study specifically looks at the relationship between ill-health and survival. Proponents of classical stressor-strain-outcome models would predict a negative relationship between strain and performance and, therefore, call for reducing stress as much as possible. However, the two other views about the stress-performance relationship indicate that this recommendation may not be universally valid.

An expected u-shaped relationship between stress and performance is based on the assumption that someone needs to be aroused to be alert and effortful in doing his work. This position assumes that stress should only be reduced to a certain extend. While this assumption is plausible, the empirical support for a u-shaped relationship is only limited (Srivastava & Krishna, 1986).

A positive relationship between stress and performance was proposed seldomly in stress research. We argue, however, that business owners will react on stress and, as a consequence, entrepreneurs with high

levels of strain will be more successful than entrepreneurs with low levels of strain. We rely on a control theory framework to justify our assumption (Carver & Scheier, 1982). According to (Edwards, 1992) stress occurs when someone perceives a discrepancy between the perception of the own state or the environment and his desired goals. This discrepancy causes strain and ill-health. Strain, in turn, activates coping strategies to reduce the discrepancies between the current and the desired state. Moreover, people who repeatedly experience stress try to prevent the reoccurring discrepancies and become more proactive and long-term oriented (Fay & Sonnentag, 2002). Proactivity, in turn, is related to performance in entrepreneurial companies (Frese, Krauss, & Friedrich, 2000). Therefore, strain has positive consequences in the long-term. This control theoretical framework seems to be particularly useful in the context of entrepreneurship because entrepreneurs typically have a lot of control in their work, which means that they are able to actively reduce discrepancies between the current state and desired goals. Therefore, we hypothesize that:

H2: Perceived strain positively affects business outcomes (growth, survival).

While Hypothesis 2 focused on objective outcomes our arguments can be extended to the subjective performance criteria satisfaction. In general, satisfaction and performance are positively correlated, but the size of the relationship is relatively small (r around .30 (Judge, Thoresen, Bono, & Patton, 2001)). We argue that both performance and satisfaction lead to contrasting predictions regarding the effects of strain because perceiving the failure of goal attainment and strain should result in low satisfaction. Moreover, a control theoretical framework would allow developing hypotheses about reverse causation as well. An entrepreneur wants to maintain his business and run it successfully. Therefore, poor performance and low satisfaction would indicate a discrepancy between desired goals and current performance. Therefore, poor performance and dissatisfaction affect well-being and strain. Thus, we hypothesize that:

H3: Strain has negative effects on satisfaction.

H4: Poor performance (growth, satisfaction) has negative effects on strain.

METHODS

Sample

We used a longitudinal sample of small-scale business owners from East Germany and West Germany. The first wave of the sample was drawn in 1993. The participants were selected by using four criteria: First, the enterprise had to have at least 1 and at most 50 employees¹. This corresponds to the European Union definition of small-scale firms. Second, the enterprise had to have been in operation for at least one year. This criterion was necessary to ensure availability of data about business outcomes. Since self-employment was hardly possible in the former communist East Germany, most enterprises were founded after German reunification in 1990. Third, the participant had to be the founder and owner of the enterprise and fourth, the enterprise had to be an independent or franchise business. Thus, the sample consisted of newly founded small businesses.

In the first wave, 201 owners provided both questionnaire and interview data. The response rate was 58%. The second wave of the longitudinal study took place in 1997. Of the original sample, 58 enterprises could not be located again at the time of Wave 2 (experimental mortality 29%). The second wave consisted of 119 enterprises (response rate of located enterprises 83%). The third wave of the study was drawn in 2006. Of the original sample, 99 enterprises were still in operation and led by the original business owner. 70 enterprises provided data (response rate: 70,7%).

Measurements

We used two questionnaire scales to measure owners' strain in 1993: Psychosomatic complaints and susceptibility to stress. Psychosomatic complaints (Mohr, 1986) was a nine item measure that asks e.g., about the occurrence of heart palpitations, giddiness, and backache (Cronbach's alpha = .75). Susceptibility to stress was a 10 item measure about someone's ease to react with stress symptoms to challenges and problems in his enterprise (Cronbach's alpha = .73).

The dependent variables consisted of employment growth, survival and satisfaction. Employment growth was measured by changes in the number of employees from 1993 to 2006. In an attempt to establish a survival measure, we did an intensive enquiry to get information about the whereabouts of the 201 enterprises that participated in wave one by analyzing lists provided by the chamber of commerce, telephone books, electronic resources of the internet, and on site enquiries. We were able to establish information about 189 (94%) enterprises (Table 2). While 62 enterprises had to close down because of financial problems, 99 enterprises were still in operation and run by the same owner as in 1993. The remaining enterprises existed as well, but changed ownership status (Table 1). Since we are interested in individual level variables, we coded survival from the perspective of the business owner. We coded businesses as surviving if owners still run their business, when they did a merger, they were able to sell the business, or they transmitted it successfully to a successor. Finally, satisfaction was a single 7 point item that asked about general work satisfaction.

Our design included several different industries and, therefore, we controlled for type of industry.

RESULTS

The intercorrelations of variables are displayed in Table 3. We used regression analyses to test our hypotheses (Table 4). Hypothesis 1 predicted that the size at wave one affects long-term survival. The number of employees in 1993 was not related to survival. Therefore, Hypothesis 1 had to be rejected. However, the intercorrelations indicated that size at Wave 2 was significantly correlated with survival. Therefore, we performed post-hoc analyses and found that enterprises that grew in their early years (from 1995 to 1997) had a higher chance for survival in the long term (first column, Table 4).

Hypothesis 2 assumed that perceived strain positively affects the performance of small-scale businesses. The hypothesis was partially supported. Strain predicted survival (second column Table 4). The explained variance was 4%. The effect of psychosomatic complaints was significant. Hypothesis 2 was not supported when predicting growth of enterprises (third column, Table 4).

Hypothesis 3 stated that strain has negative effects on satisfaction. This hypothesis was not supported in lagged analyses. However, in cross sectional analyses we found consistently negative relationships between strain and satisfaction. Moreover, we found a positive relationship between strain at Wave 1 and satisfaction at Wave 3 (Column 4, Table 4). Given the high stability of satisfaction and the time lag involved, we conclude that we found partial support for Hypothesis 3.

Hypothesis 4 suggested that poor performance (growth, satisfaction) has negative effects on strain. The Hypothesis was supported. Low satisfaction had a lagged negative effect on satisfaction (Column 5, Table 4).

DISCUSSION AND IMPLICATIONS

The aim of this study was to examine the relationship between strain, performance and survival of small-scale business ventures. The results indicated that strain was a positive predictor of long-term survival of small businesses. Thus, the effects of strain on performance are long-term (Fay & Sonnentag, 2002). We drew on a control theoretical approach and argued that experienced strain activates strategies to reduce causes of strain and improve business performance. Using a control theoretical framework to

explain the effects of strain seems to be particularly useful in entrepreneurship research because entrepreneurs have a lot of control in their work and they determine business decisions themselves. High demands in this type of job do not necessarily result in negative consequences (Karasek, 1990). Thus, the psychological demands associated with the task of running a business may not necessarily produce negative outcomes. However, strain did not have such effects on employment growth. Possibly, some business owners may very well react to strain by focussing at business survival rather than growth.

While we found that strain was negatively correlated with satisfaction, the effect disappeared in lagged analyses. There is a potential methodological reason for this effect. Satisfaction had a high stability across the three waves. As a consequence, controlling for prior satisfaction resulted in a huge amount of variance already explained. We found that low satisfaction had lagged effects on strain. A control theoretical interpretation of these results would suggest to actively reduce the reasons for dissatisfaction and strain.

Our results provided no support for the liability of smallness hypothesis. We checked in post hoc analyses and found that start-up size and the amount of start capital were not related to survival as well. However, rather than size effects, we found that growth at Wave 2 positively affected business survival. There is evidence that the liabilities of age and size are delayed (Bruederl & Schussler, 1990). Our results indicated that a certain growth at the post start-up phase helps businesses to survive in the long-term. However, we cannot reject the liability of smallness hypothesis in our study because we oversampled successful business start-ups. We included enterprises that already succeeded their first and/or second year. Since smaller companies may have already being closed down prior to this time, the oversampling may very well work against a liability of size effect in our study. A strength of this study is the longitudinal design, which makes it possible to draw causal interpretations. Moreover, our design minimizes common method variance.

We suggest that future entrepreneurship research should further address business survival and stress/strain effects. For example, business closure does not necessarily indicate poor performance. For example, selling a company may indicate bankruptcy but it may very well indicate realized profits of the owner. One may at least differentiate between failure of the business owner and the failure of the firm (Davidsson, 2004). We tried to code for such differences, however, our sample size did not allow for a more fine grained analysis. Moreover, we did not analyze the time of the business failure. However, early failure is more likely than late failure. Moreover, live cycle models of firms would suggest different tasks and challenges at different points in time. Stressor-strain issues are an interesting topic in entrepreneurship research. Entrepreneurship is a specific type of job, which includes many stressors and, at the same time, a high amount of control. Classical stressor-strain-performance models may not well apply for this type of jobs and, therefore, one needs to test new stress models here.

Our results have practical implications for business owners. A reduction of stress of small-scale entrepreneurs might be a double edged sword. While stress reduction might lead to better health and satisfaction, the discrepancies between the current state and desired goals might not be reduced at the same time. Acting and solving these discrepancies is essential for business owners. Thus, while reducing stress reactions, owner need to proactively strive for desired goals.

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NOTES

1. One enterprise had zero employees in 1993. However, this employee had just resigned recently and the owner indicated that he planned to replace him/her soon. Therefore, we kept this enterprise in our analysis.

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Table 1: Status of Businesses in 2006

	N	%
Insolvency	62	30,9
Still in operation	99	49,3
New enterprise	4	2,0
Status unknown	12	6,0
Merger	1	0,5
Sold	14	7,0
Transition to employee	1	0,5
Transition to Family	8	4,0
Overall N	201	

Table 2: Survival Rates of Businesses

	Entrepreneur		Venture	
Success	127	(67,2)	108	(57,1)
Failure	62	(32,8)	81	(42,0)

Table 3: Intercorrelations of variables

	1	2	3	4	5	6	7	8	9	10
1. Survival										
2. Size 1993	.13									
3. Size 1997	.20*	.68**								
4. Size 2006	a)	.41**	.74**							
5. Susceptibility to stress (1)	.16*	.03	-.08	-.16						
6. Psychosomatic complaints (t1)	.17*	.08	.06	-.06	.09					
7. Craft	-.16*	.02	-.03	-.04	.21*	.10				
8. Trade	-.27**	-.22*	-.14	-.24*	-.16*	.03	-.28*			
9. Manufacturing	.18*	.18*	.37**	.34**	-.07	-.03	-.10	-.20**		
10. Satisfaction (t3)	a)	.21	.25	.25*	-.17	-.31*	-.08	-.06	.03	

Note. * p<.05, **p<.01. a) survival is a constant for this variable.

Table 4: Regression Analyses

	Survival	Survival	Growth	Satisfaction (t3)	Susceptibility to stress (t2)
<u>Step 1: Controls</u>					
Size t1	.05		.34*		
Susceptibility to stress (t1)					.55**
Craft (t1)	-.20	-.21**	-.13	-.13	-.038
Trade (t1)	.12	.11	-.06	-.10	-.195*
Manufacturing (t1)	.15	.15*	.24*	-.00	.053
R ²	.11	.10	.26	.02	.29
F for R ²	3,11*	6,94	5,45**	0,39	10,44**
df1, df2	4,105	3,181	4,63	3,61	4,105
<u>Step 2: Independent variables</u>					
Growth t2	.24*				
Psychosomatic complaints (t1)		.17*	-.06	-.28*	
Susceptibility to stress (t1)		.11	-.17	-.15	
Satisfaction (t1)					-.18*
R ²	.16	.14	.29	.12	.32
ΔR^2	.05	.04	.03	.11	.03
F for ΔR^2	6,29*	4,09*	1,44	3,58*	5,03*
df1, df2	1,104	2,179	2,61	2,59	1,104

Note displayed coefficients are standardized regression coefficients. *p<.05. **p<.01.

