

Necessity entrepreneurship and competitive strategy

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Abstract Many start-ups chose to compete with incumbent firms using one of two generic strategies: cost leadership or differentiation. Our study demonstrates how this choice depends on whether the start-up was founded out of necessity. Our results, based on a representative data set of 4,568 German start-ups, show that necessity entrepreneurs are more likely than other entrepreneurs to pursue a cost leadership strategy and less likely to pursue a differentiation strategy. Decomposition analyses further show that up to half of the difference in choice of strategy can be attributed to distinct endowments of human capital, socioeconomic

attributes, and start-up project characteristics that correlate with necessity entrepreneurship.

Keywords Necessity entrepreneurship · New venture strategy · Competitive strategy · Cost leadership · Product differentiation · Decomposition analysis

JEL Classifications L10 · L26

1 Introduction

Our research seeks to better understand how start-up conditions in a firm can influence its competitive strategy. We shall argue that conditions such as the reasons an entrepreneur has to start her business can have an important influence on competitive strategy. That decision is important for a variety of reasons. First, it has been shown that circumstances characterizing the birth conditions of a firm tend to be imprinted in firms for very long periods (Baron et al. 1999; Stinchcombe 1965). Thus, early strategic decisions tend to be lasting ones. Moreover, the skills, client contacts, personnel, and capital investments at start-up tend to lock the firm into its condition (Hannan and Freeman 1984; Miller 1990). Finally, some types of strategies tend to be more salutary for long-term performance and economic growth than others.

Start-ups can choose different strategies for how to compete (Carter et al. 1994). They can decide, for

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example, to compete on the basis of price or they can pursue a strategy of differentiation via offering superior product value. We argue that the choice of competitive strategy of a start-up will depend on the particular circumstances surrounding an entrepreneur that precipitate the start-up decision. We focus on the primary motivations of founders for starting their business. Specifically, we contrast founders who launch their businesses out of necessity—because they lack alternative employment opportunities—with those who begin their enterprises under less restrictive or compelling conditions. This “necessity” condition is an important one as it may correlate with the motivational, human capital, and resource endowments of the entrepreneur and therefore can have an important impact on the nature of a business.

Prior research shows that many entrepreneurs start their venture because they lack significant opportunities for paid employment (Amit and Muller 1995; Bergmann and Sternberg 2007; Gohmann and Fernandez in press). Data from the Global Entrepreneurship Monitor show that the proportion of necessity entrepreneurs amounts to 18.6 % in Germany, 25.9 % in Spain, and 21.2 % in the US (Kelley et al. 2012). Studies also find that necessity entrepreneurs display different socioeconomic characteristics than other entrepreneurs (Block and Wagner 2010). They also differ in human capital endowment, venture success, job satisfaction, and impact on economic development (Acs and Varga 2005; Bergmann and Sternberg 2007; Block and Koellinger 2009; Block and Sandner 2009; Kautonen and Palmroos 2010; Wong et al. 2005). Yet to date little is known about the strategic behavior of necessity entrepreneurs. Our research addresses this gap by assessing the competitive strategies they pursue. We distinguish cost leadership and differentiation strategies, each considered by Porter (1980) and his many followers to be individually and in combination generic foundations of viable strategic behavior. We also seek to understand the reasons why necessity entrepreneurs choose a particular competitive strategy.

Our empirical analysis uses an original data set from the KfW/ZEW Start-up Panel (Fryges et al. 2010). Our sample includes 4,568 ventures started in Germany between 2005 and 2007. Given the richness of the data, we are able to determine the effect of necessity entrepreneurship on new venture competitive strategy, while controlling for a large number of start-up and founder characteristics. As hypothesized, we find that

necessity-based start-ups are more likely to pursue a cost leadership strategy and less likely to pursue a differentiation strategy. Moreover, observable characteristics such as human capital endowment and specifics of the chosen projects differ significantly between necessity-based and other start-ups, and these differences are often larger than the corresponding variation between cost leaders and differentiators within the group of necessity-based start-ups. Using Blinder–Oaxaca-type decomposition techniques, we also find that up to one half of the difference in choice of strategy between necessity-based and other start-ups is attributable to differences in observable characteristics.

Our study contributes to our understanding of the strategic consequences of necessity entrepreneurship (Block and Koellinger 2009; Block and Sandner 2009; Block and Wagner 2010; Dencker et al. 2009; Hechavarria and Reynolds 2009; Kautonen and Palmroos 2010; Maritz 2004; Williams 2008). So far, little has been written about the strategies necessity entrepreneurs use to start their ventures; and we show how these individuals represent a distinctive group in that respect. Second, we contribute to the literature on new venture strategy (Carter et al. 1994; Covin and Slevin 1990; Fern et al. 2012; McDougall and Robinson 1990; Ostgaard and Birley 1994). We demonstrate that the strategies of new ventures are shaped vitally by the motivations of their founders and the specific economic situations leading to their decision to launch a venture. Third, we contribute to the work on the effects of an entrepreneur’s pre-launch history on venture design (Baron et al. 1999; Dahl and Sorenson 2012; Helfat and Lieberman 2002; Sørensen 2007; Sørensen and Fassiotto 2011; Thornton 1999). We find that entrepreneurs with a history of economic necessity start their venture with a different strategic orientation than other entrepreneurs. Importantly, we are also able to estimate to what degree differences in strategy choice are attributable to particularities in human capital endowment, socioeconomic factors, and characteristics of the start-up project correlating with necessity entrepreneurship.

The study is organized as follows: Section 2 reviews the literature on competitive strategy in new ventures and develops hypotheses regarding the effect of necessity entrepreneurship on the choice of new venture competitive strategy. Section 3 introduces the data and methods for the empirical analysis and presents our results. Section 4 concludes.

2 Theory and hypotheses

2.1 Competitive strategy: typologies and determinants

Over the years, Porter's (1980) distinction between cost leadership and differentiation strategies and his related typology have been perhaps the best researched in the strategy literature. It has been shown that these strategies yield competitive benefits for survival and profitability (Miller 1988).¹ Carter et al. (1994) have shown that cost leadership and various differentiation strategies are extremely common among start-ups. However, positive competitive outcomes can only be obtained by matching competitive strategy to available resources (Barney 1991): for example, exceptional creative or scientific talent is useful for innovative differentiation, and economical production cost structures are needed to support sustained cost leadership. This resource-matching constraint can have a major impact on the strategic choices of necessity entrepreneurs in new ventures, especially given what may be, in some aspects, a restrictive resource profile.

Many kinds of resources can sustain a strategy. These include obvious ones such as special knowledge, patents and valuable properties, as well as energized corporate cultures (Barney 1991). But they can also include the motivations of those owning and working in the business—their willingness to work hard to make the business successful and to do so for meager pay.

The importance of linking strategy to founder resources has been confirmed by studies of new ventures. Research by Ostgaard and Birley (1994), for example, shows that new venture competitive strategy is shaped by the personal social networks of the

¹ Miles and Snow (1978) distinguished among *prospector* firms that competed on the basis of their innovative abilities and charged higher prices for their superior offerings, *defender* firms that competed on the basis of efficiency and price, and *analyzers* who combined these strategies toward different ends. The work of Porter (1980) is related to that of Miles and Snow (1978) in that it contrasted firms that were differentiators and cost leaders. Prospectors engaged in innovative differentiation and defenders tended to be cost leaders. Porter's (1980) third focus category of firms tailored a blend of differentiation and cost leadership to a narrowly targeted niche of the market; they related in orientation to Miles and Snow's (1978) analyzers. Miller (1988) showed that there were many types of differentiation—for example, according to quality, marketing expertise, and innovative talent.

founders. Other researchers have examined how the social context of founders shapes venture design (Baron et al. 1999; Burton and Beckman 2007; Dahl and Sorenson 2012; Sørensen 2007; Sørensen and Fassio 2011). However, these studies have not addressed the distinctive situations or choices of necessity entrepreneurs.

2.2 Necessity entrepreneurship and choice of competitive strategy

Cost leadership and differentiation strategies have been found to be common among new ventures (Carter et al. 1994; Ostgaard and Birley 1994). As noted, each of these strategies relies on a different set of resources. We shall argue that the resources that are typically available to—or difficult to access for—a necessity entrepreneur will make it especially likely that she will adopt a cost leadership versus a differentiation strategy.²

Certainly, the motivations to embark upon entrepreneurship can influence the strategy of a new venture. Because necessity entrepreneurs are pushed into entrepreneurship, they often are in a less favorable position than other entrepreneurs to carefully plan their new initiatives. Compared to other entrepreneurs, they have less time and fewer capital- or knowledge-based resources available to them to develop a differentiated product or service offering (Dencker et al. 2009; Solymossy 1997). Cost leadership strategies may require less planning and resources than those of differentiation, as in some sectors of the economy and among very small businesses, simply the condition of low labor costs can bestow firm viability; and those costs can be shaved simply by a founder and her relatives being willing to work for low wages (Williams 2008). These conditions may be significant drivers of necessity entrepreneurs' preference for cost leadership over differentiation strategies, each of

² Prior studies have distinguished between entrepreneurs who started their business "to take advantage of a unique market opportunity"—so-called opportunity entrepreneurs, and those that became entrepreneurs because no other employment opportunities were available to them—necessity entrepreneurs (Reynolds et al. 2005). These notions of necessity and opportunity entrepreneurship relate to the earlier work on "push versus pull" motivations for starting a venture (Amit and Muller 1995; Cooper and Dunkelberg 1986; Solymossy 1997).

which requires different skills and capabilities (Miller 1988, 1990).

Those with special talents, education, or significant human capital are often able to sell it on the labor market and reap significant returns. They are less likely to be forced to start a venture for lack of a better alternative. By contrast, necessity entrepreneurs with sparse human capital (many of whom cannot therefore find employment) are unlikely to have the special knowledge, education, or skills needed to design and produce differentiated offerings, for example, via innovative technologies or designs, or superior quality (Miles and Snow 1978). They are more likely to be limited to producing more standard fare, such as that consistent with a low-cost strategy. In many industries, cost leadership requires not special knowledge or advanced equipment, but, especially at the start-up phase, a willingness for managers and their employees to work for low wages. Simply producing an item at lower costs than those of a competitor may be the “resource” required to succeed at cost leadership. By contrast, differentiation strategies, to succeed, require not just ordinary skills—but those that issue out of high value abilities and resources (Miller 1988). These may be hard to attain for individuals whose employment status may attest to a lower level of human capital. Indeed, skill gaps are confirmed by the comparative backgrounds in education, experience, and skills between the necessity entrepreneurs and other entrepreneurs in our sample.

However, sometimes there also may be positive resource advantages that accrue to necessity entrepreneurs, and which again lead them to pursue cost leadership. First, necessity entrepreneurs have demonstrated the courage to start a new venture. They are clearly motivated and determined. They also *must* succeed, in many cases, simply to feed themselves and their families. These are powerful incentives. Moreover, a critical requirement of a cost leadership strategy is an especially economical cost structure. In the case of small start-up ventures where economies of scale often are not yet relevant, such a cost structure can be facilitated by a highly motivated founder who is willing to work for very little and to recruit others in his situation to share the risks and benefits of the venture. After all, opportunity cost is not much of a constraint for necessity entrepreneurs, and that same condition might hold for immediate or dependent members of their family.

In short, necessity entrepreneurs may be less able to embrace a differentiation strategy, but more able and willing to undertake a cost leadership strategy. These arguments lead us to our principal hypotheses:

Hypothesis 1 Necessity start-ups are more likely than other start-ups to implement a cost leadership strategy.

Hypothesis 2 Necessity start-ups are less likely than other start-ups to implement a differentiation strategy.

The rationales for our hypotheses can be linked to differences in observable characteristics between necessity and other entrepreneurs. For example, we argue that necessity entrepreneurship is correlated with inferior human capital endowment as measured by education, experience, and entrepreneurial skills. Our study seeks to understand how much of the difference in strategy choice between necessity-based start-ups and other start-ups can be attributed to differences in observable characteristics, i.e., differences in human capital endowment, socioeconomic characteristics, and particularities of the start-up projects.

3 Empirical Analysis

3.1 Sample and variables

We use data from the KfW/ZEW Start-up Panel (KfW/ZEW-Gründungspanel), a unique data set generated by a large-scale yearly survey of young firms in Germany. The data are collected by computer-aided telephone interviews (CATI) with the founders. The target group contains newly founded, legally independent firms that are run by at least one full-time entrepreneur. De-mergers and subsidiaries are not included.³ We use the first survey wave collected in the year 2008 for our empirical investigation. The survey provides data on 5,508 firms founded in the period from 2005 to 2007.

The design of the survey offers three advantages for our study. First, survivor bias is kept at a minimum because the young firms included in the sample are included from their first year of existence onwards.

³ See Fryges et al. (2010) for a detailed description of the design of the KfW/ZEW Start-up Panel.

Second, the panel includes almost all industry sectors⁴ and is representative of firms of meaningful size that are able to form an explicit strategy for their market entry. Third, the respondents have not only answered questions regarding firm specifics, but have also provided personal information about their start-up motives and the human capital endowment of the founders. This information is crucial to the analysis of strategy choice.

The competitive strategy of the start-ups is determined by information collected in the questionnaire about the positioning of firms' products or services relative to those of the firms' main competitors. The response options to the question "Which of the following descriptions represents the "customer-value to price ratio" of your products and services in comparison to your main competitors" are (1) higher benefit at higher prices, (2) higher benefit at comparable or lower prices, (3) comparable benefit at comparable prices, (4) lower prices at comparable benefit, and (5) lower prices for lower benefit. We group the answers into three categories and distinguish cost leadership and differentiation strategies as follows: Start-ups providing higher benefit offerings regardless of prices are classified as differentiators. Start-ups offering lower prices regardless of benefits are classified as cost leaders. Start-ups which do not distinguish themselves from their competitors by prices or benefit are classified as pursuing a neutral strategy.

We designate low-price strategies as cost leadership because unless a firm's costs are at least as low as those of the competition, the firm would not be able to survive by offering lower prices in the competitive markets within which most of the young firms operate.

Using information on founders' start-up motives, we distinguish necessity-based and other (non-necessity-based) start-ups as follows: Survey participants answered the question "What was the main reason for the (members of team of) founders to become self-employed?" The response options (1) no appropriate alternative in dependent employment and (2) escape from unemployment, define a necessity-based start-up. All other response options, shown in Table 6 in the Appendix, capture non-necessity motives; 23 % of all

start-ups in our sample are classified as necessity-based start-ups. The definitions of our remaining explanatory variables are reported in Table 6 in the appendix. Our final sample consists of 4,568 firms that completed the strategy question and responded to all other items selected for our empirical analysis.

3.2 Descriptive statistics: differences between necessity-based and other start-ups

As reported in Table 1, nearly two thirds (64 %) of all start-ups are classified as differentiators, 17 % are cost leaders, and 19 % employ a neutral strategy. What is more, there are marked and statistically significant differences between necessity-based and other start-ups: necessity-based start-ups less often pursue a differentiation strategy and more often pursue a cost leadership strategy. Whereas the share of differentiators is 10 % points lower among necessity-based start-ups than among other start-ups, the share of cost leaders is 5 % points higher.

Necessity entrepreneurs also differ from entrepreneurs with other motives with respect to their socio-demographic attributes and the characteristics of their start-up projects (see Table 2). Regarding their endowment with general and specific human capital (Becker 1964), the evidence is mixed. For example, necessity entrepreneurs are older and have more industry experience, but they start from unemployment more often and have less formal education. Moreover, they lack entrepreneurial experience, both positive and negative. On the one hand, their age may accord them some opportunity to gather resources during their professional life. On the other hand, long industry experience and the paucity of self-employment experience suggests that their knowledge and skills are specialized for dependent employment and is perhaps less useful for starting a venture.

In addition, necessity-based start-ups are less labor-intensive compared to other start-ups. They are also less likely than other start-ups to employ staff and form a team of founders. Their products are less apt to involve market novelty and R&D activity. Necessity-based start-ups also face more competitors and are mostly active in low-tech sectors, especially construction. These observations point to market segments with relatively low entry barriers and intense competition.

⁴ The only sectors excluded are agriculture, mining and quarrying, electricity, gas and water supply, health care, and the public sector.

Table 1 Choice of competitive strategy

	All start-ups ($N = 4,568$ obs.) (%)	Necessity-based start-ups ($N = 863$ obs.) (%)	Other start-ups ($N = 3,705$ obs.) (%)
Differentiation strategy			
Higher benefit at higher prices	64.25	55.85	66.21
Higher benefit at comparable or lower prices			
Comparable performance at comparable prices	19.15	23.41	18.16
Cost leadership strategy			
Lower prices with comparable benefit	16.59	20.75	15.63
Lower prices with lower benefit			

χ^2 test for identity of strategy distribution between necessity-based and other start-ups: $\chi^2(2) = 32.76$, p -value = 0.00

Data source: KfW/ZEW Start-up Panel, survey wave 2008

3.3 Model estimation

Attributes of the entrepreneurs and their start-up projects correlate with the necessity motive, and all of these factors may influence the choice of strategy. We attempt to disentangle the effects of the necessity motive and of other characteristics of the entrepreneurs as well as the specifics of their start-up projects on different strategies. Using probit models, we contrast (I) the differentiation strategy versus any other strategy, and (II) the cost leadership strategy versus any other strategy. The basic estimation equations are specified as

$$S_i^* = \text{Nec}_i\alpha + X_i\beta + \varepsilon_i, \quad (1)$$

where the (latent) strategy choice S_i^* of start-up $i = 1, \dots, N$ is a function of the necessity motive Nec_i and observable characteristics X_i . To establish the robustness of the estimated effects, we estimate Eq. (1) both with and without the necessity motive as an explanatory variable, as well as separately for necessity-based and other start-ups. Estimation results are displayed in Tables 3 and 4.⁵

As hypothesized, the necessity motive significantly decreases the probability that an entrepreneur will choose a differentiation strategy versus a cost leadership or a neutral strategy by 4 % points, *after controlling for start-up properties and socio-demographic characteristics of the entrepreneurs* (columns (1) and (2) of Table 3). Moreover, necessity boosts the likelihood of cost leadership also by 4 % points

⁵ Using correlation analysis and variance inflation factors (VIFs), we did not find evidence for multicollinearity.

compared to other start-up motives, again *ceteris paribus* (columns (1) and (2) of Table 4). Signs and magnitudes of the marginal effects of the control variables X_i remain basically unchanged irrespective of whether the necessity motive is included in the estimations (column 2) or not (column 1). These results substantiate the notion that the necessity motive has its own, direct effect on strategy choice. Hypotheses 1 and 2 are thus supported.⁶

The control variables of Tables 3 and 4 suggest that human capital has limited influence on the strategies chosen by necessity entrepreneurs. We find that human capital as measured by formal educational attainment, labor market status before start-up, and industry and entrepreneurial experience has only limited influence on a start-up's competitive strategy. Only positive entrepreneurial experience increases the chances of pursuing a differentiation strategy, but the effect is weak. Entrepreneurs who were out of the labor force before starting their venture have a lower (higher) likelihood of a differentiation strategy (cost leadership strategy).

Some properties of the start-up project are correlated with strategy choice. Start-ups introducing market novelties or engaging in R&D activity show a higher likelihood of a differentiation strategy. Tables 3 and 4 further indicate a relationship between

⁶ Multinomial probit estimations show similar results. The marginal effect of the necessity motive is significantly negative with respect to the differentiation strategy and significantly positive with respect to the cost leadership strategy, with magnitudes of four percentage points. Detailed estimation results are available from the authors upon request.

Table 2 Descriptive statistics: necessity-based versus other start-ups

	All start-ups (1)	Necessity-based start-ups (2)	Other start-ups (3)	Significance of (2)–(3) ^a (4)
At least one female entrepreneur	18.32	19.70	18.00	
Age of oldest entrepreneur				
<25	3.44	1.39	3.91	***
25–34	27.17	20.63	28.69	***
35–44	38.11	38.01	38.14	
45–54	22.85	29.43	21.32	***
≥55	8.43	10.54	7.94	**
At least one entrepreneur with foreign origin	8.54	8.46	8.56	
Highest educational attainment				
None	3.31	3.01	3.37	
Vocational training	32.62	42.99	30.20	***
Master craftsman	24.17	26.19	23.70	
University degree	39.91	27.81	42.73	***
Labor market status before start-up				
Employees	52.98	45.19	54.79	***
Self-employed	19.09	7.18	21.86	***
Unemployed	17.73	40.56	12.42	***
Out of labor force	10.20	7.07	10.93	***
Positive entrepreneurial experience	21.08	9.85	23.70	***
Negative entrepreneurial experience	14.05	11.01	14.76	***
Years of industry experience				
≤5	18.85	18.19	19.00	
6–10	23.38	18.66	24.48	***
11–20	37.30	35.23	37.79	
>20	20.47	27.93	18.73	***
Team start-up	26.90	15.06	29.66	***
R&D activity	24.19	13.09	26.77	***
Market novelty	16.29	10.20	17.71	***
Industry				
Cutting-edge technology manufacturing	5.49	4.75	5.67	
High-technology manufacturing	4.88	3.36	5.24	***
Technology-intensive services	20.93	22.48	20.57	
Software	9.02	3.94	10.20	***
Non-high-tech manufacturing	10.79	11.24	10.69	
Skill-intensive services	6.96	5.45	7.31	**
Other business-oriented services	5.74	7.07	5.43	*
Consumer-oriented services	10.44	7.76	11.07	***
Construction	11.87	18.19	10.39	***
Wholesale and retail trade	13.88	15.76	13.44	*
Start-up with employees	63.11	53.77	65.29	***
Number of competitors				
<6	23.95	17.61	25.43	***
6–20	20.69	19.93	20.86	

Table 2 continued

	All start-ups (1)	Necessity-based start-ups (2)	Other start-ups (3)	Significance of (2)–(3) ^a (4)
>20	55.36	62.46	53.71	***
Year of foundation				
2005	32.18	38.24	30.77	***
2006	36.06	35.57	36.17	
2007	31.76	26.19	33.06	***
Number of start-ups	4,568	863	3,705	

Shares of start-ups in percent

^a χ^2 tests for identity of shares between necessity-based and other start-ups. */**/** indicate 10/5/1 % level of significance

Data source: KfW/ZEW Start-up Panel, survey wave 2008

start-up strategy and the level of competition. It appears, for example, that the relationship between the number of competitors and the likelihood of pursuing a cost leadership strategy is U-shaped. Finally, we find that start-ups with employees prefer differentiation to cost leadership.

Columns (3) and (4) in Tables 3 and 4 report the results of separate estimations for the groups of necessity-based and other start-ups. The estimates for the (larger) group of other start-ups are somewhat more precise (i.e., they have lower standard errors). Yet, overall, the estimated effects do not differ markedly between the groups of necessity-based and other start-ups.

3.4 Decomposition analysis

How much of the difference in choice of strategy between necessity-based and other start-ups is explained by differences in observable characteristics such as entrepreneurs' human capital endowment and the specifics of their start-up projects? To answer this question, we employ Blinder–Oaxaca-type decompositions adapted to the nonlinear case.⁷ Differences in competitive strategy are decomposed into a “characteristics effect” (also referred to as endowment effect) and a “coefficients effect” (also referred to as behavioral or residual effect):

$$\hat{S}^o - \hat{S}^n = \underbrace{\hat{S}^o - \hat{S}_o^n}_{\text{characteristics effect}} + \underbrace{\hat{S}_o^n - \hat{S}^n}_{\text{coefficients effect}} \quad (2a)$$

$$= \underbrace{\hat{S}_n^o - \hat{S}^n}_{\text{characteristics effect}} + \underbrace{\hat{S}^o - \hat{S}_n^o}_{\text{coefficients effect}}, \quad (2b)$$

where \hat{S}^m for necessity-based ($m = n$) and other ($m = o$) start-ups are calculated as

$$\hat{S}^m = N_m^{-1} \sum_{i=1}^{N_m} \Phi(X_i^m \hat{\beta}^m) \quad (3)$$

based on the separate probit estimations above.⁸ The counterfactuals \hat{S}_n^o and \hat{S}_o^n are easily computed in analogy to Eq. (3) using the characteristics of one group and the coefficients estimated for the other.

The characteristics effect involves the part of the overall difference in predicted strategy propensities between necessity-based and other start-ups which can be attributed to differences in the observable characteristics X_i (in our data set). The coefficients effect captures the residual part of the overall difference—which is due to differences in estimated coefficients $\hat{\beta}$ at given characteristics. The latter also includes differences in the regression constants, i.e., the different baselines for necessity-based and other

⁷ See Blinder (1973) and Oaxaca (1973). See also Fairlie (1999, 2005) and Bauer and Sinning (2008).

⁸ In contrast to the approach pursued by Fairlie (1999, 2005), we do not focus on differences in observed average probabilities ($\bar{S}^o - \bar{S}^n$), but rather on projected differences ($\hat{S}^o - \hat{S}^n$). The advantage of this approach is that the coefficients effect includes less residual noise. Even though \bar{S}^m and \hat{S}^m resulting from probit estimation are not necessarily identical, their deviation is negligible for appropriate model specifications.

Table 3 Choice of competitive strategy: probit regressions I

Dependent variable	Differentiation strategy (differentiation strategy $s = 1$, any other strategy $s = 0$)							
	(1) All start-ups		(2) All start-ups		(3) Necessity-based start-ups		(4) Other start-ups	
	ds/dx	SE	ds/dx	SE	ds/dx	SE	ds/dx	SE
Necessity-based start-up			-0.044	0.019**				
At least one female entrepreneur	0.021	0.019	0.023	0.019	0.085	0.044*	0.010	0.021
Age of oldest entrepreneur								
<25	-0.008	0.042	-0.014	0.042	-0.053	0.139	-0.004	0.044
25-34	0.016	0.018	0.013	0.019	-0.020	0.048	0.018	0.020
45-54	-0.027	0.019	-0.024	0.019	-0.065	0.043	-0.015	0.022
≥ 55	-0.040	0.029	-0.035	0.029	-0.074	0.062	-0.022	0.033
At least one entrepreneur with foreign origin	-0.051	0.026*	-0.050	0.026*	-0.031	0.063	-0.053	0.029*
Highest educational attainment								
None	0.024	0.041	0.024	0.041	0.090	0.095	0.023	0.045
Master craftsman	0.008	0.020	0.006	0.020	-0.018	0.042	0.014	0.022
University degree	0.030	0.018	0.027	0.018	-0.009	0.044	0.035	0.020*
Labor market status before start-up								
Self-employed	0.015	0.023	0.013	0.023	0.028	0.071	0.006	0.024
Unemployed	-0.012	0.019	-0.001	0.020	0.029	0.037	-0.013	0.024
Out of labor force	-0.053	0.026*	-0.053	0.026**	0.060	0.070	-0.072	0.028**
Positive entrepreneurial experience	0.038	0.021*	0.036	0.021*	0.035	0.061	0.038	0.023*
Negative entrepreneurial experience	0.020	0.021	0.019	0.021	-0.034	0.056	0.029	0.022
Years of industry experience								
6-10	-0.015	0.022	-0.015	0.022	-0.030	0.056	-0.017	0.024
11-20	-0.001	0.021	-0.002	0.021	0.031	0.052	-0.012	0.023
>20	-0.008	0.026	-0.007	0.026	-0.008	0.058	-0.001	0.028
Team start-up	0.012	0.018	0.010	0.018	0.043	0.050	0.003	0.019
R&D activity	0.081	0.018***	0.080	0.018***	-0.001	0.055	0.091	0.019***
Market novelty	0.069	0.020***	0.068	0.020***	0.086	0.058	0.062	0.021***
Industry								
Cutting-edge technology manuf.	-0.071	0.038*	-0.070	0.038*	0.059	0.099	-0.092	0.041**
High-technology manufacturing	-0.108	0.040***	-0.108	0.040***	-0.116	0.116	-0.109	0.042***
Technology-intensive services	-0.063	0.027**	-0.060	0.027**	0.047	0.073	-0.082	0.029***
Software	-0.033	0.032	-0.033	0.032	0.154	0.099	-0.055	0.034
Non-high-tech manufacturing	-0.095	0.030***	-0.092	0.030***	-0.103	0.081	-0.083	0.032***
Skill-intensive services	-0.059	0.034*	-0.058	0.034*	-0.104	0.097	-0.048	0.036
Other business-oriented services	-0.089	0.036**	-0.085	0.036**	0.041	0.088	-0.119	0.040***
Construction	-0.207	0.031***	-0.202	0.031***	-0.148	0.078*	-0.210	0.034***
Wholesale and retail trade	-0.101	0.028***	-0.099	0.028***	-0.092	0.074	-0.098	0.030***
Start-up with employees	0.062	0.016***	0.061	0.016***	0.081	0.036**	0.054	0.017***
Competition								
<6 competitors	0.044	0.018**	0.043	0.018**	-0.003	0.046	0.050	0.019***
6-20 competitors	0.024	0.018	0.023	0.018	0.035	0.044	0.021	0.020
Founded in year 2006	0.023	0.017	0.022	0.017	0.011	0.039	0.025	0.019
Founded in year 2007	0.017	0.018	0.014	0.018	0.084	0.043**	0.002	0.019

Table 3 continued

Dependent variable	Differentiation strategy (differentiation strategy $s = 1$, any other strategy $s = 0$)							
	(1) All start-ups		(2) All start-ups		(3) Necessity-based start-ups		(4) Other start-ups	
	ds/dx	SE	ds/dx	SE	ds/dx	SE	ds/dx	SE
Number of observations	4,568		4,568		863		3,705	
Log pseudolikelihood	-2,862.98		-2,860.25		-563.97		-2,276.85	
Pseudo R^2	0.0387		0.0396		0.0478		0.0393	

Coefficients show average marginal effects

*/**/** indicate 10/5/1 % level of significance. An additional control variable indicating firms promoted by KfW is included

Data source: KfW/ZEW Start-up Panel, survey wave 2008

start-ups. We run decomposition analyses separately for (I) the likelihood of a differentiation strategy versus any other strategy and (II) the likelihood of a cost leadership strategy versus any other strategy.

The decompositions (2a) and (2b) differ with respect to the chosen counterfactual strategies \hat{S}_m^m . In Eq. (2b), \hat{S}_o^o denotes the prediction for necessity-based start-ups, assuming that they have the same coefficients as the other start-ups. Equation (2a) uses predictions \hat{S}_n^o for the other start-ups based on the coefficients for necessity-based start-ups. We compute both versions to investigate the sensitivity of the decomposition results.⁹ Results are displayed in Table 5.

In decomposition (I), the characteristics effect explains almost one half (43–47 %) of the predicted 10 % point difference in the propensity to pursue a differentiation strategy. This result is strikingly stable with respect to the choice of the counterfactuals in (2a) or (2b). In decomposition (II), the characteristics effect explains up to one third (35 %) of the 5 % points difference in the propensity to pursue a cost leadership strategy, with somewhat more sensitivity with respect to the counterfactuals. In sum, the different endowments of necessity entrepreneurs—e.g., their less favorable labor market and entrepreneurial

experience—are responsible for a considerable proportion of the differences in strategy choice.

This finding is corroborated by the descriptive evidence in Tables 7 and 8 in the Appendix, which report observable characteristics by strategy status within the groups of necessity-based (Table 7 in the Appendix) and other start-ups (Table 8 in the Appendix). In line with the regression results discussed above, differentiators and cost leaders differ significantly with respect to observable characteristics. However, intra-group variation among necessity-based start-ups is in many cases lower than the differences between necessity-based and other start-ups. For example, the share of university graduates ranges between 25 and 30 % among necessity entrepreneurs (see Table 7 in the Appendix), but gets as high as 46 % among other start-ups (the range is from 35 to 46 %, see Table 8 in the Appendix).

The coefficients effect accounts for the remainder of the differences in predicted propensities, i.e., about 5 % points—or about one half—in decomposition (I) and 3–5 % points—or at least one third—in decomposition (II). These portions of the variation in strategy choice can be attributed to the dissimilar strategic behavior of necessity-based and other start-ups, even if the two groups were identical with respect to the large set of observable characteristics.

3.5 Limitations

Both our necessity entrepreneurship and strategy choice variables are self-reported and collected at one point in time. This could introduce a sort of self-selection bias. It might be that entrepreneurs who did

⁹ It is well known that the decompositions resulting from the different counterfactuals do not necessarily yield identical results. Different approaches to the issue of non-uniqueness have been proposed in the literature; see Oaxaca and Ransom (1994) and Silber and Weber (1999) for surveys. Yet each of the approaches relies on ad hoc assumptions of some type, so we choose to report the two most prominent cases.

Table 4 Choice of competitive strategy: Probit regressions II

	Cost leadership strategy (Cost leadership strategy $s = 1$, any other strategy $s = 0$)							
	(1) All start-ups		(2) All start-ups		(3) Necessity-based start-ups		(4) Other start-ups	
	ds/dx	SE	ds/dx	SE	ds/dx	SE	ds/dx	SE
Necessity-based start-up			0.036	0.016**				
At least one female entrepreneur	-0.051	0.013***	-0.052	0.013***	-0.067	0.033**	-0.051	0.014***
Age of oldest entrepreneur								
<25	0.069	0.036*	0.076	0.037**	-0.031	0.091	0.087	0.039**
25–34	0.014	0.015	0.016	0.015	0.039	0.040	0.015	0.016
45–54	0.016	0.015	0.013	0.015	0.042	0.035	0.007	0.017
≥55	0.014	0.022	0.011	0.022	0.001	0.046	0.014	0.025
At least one entrepreneur with foreign origin	0.031	0.021	0.030	0.021	0.000	0.049	0.033	0.023
Highest educational attainment								
None	-0.014	0.030	-0.015	0.030	0.073	0.083	-0.040	0.031
Master craftsman	-0.008	0.015	-0.007	0.015	0.065	0.035*	-0.029	0.017*
University degree	-0.011	0.014	-0.008	0.015	0.027	0.035	-0.018	0.016
Labor market status before start-up								
Self-employed	-0.014	0.017	-0.013	0.018	0.037	0.063	-0.014	0.018
Unemployed	0.012	0.015	0.004	0.015	-0.041	0.030	0.027	0.019
Out of labor force	0.044	0.021**	0.044	0.021**	-0.024	0.056	0.057	0.023**
Positive entrepreneurial experience	-0.001	0.017	0.001	0.017	-0.020	0.047	0.004	0.018
Negative entrepreneurial experience	0.017	0.017	0.018	0.017	0.083	0.050*	0.007	0.018
Years of industry experience								
6–10	0.009	0.017	0.009	0.017	0.014	0.047	0.013	0.018
11–20	-0.002	0.017	-0.001	0.017	-0.053	0.042	0.014	0.018
>20	0.009	0.020	0.008	0.020	0.008	0.049	0.005	0.022
Team start-up	0.015	0.015	0.017	0.015	-0.001	0.040	0.021	0.015
R&D activity	-0.042	0.013***	-0.041	0.013***	0.007	0.045	-0.047	0.014***
Market novelty	-0.021	0.016	-0.020	0.016	-0.008	0.047	-0.020	0.016
Industry								
Cutting-edge technology manuf.	0.065	0.029**	0.065	0.029**	0.032	0.071	0.071	0.031**
High-technology manufacturing	0.115	0.032***	0.115	0.032***	0.179	0.103*	0.107	0.034***
Technology-intensive services	0.047	0.019**	0.046	0.019**	0.007	0.051	0.056	0.021***
Software	0.059	0.024**	0.059	0.024**	-0.001	0.071	0.062	0.025**
Non-high-tech manufacturing	0.079	0.023***	0.077	0.023***	0.147	0.063**	0.057	0.024**
Skill-intensive services	0.075	0.026***	0.075	0.026***	0.161	0.081	0.056	0.026**
Other business-oriented services	0.082	0.028***	0.080	0.028***	0.067	0.068	0.084	0.030***
Construction	0.066	0.022***	0.062	0.022***	0.028	0.053	0.075	0.024***
Wholesale and retail trade	0.103	0.021***	0.101	0.021***	0.159	0.059***	0.088	0.022***
Start-up with employees	-0.060	0.013***	-0.059	0.012***	-0.110	0.030***	-0.047	0.014***
Competition								
<6 competitors	-0.018	0.014	-0.017	0.014	-0.004	0.037	-0.018	0.015
6–20 competitors	-0.024	0.014*	-0.023	0.014*	-0.035	0.035	-0.018	0.015
Founded in year 2006	0.009	0.013	0.010	0.013	0.033	0.033	0.003	0.014
Founded in year 2007	0.007	0.014	0.009	0.014	-0.027	0.033	0.013	0.015

Table 4 continued

	Cost leadership strategy (Cost leadership strategy $s = 1$, any other strategy $s = 0$)							
	(1) All start-ups		(2) All start-ups		(3) Necessity-based start-ups		(4) Other start-ups	
	ds/dx	SE	ds/dx	SE	ds/dx	SE	ds/dx	SE
Number of start-ups	4,568		4,568		863		3,705	
Log pseudolikelihood	-1,988.13		-1,985.21		-409.34		-1,552.50	
Pseudo R^2	0.0315		0.0329		0.0709		0.0333	

Coefficients show average marginal effects

*/**/** indicate 10/5/1 % level of significance. An additional control variable indicating firms promoted by KfW is included

Data source: KfW/ZEW Start-up Panel, survey wave 2008

Table 5 Decomposition analysis for differences between necessity-based and other start-ups

	(I) Differentiation versus any other strategy		(II) Cost leadership versus any other strategy	
Predicted propensity for strategy choice				
Necessity-based start-ups		0.558		0.207
Other start-ups		0.662		0.156
Difference		-0.104		0.051
Counterfactual according to equation	(2a)	(2b)	(2a)	(2b)
Characteristics effect	-0.045 (0.019)** 43.3 %	-0.048 (0.010)** 46.6 %	0.000 (0.016) 0.2 %	0.018 (0.008)** 34.5 %
Coefficients effect	-0.059 (0.025)** 56.7 %	-0.056 (0.020)** 53.4 %	0.051 (0.024)** 99.8 %	0.034 (0.020)* 65.5 %

Bootstrapped standard errors (100 replications) in parentheses

*/**/** indicate 10/5/1 % level of significance

Data source KfW/ZEW Start-up Panel, survey wave 2008

not have a novel (i.e., differentiating) idea, classify themselves as necessity entrepreneurs. While our current data set does not allow us to exclude this potential bias (and threat of reverse causality), future research could address this problem by relying less on self-reported information and collecting data at different points in time.

4 Concluding remarks

As a result of the recent economic crisis, necessity entrepreneurship has increased in many countries. In the

US, for example, the share of start-ups founded by necessity entrepreneurs rose from 16.7 % in 2007 to 24.7 % in 2009 (2011: 21.2 %) (Kelley et al. 2012). In some European or Asian countries, the numbers are even more impressive (e.g., 29.5 % in Ireland and 41.4 % in the Republic of Korea). Several governments have accelerated this trend by promoting entrepreneurship as a way to escape unemployment (Green 2013), which is alarmingly high in many European countries (in particular among the youth). Despite this increased economic and policy relevance, still too little is known about the competitive offerings and evolution of necessity-based start-ups.

Our study has addressed this gap by investigating the market entry strategies of necessity-driven start-ups. Based on an enduring focus of the strategy and start-up literatures, we distinguish between cost leadership and differentiation strategies. Our empirical results show that necessity-based start-ups are more likely to pursue a cost leadership strategy and less likely to pursue a differentiation strategy. Even though the necessity motive is linked to a number of observable characteristics of the entrepreneurs and to various particularities of the start-up projects, it is found to have a considerable, direct effect on the choice of strategy. Prior research suggests that birth conditions and early strategic decisions can have lasting effects on the nature of a venture (Baron et al. 1999; Stinchcombe 1965) and the competitiveness of national economies (Porter 2011). For example, firms pursuing cost leadership strategies are shown to have lower growth potential in the long run compared to other firms, and they are more vulnerable to changes in customer tastes and competition from producers in developing countries (Porter 2011).

Certainly, necessity entrepreneurs have been less able than other entrepreneurs to carefully plan and prepare their move into entrepreneurship. By definition, they launch their venture out of necessity and are driven by external circumstances. They thus have less time or opportunity to amass or develop the specific resources—the skills, capabilities, and connections—needed to pursue a complex differentiation strategy. Cost leadership strategies seem to be more accessible to those with few resources. Entrepreneurs who are willing to work for little money, to hire friends and family with sparse skills but low wages, and to work

long hours can run an economical operation and attract clients with low prices. In effect, our necessity entrepreneurs, because of the resource shortages they face, may serve as useful subjects for scholars of entrepreneurial bricolage and effectuation—the ability to configure ignored or unrelated qualities into useful strategic assets—to make something out of nothing (Baker and Nelson 2005). Indeed, it would be promising to examine how and when necessity entrepreneurs make a virtue out of their penurious situations by becoming more ingenious and finding unexplored opportunities (George 2005). Another interesting avenue of further research would be to use other strategy classifications instead of Porter's classification of competitive strategies. Even though Porter's classification has been shown to be enormously popular in the strategy literature, there exist more fine-grained alternatives. Carter et al. (1994), for example, identify six generic new venture strategies distinguishing along the two dimensions scope of segmentation and product versus marketing emphasis. The use of such a more fine-grained classification might allow for more detailed management implications for necessity start-ups.

Acknowledgments This paper represents the authors' personal opinions and does not necessarily reflect the views of KfW

Appendix

See Tables 6, 7 and 8.

Table 6 Definition of variables

Variable	Operationalization in the questionnaire
Strategy of market entry	Which of the following five brief descriptions represents the “customer-value to price ratio” of your products and services in comparison to your main competitors? [Answers: (1) higher benefit at higher prices, (2) higher benefit at comparable or lower prices, (3) comparable benefit at comparable prices, (4) lower prices at comparable benefit, (5) lower prices for lower benefit]
Necessity-based start-up	What was the main reason for the (members of the team of) founders to become self-employed? [Necessity motives include the following answers: (1) no appropriate alternative in dependent employment, (2) escape from unemployment. Answers classifying non-necessity start-ups: (3) working self-determinedly, (4) realization of a specific business idea, (5) discovery of a market niche, (6) enforcement by a former employer, (7) tax advantages.]
At least one female entrepreneur	Is the founder male or female?/How many of the founders are female?
Age of the oldest entrepreneur (in years)	In which year was the founder born?/Please indicate the age of each of the founders

Table 6 continued

Variable	Operationalization in the questionnaire
At least on entrepreneur with foreign origin	Which national origin does (do) the founder(s) have?
Highest educational attainment	Which is the highest professional qualification that the founder(s) has (have) acquired? [Tertiary education institutions comprise technical colleges, full universities, and doctoral programs.]
Labor market status before start-up	What was the employment situation of the founder(s) at the time of or immediately before the business start-up? If more than one answer applies, please choose the most suitable. [Answers: self-employed, employed by a private enterprise, employed by a public enterprise/in public services, unemployed, neither employed nor unemployed]
Positive entrepreneurial experience	Has (one of) the founder(s) already founded one or more firms before the recent start-up? What happened to those firms? [Answers: old firm continues to exist, was handed over to a family member or a successor, or was sold.]
Negative entrepreneurial experience	Has (one of) the founder(s) already founded one or more firms before the recent start-up? What happened to these firms? [Answers: old firm closed due to insolvency, closed without insolvency proceedings. Positive and negative experience are non-exclusive.]
Years of industry experience	How many years of work experience in the industry of the start-up has got the founder (with the longest industry experience) up until now?
Team start-up	Was your firm set up by one single founder or by a team of several founders, owners, or shareholders?
Start-up with employees	How many employees worked in your firm by 31/12/200X? [Information transformed into a dummy variable whether the start-up employs staff or not.]
R&D activity	Does your enterprise do research and development—be it continuously or occasionally? [Answers: yes, continuously; yes, occasionally; no]
Market novelty	Let us take a look at the whole range of products and services of your firm. Are there any products or services that you were the first to introduce to the—regional, national, or world-wide—market?
Industry	Not asked during the interview. Categorization determined by sampling
Competition	Please assess the number of your—domestic or foreign—competitors in your main market (for your product or service with the highest turnover). [Answers: < 6 main competitors, 6–20 competitors, more than 20 competitors.]
Year of foundation	In which year was your firm established? [Specify the initial founding year, not a mere change of ownership, name, or legal form.]

Table 7 Characteristics of necessity-based start-ups by chosen strategy

	Necessity-based start-ups			
	Differentiation strategy (1)	Neutral strategy (2)	Cost leadership strategy (3)	Significance of differences ^a (4)
At least one female entrepreneur	22.61	16.83	15.08	**
Age of oldest entrepreneur				
<25	1.45	1.49	1.12	
25–34	20.75	18.81	22.35	
35–44	39.83	38.12	32.96	
45–54	28.42	29.21	32.40	
≥55	9.54	12.38	11.17	

Table 7 continued

	Necessity-based start-ups			Significance of differences ^a
	Differentiation strategy	Neutral strategy	Cost leadership strategy	
	(1)	(2)	(3)	
At least one entrepreneur with foreign origin	8.71	7.92	8.38	
Highest educational attainment				
None	3.53	0.99	3.91	
Vocational training	42.32	47.52	39.66	
Master craftsman	24.48	26.24	30.73	
University degree	29.67	25.25	25.70	
Labor market status before start-up				
Employees	44.19	45.54	47.49	
Self-employed	7.68	4.46	8.94	
Unemployed	40.04	44.55	37.43	
Out of labor force	8.09	5.45	6.15	
Positive entrepreneurial experience	11.00	7.92	8.94	
Negative entrepreneurial experience	10.79	8.42	14.53	
Years of industry experience				
≤5	18.67	15.84	19.55	
6–10	18.88	16.83	20.11	
11–20	36.93	38.12	27.37	**
>20	25.52	29.21	32.96	
Team start-up	16.80	11.39	14.53	
R&D activity	14.32	10.40	12.85	
Market novelty	12.45	6.44	8.38	**
Industry				
Cutting-edge technology manufacturing	5.39	3.47	4.47	
High-technology manufacturing	2.90	2.97	5.03	
Technology-intensive services	25.31	20.79	16.76	*
Software	5.19	1.49	3.35	*
Non-high-tech manufacturing	10.17	10.40	15.08	
Skill-intensive services	4.77	4.46	8.38	
Other business-oriented services	8.30	4.46	6.70	
Consumer-oriented services	8.71	8.42	4.47	
Construction	14.32	30.20	15.08	*
Wholesale and retail trade	14.94	13.37	20.67	
Start-up with employees	57.88	54.95	41.34	***
Number of competitors				
<6	17.63	17.33	17.88	
6–20	20.95	20.79	16.20	
>20	61.41	61.88	65.92	
Year of foundation				
2005	36.51	44.55	35.75	
2006	34.44	33.66	40.78	
2007	29.05	21.78	23.46	*

Table 7 continued

	Necessity-based start-ups			Significance of differences ^a
	Differentiation strategy	Neutral strategy	Cost leadership strategy	
	(1)	(2)	(3)	
Number of start-ups	482	202	179	

Shares of start-ups in percent

^a χ^2 tests for identity of shares between strategy groups. */**/** indicate 10/5/1 % level of significance

Data source: KfW/ZEW Start-up Panel, survey wave 2008

Table 8 Characteristics of other (non-necessity-based) start-ups by chosen strategy

	Non-necessity-based start-ups			Significance of differences ^a
	Differentiation strategy	Neutral strategy	Cost leadership strategy	
	(1)	(2)	(3)	
At least one female entrepreneur	18.43	20.51	13.30	***
Age of oldest entrepreneur				
<25	3.51	2.97	6.74	***
25–34	28.25	27.93	31.43	
35–44	38.28	40.27	35.06	
45–54	21.81	21.40	19.17	
≥55	8.15	7.43	7.60	
At least one entrepreneur with foreign origin	8.28	8.62	9.67	
Highest educational attainment				
None	3.30	3.27	3.80	
Vocational training	28.74	32.39	33.85	**
Master craftsman	22.46	29.12	22.63	***
University degree	45.50	35.22	39.72	***
Labor market status before start-up				
Employed	54.38	58.25	52.50	*
Self-employed	23.93	17.83	17.79	***
Unemployed	11.74	12.93	14.68	
Out of labor force	9.95	11.00	15.03	***
Positive entrepreneurial experience	26.05	17.68	20.73	***
Negative entrepreneurial experience	15.61	11.89	14.51	**
Years of industry experience				
≤5	19.04	17.68	20.38	
6–10	24.50	23.18	25.91	
11–20	37.63	39.23	36.79	
>20	18.83	19.91	16.93	
Team start-up	31.47	24.22	28.32	***
R&D activity	30.98	17.38	19.86	***
Market novelty	20.38	11.29	13.82	***

Table 8 continued

	Non-necessity-based start-ups			Significance of differences ^a (4)
	Differentiation strategy (1)	Neutral strategy (2)	Cost leadership strategy (3)	
Industry				
Cutting-edge technology manufacturing	5.91	5.20	5.18	
High-technology manufacturing	5.42	4.16	5.70	
Technology-intensive services	20.46	19.91	21.76	
Software	11.05	6.84	10.54	
Non-high-tech manufacturing	10.97	10.70	9.50	***
Skill-intensive services	7.70	5.94	7.25	
Other business-oriented services	5.06	6.09	6.22	
Consumer-oriented services	12.60	9.81	6.04	
Construction	7.91	18.13	11.92	***
Wholesale and retail trade	12.92	13.22	15.89	***
Start-up with employees	68.20	63.15	55.44	***
Number of competitors				
<6	27.97	19.61	21.42	***
6–20	20.99	21.84	19.17	
>20	51.04	58.54	59.41	***
Year of foundation				
2005	30.37	33.43	29.36	
2006	37.06	33.28	35.75	
2007	32.57	33.28	34.89	
Number of start-ups	2,453	673	579	

Shares of start-ups in percent

^a χ^2 tests for identity of shares between strategy groups. ***/** indicate 10/5/1 % level of significance

Data source KfW/ZEW Start-up Panel, survey wave 2008

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