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ABSTRACT

Skills, Scope, and Success: An Empirical Look at the Start-up Process in Creative Industries in Germany*

Creative industries comprise enterprises focusing on the creation, production, and distribution of creative or cultural goods and services. Following an explorative empirical approach, we analyze start-ups in creative industries regarding three issues along the start-up process: (1) personal characteristics of creative entrepreneurs, (2) their use of labor and capital as input factors, and (3) start-up success as measured by start-up survival, degree of innovativeness, and change in household income. Based on individual-level data from the KfW Start-up Monitor, a large-scale survey on entrepreneurship in Germany, our regression results show that entrepreneurs in creative industries tend to be younger and better educated than entrepreneurs in other economic sectors. Businesses in creative industries are prevalently started on a small scale, as part-time occupations, and with less financial resources. Yet they show a higher persistence and an above-average degree of innovativeness.

JEL Classification: L26, M13, J21

Keywords: creative industries, cultural industries, entrepreneurship, business start-ups, start-up decision, start-up success, innovation

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1 Introduction

Creative industries have recently moved into the focus of public policy debate, as they exhibit eclectic innovative, economic, and integrative potential. They comprise all enterprises focusing on the creation, production, distribution and medial dissemination of creative or cultural goods and services. First, creative firms promote innovation via both supply and demand mechanisms. By developing new products, services, business models, or organizational structures, they supply innovative inputs to other firms in creative industries or beyond (Rae 2007, Söndermann et al. 2009). On the other hand, creative firms heavily demand and use innovative solutions from firms in other sectors, especially from the information and communication technology (ICT) sector (Müller et al. 2009, KEA 2006). Second, creative industries may boost overall economic growth both directly and indirectly (Dapp and Ehmer 2011). The direct growth effect stems from an increasing demand for cultural and intellectual goods that comes along with rising prosperity levels in the industrialized world. Indirect growth effects arise from potential spillovers of growth in creative industries to other sectors and potential multiplier effects due to increased aggregate demand levels. Third, thriving creative industries support building and preserving a national or even multinational identity, and may even help reviving run-down cities by promoting social cohesion (Henry 2007, Leadbeater & Oakley 2007).

Creative industries are a particularly dynamic sector. 13 percent of all start-ups in Germany occurred in creative industries in the year 2010, compared to a lower share of 8 percent among incumbent firms.[1] Furthermore, the self-employment rate in creative industries is disproportionately high: 24 percent versus 11 percent in the overall economy in Germany in 2013 (BMWi 2015, Statistisches Bundesamt 2014). Low market entry barriers due to comparably low capital needs are often cited as a major driver of the high dynamics in creative industries (Georgieff and Kimpeler 2009, Howkins 2007, Rae 2007). An improved understanding of creative entrepreneurs and their start-up ventures is thus an important step towards understanding the dynamic nature of creative industries in general.

The literature on start-ups in creative industries has long been dominated by policy reports and popular books (*e.g.*, Florida 2002). Only in recent years has academic interest increased. Jeffcut and Pratt (2002) identify different spheres for the analysis of cultural—and more broadly creative—industries at the micro, meso, macro, and meta level. McKelvey and Lassen (2013) operationalize the dynamic relation between the entrepreneur as a person, venture creation, and the creation of value for the related concept of knowledge-intensive entrepreneurship. A number of

[1] The share among start-ups is calculated from population-representative figures of the KfW Start-up Monitor used in this study, with 2010 being the most recent data wave available. The share among incumbent firms, taken from BMWi (2015), comprises all firms subject to turnover tax.

studies argue that social values and networks are central to value creation in cultural industries such as the arts sector, thus setting entrepreneurial action in these industries apart from others (*e.g.*, Bendixen 2000, Konrad 2013). Chaston and Sadler-Smith (2012) find that the interplay of entrepreneurial cognition, entrepreneurial orientation, and sales growth of firms in creative industries is especially momentous in subsectors with intense market competition. However, comprehensive empirical evidence on the specifics of start-ups in creative industries as compared to start-ups in other economic sectors is still scarce.

Yet, dependable quantitative studies are essential to test and calculate the effectiveness of theories (*e.g.*, Schulte-Holthaus 2018). Obtaining a better understanding of the start-up cycle of creative firms based on representative empirical findings should proof itself useful both for further academic research and for potential future policies regarding entrepreneurship in the creative industries. This is where our paper fits in. First, we present a coherent conceptual framework to understand the entire cycle of a creative start-up. Second, we choose an explorative approach to empirically study each stage of the cycle separately, subject to data availability. As a result, we are able to contribute to the existing literature a first comprehensive empirical overview of the creative start-up process based on representative large-scale microdata.

Our conceptual framework, inspired by the McKelvey and Lassen (2013) knowledge intensive entrepreneurship creation model, distinguishes three stages of the start-up process from the decision to start a firm to eventual start-up success: (1) Who is most likely to start a business in creative industries? What sets creative entrepreneurs apart from the non-entrepreneurial population and from entrepreneurs in other industries? (2) Do start-ups in creative industries use the input factors labor and capital differently from other start-ups? For instance, are creative start-ups less likely to hire employees? Do they use different types of financing? Do they use more or less financial resources than other start-ups? (3) Are start-ups in creative industries more successful than start-ups in other sectors? Our three measures of start-up success comprise start-up survival, change of household income, and degree of innovation. While our framework acknowledges the interlinkages between the three stages, data availability restricts us to treating the three stages separately for the purpose of empirical investigation. In terms of the framework set out by Jeffcut and Pratt (2002), our results from this comparative analysis mainly contribute to the 'meso' level. They underline the importance of both individual characteristics of the entrepreneur and venture specifics for start-up success and the creation of value.

We use individual-level cross-sectional data from the KfW Start-up Monitor, a large-scale population survey on business start-ups in Germany to conduct our empirical investigation. This data set is particularly well suited for our purposes, as it is unique in combining the following

four aspects. First, the entrepreneurship concept of the KfW Start-up Monitor is a very broad one. It includes both commercial and freelance self-employment, along with full-time and part-time employment activities. This is especially important for studying creative start-ups, as these often start as small side projects. Second, the data are representative for the overall population in Germany and cover entrepreneurial activities in all economic sectors. This feature allows us to contrast entrepreneurs in creative industries with (a) entrepreneurs in other industries and (b) with non-entrepreneurs, *i.e.,* the majority of the population. Third, the survey collects a rich set of individual *and* project-related characteristics. This is important because the success of business start-ups is usually affected by specifics of the entrepreneurs as well as business conditions (van Praag 2003). Fourth, the data provide information not only on start-ups that are still in business, but also on start-ups that have already gone out of business. Therefore, we can investigate start-up survival as a core measure of business success. The combination of these four features of the data enables us to use sophisticated regression methods including choice models, corner solutions, and duration models to address the research questions outlined above.

Our results show that entrepreneurs in creative industries as a selection of the population are disproportionately young and equipped with higher educational attainments. What is more, they also tend to be younger and better educated than entrepreneurs who start in other economic sectors. Businesses in creative industries are prevalently started on a smaller scale, as part-time occupations, and with less financial resources. Yet they show a higher persistence and an above-average degree of innovativeness. We do not find a significant relationship between creative start-ups and a change in household income of the entrepreneurs. Lastly, we identify a number of issues for future research building on our empirical results.

This paper is organized as follows. Section 2 briefly introduces our conceptual framework and summarizes related literature on creative entrepreneurship. Section 3 introduces the KfW Start-up Monitor data and reports the results of the empirical analysis. Section 4 discusses our findings and possible mechanisms behind these findings, and links them to the existing literature. Section 5 concludes.

2 Conceptual Framework and Related Literature

A central strand of the entrepreneurship literature understands start-up activities as a process, running from the individual perception and pursuit of business opportunities, through strategy and management decisions to outcomes and performance (Shane 2003, Venkataraman 1997). McKelvey and Lassen (2013) argue that this view makes particular sense regarding knowledge intensive entrepreneurship. A series of decisions including (re)planning, securing resources such

as financing, network and employment issues eventually influences performance in terms of innovation, growth, or social development. While the scope of knowledge intensive entrepreneurship is certainly different from that of creative entrepreneurship, we do want to acknowledge a certain overlap in concepts. In particular, many start-ups in the creative industries fit the four characteristics of knowledge intensive entrepreneurship ventures quite well. According to McKelvey and Lassen (2013), they should be (1) new firms, (2) innovative, with (3) significant knowledge intensity, and they should (4) exploit innovative opportunities in many sectors.

Hence, we adopt the prevailing process view and take inspiration from the three-phases model by McKelvey and Lassen (2013) in dividing the creative entrepreneurship process from its beginnings to its potential success into three stages. At the first stage, potential entrepreneurs face the decision whether to pursue perceived business opportunities or not. In the sense of revealed preferences, three outcomes are observable at this stage: people might not start-up at all; they might start a venture in creative industries; or start in any other economic sector. At the second stage, entrepreneurs decide about the use of central input factors, namely capital and labor. Performance or success of the start-ups is measured at the third stage. We consider start-up survival, innovativeness, and household income of the entrepreneur as alternative measures of success. Each stage builds upon the decisions made at the preceding stages, and at each stage personal characteristics of the entrepreneurs may play a role. Figure 1 depicts the described conceptual framework, which is the basis for our empirical analysis. Note that the definition of the three stages does not exactly match the stage definitions of McKelvey and Lassen (2013). In particular, we also consider the option of starting a business in other (non-creative) industries at the first stage.

- Figure 1 about here -

While interlinkages and iterations between the different stages certainly exist in practice, they are unfortunately not observable in our data. We are thus confined to studying each stage individually. However, we can do so using a broad set of personal and project-related controls as a means of conditioning on previous stages. Personal characteristics, as for instance age or gender of every individual, are added at all three stages, whereas project-related characteristics, as for instance whether the start-up was founded as a team, part-time, or with employees, are only included at the second and at the third stage. Lastly, our robustness analysis mirrors the described pattern by systematically reversing the above controls until only the personal controls from stage one remain.

Regarding the decision to start a creative firm, some studies in the literature focus on the founding motives of entrepreneurs in creative industries. Poettschacher (2005) identifies the urge to more freely pursue a creative career as the main driver for switching into self-employment. Monetary motives appear to be secondary. Eikhof and Haunschild (2006) likewise document the high intrinsic motivation of creative entrepreneurs. They describe the work of creative entrepreneurs as more of a lifestyle to which personal and private aspects of life are subordinated. The demarcation line between leisure and work is often blurred (Wilson and Stokes 2005). We add perspective to these findings by exploring the human capital endowment (Becker 1964) and additional socio-demographic characteristics of the entrepreneurs in the first stage of our framework. Specifically, we study the effects of age and education, gender, migration background, employment status, and location. Learning more about the demographics of creative entrepreneurs is an important prerequisite for studying their decisions in the following stages of the start-up process. What is unique about our approach is that our data source not only allows us to contrast creative entrepreneurs with entrepreneurs of other sectors, but also with the general non-entrepreneurial population.

Once the decision to start-up has been made, creative entrepreneurs have to decide on the inputs to production in the second stage of the start-up process. How much labor and how much capital to use and how to obtain them? Baines and Robson (2001) study the media industry as a subsector of creative industries in the UK and find a high tendency among entrepreneurs to start their businesses solo, without any employees. Dangel and Piorkowsky (2006), on the other hand, document an above average share of part-timers among self-employed artists in Germany. We evaluate whether these findings hold more generally for entrepreneurs in creative industries. For this purpose, we explore the entrepreneurs' decisions to start part-time versus full-time, with a team or without, and with employees or without. This allows us to empirically assess the scope and intensity of self-employment in the creative industries versus other industries in a representative manner.

Regarding the use of capital, Leadbeater and Oakley (2007) reckon that many creative entrepreneurs start with little financial resources. They suggest financing difficulties as a possible root cause, as creative start-ups often rely on micro credit, which could be hard to come by. Our data allow for a detailed assessment of the use and the origin of financial and material resources of creative entrepreneurs. Specifically, we observe whether the creative start-up makes use of material or financial resources or both, whether the financial resources are external to some extent, the total financing and external financing volumes, and the sources of all financial resources. Moreover, we can investigate potential financing difficulties of start-ups in the creative industries.

At this second stage of the start-up process, both personal characteristics of the entrepreneur from the first stage and venture-related characteristics such as, for instance, occupation or industry can be expected to play an important role in decision making (compare also Achleitner et al. 2011). It is thus important for us to control for these additional factors in the respective regression analyses. Furthermore, understanding the decisions of this second stage and hence being able to use them as controls is essential for our analysis of the third and final stage, the start-up success in creative industries.

Before detailing our assessment of creative start-up success, we would like to acknowledge a vast literature engaged in identifying potential determining factors. First and foremost, there is a large strand of literature discussing the importance of networks (*e.g.* Granovetter 2005, Fuller-Love 2009, Konrad et al. 2010, Konrad 2013, de Klerk 2015, Mascia et al. 2015). Granovetter (2005) describes networks as highly relevant for the flow and the quality of information and as a necessary source of reward and punishment. Fuller-Love (2009) highlights the importance of networking due to low entry barriers and powerful customers in the media industry. Konrad et al. (2010) identify significant positive effects of well-connected business executives on the establishment of creative firms as assessed by experts along four different dimensions. Moreover, Leadbeater and Oakley (2007) mention the important role of informal networks including family and friends. Another strand of literature focuses on the inherent trade-off between creativity and profitability that is often hard to bridge for creative entrepreneurs, as they tend to lack business skills and entrepreneurial knowledge (*e.g.* Baines and Robson 2001, Swedberg 2006, Küttim et al. 2011, Mills 2011). Parkman et al. (2012) empirically study this balance between creativity and business objectives as a driver of success and find that the better the balance holds, the more successful the creative start-up tends to be. While we believe all these factors to be highly relevant in practice, our data is best suited for a representative quantitative assessment of economic start-up success. Thus, we contribute to this literature rather indirectly by adding perspective to it.

Adopting the mindset of Parker (2006), we explore three dimensions of creative start-up success. First, how long do start-ups stay in business? Duration in business is often understood as a minimum requirement for economic success (van Praag 2003). Second, does the start-up affect the household income of the entrepreneur positively? Monetary effects are a key measure of individual entrepreneurial success (van Praag and Versloot 2007), even if financial motives may not be the first priority of some creative entrepreneurs who often put more focus on positive feedback from customers and critics instead (Eikhof and Haunschild 2006). Third, and finally, how innovative are start-ups in creative industries in point of fact? As emphasized in the literature, creativity and innovation do not necessarily coincide (Jeffcut and Pratt 2002, Frederiksen and

Knudsen 2017). Yet innovation is one of the key elements in determining the economic potential of an industry sector in a modern economy. To summarize, the last stage of our conceptual model, the representative assessment of the economic success of creative start-ups, is crucial for understanding the overall potential of creative industries. Its appeal to academic researchers and policy makers is thus imminent.

At all three stages of the conceptual framework, our focus is on differences between start-ups in creative industries and start-ups in 'non-creative' industries, *i.e.,* in other economic sectors. We use the terms 'creative start-ups' and 'start-ups in creative industries' synonymously throughout our empirical analysis.

3 Empirical Analysis

3.1 Data: KfW Start-up Monitor

Our empirical analysis is based on individual-level data from the KfW Start-up Monitor. The KfW Start-up Monitor is a population-representative cross-sectional survey on entrepreneurship in Germany. Every year, about 50,000 randomly chosen residents of Germany are surveyed by means of computer assisted telephone interviews (CATI). Approximately 1,500 of the respondents in each wave are identified as entrepreneurs who either founded a new firm, took over an existing firm, or became an active shareholder of an existing firm within a time window of 36 months before the survey was conducted.[2]

The design of the KfW Start-up Monitor offers particular advantages for the purpose of our analysis. First, the broad definition of entrepreneurial activities picks up both commercial and freelance self-employment, as well as full-time and part-time employment activities. Second, the survey records narrative descriptions of the start-up projects. We draw on this particular information in a twofold manner. On the one hand, we obtain a traditional industry grouping according to the two-digit-level NACE. On the other hand, we can identify the affiliation of start-ups to creative industries and their submarkets in the classification of Söndermann et al. (2009) explained below. This distinction is important as creative ventures are not confined to high-tech sectors, but are rather a cross-sectional element taking place across many different economic sectors (compare also McKelvey and Lassen 2013, who point out a similar phenomenon for knowledge intensive entrepreneurship). Third, entrepreneurs and a subgroup of non-entrepreneurs answer a wide range of questions on themselves and – if applicable – their start-up projects. This allows us to analyze and compare start-up decisions and venture characteristics across

[2] See Hagen et al. (2011) for a detailed description of the data collection process.

sectors. Fourth, the survey equally identifies entrepreneurs who are still in business and entrepreneurs who are not in business any longer at the time of the interview. Hence, there is no survival bias in the data and we can study start-up survival as a central measure of entrepreneurial success.

Unless noted otherwise, we restrict the sample to individuals of age 18 to 67 years from survey waves 2007 to 2010, as these are the most recent waves for which the affiliation of start-ups to creative industries is available. The assignment of start-ups to creative industries and to their submarkets follows the classification of Söndermann et al. (2009), who distinguish the following twelve submarkets of creative industries based on the five-digit level industry classification: music industry, book market, art market, film industry, radio and TV, performing arts, design, architecture, press, advertising industry, software and games industry, and a residual category of other creative activities.[3] Definitions of all variables are reported in Table A.1 in the appendix.

The share of entrepreneurs in creative industries among entrepreneurs in all economic sectors ranges around 13 percent and shows little variation over the years (Figure 2). For the year 2010 – the latest survey year with information on detailed industry affiliation – this amounts to a total of 122,000 entrepreneurs in the creative industries. The fraction of creative entrepreneurs is larger among part-timers than among full-timers. Possible reasons for this pattern are discussed in subsection 4.2 below.

- Figure 2 about here -

Figure 3 distinguishes twelve submarkets within creative industries. The software and games industry and the advertising market are by far the largest submarkets in terms of number of start-ups, with about one quarter of all creative start-ups allotted to each of them. The music industry (10 percent), design industry (*i.e.* industry, fashion, and graphic design; 9 percent) and the press, art, and book market (about 6 percent each) are considerably smaller.

- Figure 3 about here -

[3] We are aware of alternative definitions of creative industries as discussed in Cunningham and Higgs (2008), Potts et al. (2008), or Steiner and Prettenthaler (2015).

With shares of below four percent each, start-ups in the fields of performing arts (*e.g.* theaters or dancing schools), film industry, architecture, radio and TV, and other creative ventures (including *e.g.* libraries, museums, zoological gardens) are relatively rare. Thus, it seems that economically oriented submarkets outweigh culturally oriented submarkets with respect to the number of start-ups. This relationship is found analogously among incumbent creative firms (Dapp and Ehmer 2011).

3.2 Who starts in Creative Industries?

Our analysis of the first stage of the creative start-up process relies on both descriptive comparisons and regression results in the form of multinomial and binomial probit regressions. As both approaches deliver very similar results, we will focus mainly on the regression analysis here, but a detailed documentation of all descriptive results can be found in Table A.2 (starters in creative industries versus starters in other industries) and Table A.3 (starters in creative industries versus non-entrepreneurs) in the appendix.

Table 1 displays the results of a multinomial probit model with the outcomes 'creative entrepreneur', 'non-creative entrepreneur', and 'non-entrepreneur' (columns 1 and 2) and a probit model of the entrepreneurs' decision to start in creative industries or in other industries (column 3).

- Table 1 about here -

Both regression models suggest a significant gender effect on the start-up decision. Column 1 shows that women are less likely to start a creative firm versus not starting a venture at all. Column 3 additionally documents that conditional on starting a firm, women tend to start less frequently in creative industries than in other fields. These findings are in line with the descriptive result that the share of women is lowest among the group of entrepreneurs in creative industries (Table A.3). Next, creative entrepreneurs are significantly younger than non-starters. Moreover, they stand out as particularly young even in the subsample of starters only, when compared to starters in other sectors.

Entrepreneurs in creative industries usually hold higher educational degrees than non-starters. The same holds true for creative entrepreneurs versus entrepreneurs in other economic sectors. This positive relationship between a higher education and the tendency to start a creative firm stays significant even if a large set of control variables is included in the regression analysis. A degree from a technical college or university significantly increases the probability to start a

creative firm in both specifications. Similar tendencies are reported in the literature on incumbent creative firms (Howkins 2007, Georgieff et al. 2008, Dangel and Piorkowsky 2006). However, there is also a large share of creative entrepreneurs without any professional degree (Table A.3). This share is very similar to the share among non-starters (producing a low and insignificant marginal effect in Table 1, column 1), but considerably higher than among starters in other industries (producing a significantly positive effect in Table 1, column 3). This finding appears in contrast with the above result of higher general human capital in creative industries at first glance. A second glance at the data reveals, however, that those creative entrepreneurs with low formal qualification level are disproportionately young. Many of them start their businesses – often as part-timers – before having completed their training.

Unemployment turns out to be a significant push factor for all business start-ups. The marginal effect of previous unemployment on the decision to start in creative industries is considerably smaller than the effect in other sectors, though (columns 1 and 2). Moreover, the share of starters from unemployment is in fact lower in creative industries than in other industries (Table A.2). In consequence, the effect of necessity motives turns out similar in creative industries and in other sectors. On the other hand, individuals from out of the labor force tend to start businesses more frequently in creative industries than in other economic sectors. This finding is again in line with the notion that creative entrepreneurs are usually younger and often still in the course of academic studies or professional training.

The highly significant negative marginal effect of migration background on the probability to start in creative industries supports a corresponding descriptive result. The share of entrepreneurs with a migration background in creative industries is smaller than in other economic sectors and also smaller than among non-starters. Finally, creative entrepreneurs start their businesses more frequently in bigger cities. This is true both in comparison to non-starters and in comparison to entrepreneurs in other industries. Almost one third of all creative entrepreneurs locate their enterprises in major cities with more than 500,000 inhabitants. More generally, the share of creative start-ups is higher the bigger the city.[4]

As a robustness check, we ran estimations analogous to those in Table 1, but stripping controls down to the bare minimum of only human capital variables along with sample controls. Results are available from the authors upon request. Significances and magnitudes of the estimated effects generally stay the same in the multinomial probit as well as in the probit specifications, with two notable exceptions: the marginal effects of having no educational degree and of being

[4] There is also a higher concentration of creative employees subject to social insurance contributions in bigger cities (Fritsch and Stützer 2009, Gottschalk and Hamm 2011).

18-24 years old on the propensity to start in creative industries turn significant once employment status is left out from the list of regressors in the multinomial probit. Obviously, the estimated coefficients partly pick up the effects of the left-out variables, then. Similarly, leaving out the (previously insignificant) necessity motive dummy in the probit estimation does not change the results in any meaningful way.

3.3 Input Factors of Start-ups in Creative Industries

In this section we analyze the second stage of the creative start-up process revolving around the use of labor and capital resources, and contrast the results against the use of inputs in other start-ups. Again, we complement descriptive results with regression results that allow us to include additional controls.

The descriptive analysis reveals that almost two thirds of creative entrepreneurs start as part-timers (Table A.2 in the appendix). This is a significantly higher share than in other economic sectors. The higher propensity of creative entrepreneurs to start part-time projects stays significant even when controlling for the type of occupation and industry branches along with all other control variables (column 1 of Table 2). This finding generalizes a result of Dangel and Piorkowsky (2006), who find an above average share of part-time self-employment among artists.

- Table 2 about here -

Concerning the size of their businesses, three quarters of creative entrepreneurs start off solo (i.e., with neither team partners nor employees), whereas this is only true for two thirds of entrepreneurs in other economic sectors. Separate regression results regarding the decisions to include team partners or employees are displayed in columns 2 and 3 of Table 2. The results are mainly in line with qualitative findings in the literature, according to which creative enterprises are particularly small (*e.g.*, Grüner et al. 2009, HKU 2010). Although creative entrepreneurs rather start their businesses with a team partner, they prefer to start off without employees. Both relationships are weakly significant.

Whereas the combined use of material and financial resources is no less or more likely in a creative start-up than in other start-ups (column 1 of Table 3), there are significant differences with respect to financial resources. Creative entrepreneurs use financial resources significantly less often than entrepreneurs in other economic sectors (Table A.2 in the appendix). Moreover, given the case that entrepreneurs do use financial capital, financing amounts in creative

industries are significantly smaller. Whereas the average financing amount of a creative start-up is about 7,300 Euro, the average amount of other start-ups is 11,900 Euro.[5] An analogous pattern is observed with respect to the amount of external financing among those creative start-ups actually using external financing sources. The average amounts of external financing are 10,000 Euro and 16,700 Euro, respectively. The regression results confirm the stronger use of financial resources by non-creative start-ups for both the likeliness of use and the amount of financing (Table 3 and Table 4). Even after controlling for occupation and industry branches and the full set of other socio-demographic and project-oriented characteristics, the effects stay strongly significant in the probit regression of the yes-no financing decision as well as in the Tobit[6] regression of log financing amounts.[7]

- Table 3 about here -

What are the most common sources of financing? Three quarters of all entrepreneurs in creative industries solely use own resources such as personal savings in order to meet their capital needs. Among entrepreneurs in other industries, the corresponding share is two thirds. Remaining capital requirements are met by external sources of financing. Money from family and friends is the most frequent channel through which additional capital needs of creative entrepreneurs are covered, followed by short-term credit lines and overdraft financing. This result is in line with the argument of Dangel and Piorkowsky (2006) who highlight the special role of entrepreneurs' parents and partners for financing creative ventures. Long-term bank loans are by far the most important source of external financing in other economic sectors (compare also Achleitner et al. 2011 and Kohn and Spengler 2008) but only play a subordinate role for start-ups in creative industries.

- Table 4 about here -

[5] All averages are calculated without the upper 5 % quantile of observations in order to avoid biases due to extreme values.
[6] We use a type I Tobit specification here, as the financing volume has only non-negative values with a pile-up at zero.
[7] The above descriptive results on *external* financing should be interpreted with some care, however, as the observed differences regarding the use and the amount of external financing become insignificant when the full set of control variables is included.

Several robustness checks (results available from the authors upon request) support the stability of our results regarding the use of input factors. With respect to the employment measures 'starting part-time', 'starting as a team', and 'starting with employees', leaving out the creative industries dummy from the regressions leaves the other coefficients basically unchanged—starting in creative industries thus has partial effects of its own. The same holds true for the estimates regarding the use and amounts of material and financial resources. Moreover, when we drop all project-related characteristics which are available in the data, the estimated effects of several personal characteristics turn out to be somewhat larger and of higher statistical significance. This shows that it is in fact important to include both personal and project-related characteristics, potentially from other stages of the start-up process, in the analysis, as these tend to be partially correlated.

One additional insight is gained from a multinomial probit estimation with the outcomes 'use of material resources only', 'use of financial resources (and possibly material resources as well)', and 'use of neither'. As it turns out, start-ups in creative industries are more likely than other start-ups to rely on material resources only. This finding is again in line with the general view that creative start-ups often start off on a smaller scale than comparable start-ups in other industries.

3.4 Success of Creative Start-ups

We measure start-up success as the final stage of the creative start-up process by means of three output variables: (1) start-up survival, (2) change of household income in the time span from start-up date to the interview date, and (3) degree of innovation as indicated by the introduction of market novelties.

For the start-up survival analysis, we use the cross-sectional data on individuals who have become entrepreneurs within a 36 months' recall period to construct a retrospective panel of these entrepreneurs for the past 36 months. We find start-ups in creative industries to be more persistent than other start-ups in the medium run. While entrepreneurs in creative industries give up their projects as often as other entrepreneurs during the first few months, the Kaplan-Meier estimates in Figure 4 indicate an above average survival rate in creative industries from about a year onwards. Three years after the starting date, the probability of survival for creative start-ups is around three quarters – in contrast to only two thirds for start-ups in other economic sectors. The difference in longevity stays significant in the estimation of discrete hazard rate models with random individual-specific effects (column 1 of Table 5).

- Figure 4 about here –

Comparing the household income before and after the start of the business is a valid measure of economic success for surviving start-ups which are still in the market at the time of the interview. The household income of entrepreneurs in creative industries develops more positively than the income of entrepreneurs in other industries (Table A.2 in the appendix). Yet, this descriptive relationship becomes insignificant in a probit regression with a full set of controls (column 2 of Table 5).

- Table 5 about here -

Creative industries are often deemed innovative by definition. This turns out to be an oversimplification, however. We analyze the share of start-ups which have introduced novel products or services to the market. As judged by this traditional measure of degree of innovation, the vast majority of entrepreneurs in creative industries are just as little innovative as the rest of entrepreneurs. 82 percent of them state that their offer is neither globally, nor nationally, nor regionally new (Table A.2 in the appendix). Creative industries and innovation should thus not be considered synonymous. Ceteris paribus, however, when controlling for personal and other project-related characteristics, the propensity of introducing a new product to the market is significantly higher for start-ups in creative industries (column 3 of Table 5). This finding underlines the above-average potential of creative industries with respect to product innovations. It is also in line with findings of Stam et al. (2008) about incumbent creative firms in the Netherlands.

Again, we ran a number of systematic robustness checks, which are available from the authors upon request. Leaving out the dummy for creative industries from the analyses of start-up success keeps the other coefficient estimates basically unchanged. Disregarding all project-related characteristics determined in the second stage of the start-up process, makes the estimated effects of some personal characteristics, such as gender or education, change in the discrete hazard rate model of start-up survival. Yet, none of the significant marginal effects of our preferred specification switches signs. The supplementary results thus corroborate our above points about start-up survival.

Using a multinomial probit, we also split the market novelty outcome into three subcategories for regional, national, and global market novelties. This variant has the marginal effect of the

creative industries dummy stay positive for all three outcomes, yet insignificant for the national category. The signs of most other marginal effects are consistent across the three market novelty categories and the combined probit results displayed in column 3 of Table 5. However, not all covariates are significant across the board.

4 Discussion of Results and Difficulties in the Start-up Process

4.1 Who starts in Creative Industries?

Creative entrepreneurs are more likely to be male and younger, and they tend to hold higher educational degrees (conditional on having obtained a degree) than the non-entrepreneurial population – and than other entrepreneurs. They are more or less equally likely to start from unemployment as compared to other business starters, less likely to start from employment, less likely to have a migration background, and more likely to be living in a big city.

The finding that women are less likely to start in the creative industries seems slightly surprising at first, as women are, among other factors, especially well-suited for the flexible work schemes prevalent in creative industries (Henry 2009). Calculating the shares of female entrepreneurs for all submarkets of creative industries in Germany separately resolves this puzzle, though, and reveals that the imbalance is mainly due to an extraordinarily high fraction of male entrepreneurs in the heavily tech-based software and games industry. Leaving out this submarket has the gender distribution of creative entrepreneurs look fairly balanced.

Creative entrepreneurs are significantly younger than non-starters as well as entrepreneurs in other economic sectors. Why might this be the case? First, many creative entrepreneurs start their business before graduation (Grüner et. al 2009). Second, young individuals tend to engage more frequently in flexible employment forms like project work or freelance activities that are common in creative industries. Older and thus more established employees are much more reluctant to give up their secure jobs and privileges in order to pursue creative ideas. On the other hand, the high share of well-educated creative entrepreneurs points towards a considerable importance of human capital in the production function of creative firms, or more generally speaking, towards a high knowledge intensity of creative entrepreneurship. Seaman (2003) notes that knowledge-based creative industries may consequently contribute to an overall higher education level.

The fact that the share of starters from unemployment is lower in creative industries versus other industries appears intuitively plausible—starting up in creative industries is not an easy way out of unemployment, as a creative idea and often special knowledge or skills are required for

professionally pursuing creative activities. The finding that employees (the reference category in our regressions) are particularly unlikely to become entrepreneurs in creative industries, also points towards significant opportunity costs of leaving socially secured jobs.

The share of entrepreneurs with migration background is smaller in creative industries than in other economic sectors. A likely reason for this result is an insufficient language proficiency of many migrants. As language plays a central role in creative activities, non-native speakers might be adversely affected. Better facilities to help migrants learn the language of their resident country and broader integration offers could thus increase the chance to benefit from the creative potential of other cultural spheres. A positive relationship between enhanced communication in multicultural teams and creativity is also found by Bouncken (2004), who conducts a case-study analysis of six start-ups at different stages of their entrepreneurial process. Another possible driver of this result could be the fact that there is a disproportionate number of starters with migration background in other industries. Our multinomial probit result in column 3 of Table 1 are supportive of this view.

The share of creative start-ups is higher the bigger the city. How can this finding be explained? First of all, it reflects benefits of creative clusters, which are well developed in the creative industries of agglomeration centers (Florida 2002, HKU 2010, Desrochers and Leppälä 2011). Clusters constitute the basis for network and multiplier effects, as they allow entrepreneurs to provide each other with psychological, technical, and financial support. In addition to that, competition within the clusters encourages entrepreneurs to constantly increase the quality of their products and services in order to gain comparative advantages relative to other clusters (Howkins 2007). Second, creative supply meets a larger demand for arts and cultural goods in agglomeration centers. Third, universities are often based in bigger cities. Consequently, there are disproportionately many qualified young people who could potentially become creative entrepreneurs. Fourth, the high quality of living in bigger cities which is brought about by a broad variety of cultural activities and a well-developed health and education system, increases the attractiveness of bigger cities for the creative scene (Fritsch and Stützer 2009).

The fact that creative industries are more prevalent in larger cities also highlights the integrative potential of creative industries. Arts and culture are merit goods which are highly valued by society. They are important for building a common identity and increase both the quality of living and social inclusion (Deutscher Bundestag 2007, Henry 2007). In this way, creative industries might even be able to contribute to urban regeneration and a revival of economically declining cities (Leadbeater and Oakley 2007, Pratt 2008).

To summarize, analyzing the decision to become a creative entrepreneur and which personal or environmental demographics might affect this decision is the first important step in obtaining a comprehensive view of the creative start-up process. The findings from this first stage deliver essential groundwork regarding the analysis of decisions made by the creative entrepreneur at the second stage and regarding the evaluation of start-up success at the third stage. It also justifies the use of personal and environmental demographics as controls in the subsequent stages.

4.2 Input Factors of Start-ups in Creative Industries

Creative entrepreneurs are more likely to start as part-timers, solo or with a team partner, but without employees. They are less likely to use financial resources and if they do so, they also rely on smaller financing amounts.

Starting part-time provides entrepreneurs with the opportunity to first try out their creative ideas before giving up potential job security and employment benefits. Once the ideas catch on, the part-time entrepreneurs may still become full-timers. This opportunity seems especially valuable in light of particularly high demand uncertainty in creative industries due to, for instance, reviews of critics or media coverage (Dempster 2006). For another thing, earnings in creative industries are often low (Grüner et al. 2009, Comunian et al. 2011). Hence, supplementary income from employment of the entrepreneur or the entrepreneur's partner is often needed as an additional source of household income. In extreme cases, creative entrepreneurs go as far as to finance their dream of a possibly unprofitable creative venture by means of income earned in parallel positions (Randle and Culkin 2009, HKU 2010).

Creative start-ups tend to be smaller and have fewer employees. First, creative ideas are very closely connected to the personality of the entrepreneur, who might be reluctant to hire employees with potentially own creative minds. Second, entrepreneurs in creative industries often meet the needs of small and specific market niches, which imply small project sizes. Third, they might have less financial scope for hiring employees, as margins in creative industries are low due to comparably low market entry barriers (Söndermann et al. 2009). Fourth, creative entrepreneurs might *want* their businesses to stay small because this allows for more independence and a stronger focus on creativity (Leadbeater and Oakley 2007).

Creative entrepreneurs use financial resources on a less frequent basis than entrepreneurs in other economic sectors. Moreover, given that entrepreneurs do employ financial capital, financing amounts in creative industries are significantly smaller. This finding corresponds to the

assessment that most creative entrepreneurs do not venture in costly production facilities, but set up their (home) offices with hardly more than working IT equipment instead.

A priori, the smaller extent of (external) financial resources among start-ups in creative industries can be either supply-side or demand-side driven. On the demand side, we acknowledge that creative start-ups tend to be smaller than other start-ups. Smaller enterprises demand less financial input. Moreover, production in creative industries exhibits a comparably low capital intensity. Creative entrepreneurs often work at home and solo such that costs for employees, offices, or production facilities are saved. If, however, the observed pattern were caused by supply-side constraints, we would expect disproportionate financing difficulties among creative entrepreneurs. We thus consulted a question of the KfW Start-up Monitor asking all entrepreneurs directly whether they were experiencing financing difficulties.

The main finding is that in an unconditional comparison, entrepreneurs in creative industries are significantly less affected by financing difficulties than other entrepreneurs (Table A.2 in the appendix). This result stands in contrast to conjectures in the literature that creative enterprises should have more financing problems than other enterprises for a variety of reasons (HKU 2010, Banking on Culture 2000). First, the intellectual property involved in creative start-ups is difficult to evaluate and to resell, and is therefore hardly suitable for loan securitization (Henry 2007). And second, small credit volumes cause disproportionate administrative expenses and therefore make small projects less attractive for external capital providers (Kohn and Mark 2009). However, it seems that the lower capital needs of creative start-ups make their projects overall less dependent on the supply of financing. Moreover, the higher human capital endowment of creative entrepreneurs might cause them to be less severely affected by financing problems. In a regression framework controlling for the level of financing as well as other project-related and personal characteristics, we find no differences between creative and non-creative start-ups with respect to the propensity of financing difficulties (column 1 of Table A.4 in the appendix).

Concerning different types of financing difficulties, entrepreneurs in creative industries and those in other sectors are very similar in almost all categories – except for the category of denied bank loans (Table A.2 in the appendix). Non-creative entrepreneurs name this difficulty four times as often as entrepreneurs in creative industries. Note again that entrepreneurs in creative industries apply less frequently for bank loans and rather rely on money from family and friends instead. Yet, the result that entrepreneurs in creative industries are rarely denied bank loans they applied for, seems to corroborate the notion that the smaller extent of financing in creative start-

ups is not due to supply-side restrictions, but rather due to smaller financing needs on the demand side.[8]

In summation, analyzing the decisions of creative entrepreneurs regarding their labor and capital inputs is the second step in gaining a representative empirical overview of the creative start-up process. Once again do the results not only deliver direct answers to pressing questions about the nature of inputs to creative start-ups but they also serve as additional controls for the third and last stage.

4.3 Success of Creative Start-ups

At the last stage of the creative start-up process, we find start-ups in creative industries to be significantly more persistent in the medium run, with an income trajectory that is slightly more positive yet insignificant once controls are introduced, and with a higher tendency towards innovation than start-ups in other sectors.

The greater persistence of start-ups in creative industries might seem surprising at first, as they are smaller on average and more frequently started as a secondary occupation. Part-time start-ups and start-ups without employees typically have lower probabilities of survival. They are often planned for a limited time span only, or are abandoned as soon as better job opportunities arise. However, start-ups in creative industries often involve a substantial amount of idealism. Some entrepreneurs see their creative projects as the fulfillment of a lifelong dream – which they might not give up for mere material reasons. Another possible explanation for the higher persistence of creative start-ups is linked to the high professional qualification of creative entrepreneurs that comes with the high knowledge intensity of creative industries. The pursuance of liberal professions often asks for several years of training and experience (beyond formal educational attainments). Having invested this heavily into one's personal future, entrepreneurs might not hastily give up their self-employment. The higher persistence of creative start-ups paired with their smaller size in terms of employment and financing implies that the high share of start-ups in creative industries is not solely the result of a revolving door effect.[9]

One reason for the observed positive relationship between start-ups in creative industries and an increase in household income could be a comparably low starting level of income of creative

[8] Qualitative research by Fraser (2011) suggests a possible alternative explanation. He finds that creative businesses are more likely to turn loan offers down due to unfavorable terms (including requests for personal security).

[9] With respect to the discrepancy between the share of creative start-ups and the share of creative incumbent firms noted in the introduction, we conclude that many incumbent firms in creative industries range below the turnover tax threshold and are therefore not fully recorded in the official turnover tax statistics.

entrepreneurs. This argument would hold especially true for entrepreneurs starting their businesses during or directly after their academic studies.

While there is "no magic inoculation of innovation" in creative industries (Jeffcut and Pratt 2000, p. 226) and managing innovation is a different challenge than managing creativity (Wilson and Stokes 2005), we find a significantly higher propensity of start-ups in creative industries to introduce market novelties. Due to the higher degree of innovation in creative industries, information asymmetries can be expected to play a particularly pronounced role in this sector. The quality of goods and services of creative start-ups is particularly hard to evaluate by consumers and investors when there is no experience to rely on. As a consequence, selling creative and innovative ideas is harder than selling established products (Kohn 2009). In fact, entrepreneurs in creative industries face difficulties in the establishment of customer contacts and in the acquisition of orders significantly more frequently than other entrepreneurs (Table A.2 in the appendix). In a regression analysis with a full set of control variables included, this difference becomes insignificant, though (column 2 of Table A.4 in the appendix). The effect is picked up completely by the positive partial correlation of introducing a market novelty and the occurrence of difficulties in the acquisition of orders.

An alternative explanation for the observed larger difficulty encountered by creative entrepreneurs is related to the fact that creative entrepreneurs tend to lack business expertise regarding, for instance, marketing and sales concepts, as compared to entrepreneurs in other sectors.[10] This finding is in line with the assessment of Horlings (2008), who notes that the course of studies that artists undergo does not prepare them appropriately for self-employment, as business classes at art colleges and universities are offered at an insufficient scale. As emphasized lately by Federiksen and Knudsen (2017), effective innovations not only require novel ideas that are useful to the target groups. They also have to be sufficiently profitable.

At the macro level, our findings underline the above-average innovation potential that is often attributed to creative industries in the public debate. Their product innovations contribute to a higher overall competitiveness of the economy, resulting in higher long-run growth. Further effects on overall economic efficiency can be expected from process and organizational innovations generated in the creative industries (Rae 2007, Söndermann et al. 2009). Innovation in creative industries thus generates positive externalities (European Commission 2010, HKU 2010). These spillover effects are reinforced by the high degree of interconnectedness of creative industries with other sectors of the economy (Bakhshi et al. 2008, Georgieff and Kimpeler 2009, KIA and FPI 2009).

[10] See the working paper version of Kohn and Wewel (2011) for more evidence on entrepreneurs' difficulties.

Besides contributing to the supply of innovative inputs in the economy, the innovation process in creative firms can also generate positive external effects by creating new demand for innovative products (Müller et al. 2009). Suppliers of technological inputs may increase their own innovative efforts in order to meet the direct demand of creative industries. Moreover, there is the possibility of indirect demand effects initiated by changes of consumer behavior. For instance, computer games cause a stronger exposure to information and communication technology (ICT). Thus, consumers might get 'hooked'. The demand for ICT rises, which in turn leads to more research and hence to more innovation in the ICT sector. Using the example of New Zealand's film industry, de Bruin (2005) argues that innovativeness at the individual level is often accompanied by creative activism at the community and regional level.

5 Conclusions

Creative industries have recently attracted increased attention in the public and political debate. However, representative empirical evidence on entrepreneurship in the creative industries is still scarce. Our study focusses on the differences of business start-ups in creative industries versus other (non-creative) economic sectors. Adopting a process view on business start-ups, we consider a conceptual framework which splits the creative start-up process into three stages: from the individual decision to start off, through decisions about staffing and financing of the venture, to possible business success. Large-scale individual-level data from the KfW Start-up Monitor allow us to coherently compare the activities in creative industries and in other economic sectors at all three process steps.

As it turns out, entrepreneurs venturing in creative activities are comparably young and well educated. They start their businesses more frequently on a part-time basis and in teams, less often with employees, and preferably in big cities. On average, start-ups in creative industries require less financial resources than other start-ups. Creative entrepreneurs more frequently use informal capital provided by family and friends or short-term credit lines, but tend to rely less on long-term bank loans. We conclude that this effect is primarily due to lower capital intensity in production—and thus is demand-side driven. In contrast to conjectures in the related literature and in the policy-oriented debate, supply-side restrictions are of minor importance: creative entrepreneurs themselves report less financing difficulties than other entrepreneurs.

A significantly higher share of entrepreneurs in creative industries starts their business with a product innovation. This is also true for world-wide market novelties, which are an important factor in assigning innovative potential to an economic sector. In addition to that, the literature certifies creative industries an above-average involvement in soft innovations, for instance in the

form of organizational or marketing innovations. The innovative potential of creative industries is beneficial to the entire economy because the direct innovation effect can create positive spill-overs to other economic sectors. For example, 'traditional' firms in the consumer industry imitate the goods and services originating from creative industries and distribute them to a larger audience. Similarly, new hybrid organizational structures tried first in creative industries diffuse to other organizations – contingently with a time lag. These mechanisms render start-ups in creative industries interesting for policy makers.

At the individual level, we observe a greater persistence of start-ups in creative industries at stage three of the creative start-up process. Even after holding all other conditions constant, survival rates in creative industries are significantly higher than in other industries within the first three years after start-up. While the change in household income does not differ significantly between creative and non-creative entrepreneurs under the full set of controls, we do see a tendency of the household income of entrepreneurs in creative industries to develop more positively in mere descriptive analysis. As judged by these concepts, start-ups in creative industries turn out to be successful above average.

In summation, our micro or 'meso' (Jeffcut and Pratt 2002) evidence supports the notion of great potential in creative industries. Start-ups in this sector are skill-intensive, innovative and persistent. Policies targeted at supporting start-ups in creative industries might thus be fruitful. At this point, we would like to emphasize again the close connection to the concept of knowledge intensive entrepreneurship as discussed in McKelvey and Lassen (2013). It does indeed turn out that creative start-ups have a similarly close-knit relationship to innovativeness as KIE ventures have.

While our empirical analysis follows closely the conceptual framework laid out in Section 2, we would like to highlight once more the predominantly explorative nature of our approach. Moreover, we would like to point out that our data are not suited to study interlinkages between the different stages of our conceptual model, nor to study networks which we nonetheless consider an important part of the creative start-up process. We leave these limitations to future research.

Future research might also focus on the heterogeneity of entrepreneurship within creative industries in more depth. For instance, do culture-oriented creative start-ups differ from more market-oriented creative start-ups, *e.g.* regarding their human capital and financial endowments or with respect to start-up success? Findings of Chaston and Sadler-Smith (2012) for a regional sample of creative incumbent firms in the UK suggest differences across subsectors of creative industries related to the subsectors' varying competitiveness. Generalized analyses of this type would require even larger and more representative data sets, though.

The discussion of our empirical results is inherently speculative at several points, *e.g.* regarding the difficulties experienced by creative start-ups or regarding the effects on household income. Future studies might scrutinize the mechanisms behind single aspects documented in this paper.

Another potential limitation of our approach could consist of the fact that we can only study recent start-ups. Our data does not cover instances where individuals have founded firms more than 36 months prior to the survey date and hence we cannot make any statements regarding the long-term perspective of creative start-ups once they become more established creative firms. However, as the focus of this paper is on the creative start-up process and thus only on new firms, we feel comfortable leaving the more long-term perspective to future research.

Finally, the evaluation of policies targeted towards supporting start-ups in creative industries would require additional sophisticated measures of their overall economic benefits such as employment creation or sales growth in the long run. Analyses of these measures could shed further light on the role of creative industries for city and regional development. While policymakers seem to agree widely on the positive effects of creative industries and creative clusters on economic growth, the academic literature is so far much more careful in assigning causality to the positive relationship (Foord 2008, Comunian 2009, Bontje and Musterd 2009, Mossig 2011). The issue of reverse causality is especially prominent in this regard (Markusen 2006, Scott 2006). Exploiting regional variation in representative micro-level data could help to circumvent this issue. In addition, at the macro-level, international comparisons of conditions and performance of start-ups in creative industries based on harmonized data would promise valuable insights.

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Appendix

Table A.1: Definition of Variables

variable [number of categories]	Definition
submarkets of creative industries [12]	classification according to Söndermann et al. (2009), affiliation on the basis of open project descriptions in the KfW Start-up Monitor
creative industries	dummy with 1 = start-up in creative industries
gender	dummy with 1 = female
age [5]	dummies for age groups: 18–24, 25–34, 35–44, 45–54, 55–67 years
education [5]	dummies for: university, technical college, technical school, vocational training or school, no degree
migration	dummy with 1 = foreign citizenship or German citizen with migrational background
employment status [4]	status before start-up in case of entrepreneurs, current status in case of non-entrepreneurs; dummies for: employed, self-employed, unemployed, out of labor force.
start-up motive [3]	dummies for: opportunity, necessity, other motive (self-assessment of respondents)
type of start-up [3]	dummies for: founding of a new firm, takeover of an existing firm, participation in an existing firm
part-time	dummy with 1 = part-time start-up (dichotomous self-assessment of entrepreneurs: full-time vs. part-time)
team	dummy with 1 = start-up with cofounding partner
employees	dummy with 1 = start-up with employees
solo	dummy with 1 = start-up without team partners and without employees
occupation [3]	dummies for: liberal professions, craft, other professions
industry [8]	dummies for economic sectors: manufacturing, construction, other non-service sectors, trade, transport and communications, financial services, commercial services, personal services
region (Eastern Germany)	dummy with 1 = residency in Eastern Germany
market novelty [4]	dummies for: no market novelty, regional market novelty, national market novelty, global market novelty
use of resources [3]	dummies for: no resources, only material resources, (also) financial resources
sources of financial resources [3]	dummies for: only own financial resources, only external financial resources, own and external financial resources
amount of financial resources [6]	dummies for: 1 to 5,000 Euro, >5,000 to 10,000 Euro, >10,000 to 25,000 Euro, >25,000 to 50,000 Euro, >50,000 to 100,000 Euro, > 100,000 Euro
amount of external financial resources [6]	dummies for: 1 to 5,000 Euro, >5,000 to 10,000 Euro, >10,000 to 25,000 Euro, >25,000 to 50,000 Euro, >50,000 to 100,000 Euro, > 100,000 Euro
external financing sources [6]	categorical enquiry, if use of external financial resources; see Table A.2 for a list
difficulties [17]	categorical enquiry, see Table A.2 for a list
type of financing difficulties [8]	categorical enquiry, if financing difficulties; see Table A.2 for a list
survival of start-up	dummy with 1 = start-up is still in the market at the time of the interview
change of household income [3]	dummies for: increased, unchanged, decreased
survey wave [4]	dummies for survey waves 2007, 2008, 2009, 2010
city size [5]	dummies for: up to 5,000, > 5,000–20,000, > 20,000–100,000, > 100,000–500,000, > 500,000 inhabitants
mobile phone [1]	dummy with 1 = interview via mobile phone

Table A.2: Personal and Project-related Characteristics of Start-ups in Creative Industries and other Industries

	(1) all industries	(2) creative industries	(3) other industries	(4) significance (2)-(3)	(5) number of observations (entrepreneurs)
gender (= female)	40.1	35.9	40.8	***	5,756
age					
18–24 years	11.3	15.9	10.5	***	5,756
25–34 years	27.7	39.4	25.9	***	5,756
35–44 years	30.9	22.7	32.2	***	5,756
45–54 years	18.8	13.0	19.7	***	5,756
55–67 years	11.3	9.0	11.7	**	5,756
education					
university	14.5	22.2	13.4	***	5,756
technical college	10.9	14.8	10.3	***	5,756
technical school	8.6	4.7	9.2	***	5,756
vocational training or school	45.7	30.4	48.1	***	5,756
no degree	20.3	28.0	19.1	***	5,756
migration	16.7	12.6	17.3	***	5,756
employment status					
employed	52.9	42.7	54.4	***	5,482
self-employed	9.0	7.9	9.2		5,482
unemployed	18.0	15.9	28.3	*	5,482
out of labor force	20.1	33.5	18.1	***	5,482
start-up motive					
opportunity	39.1	37.0	39.4		5,457
necessity	38.1	38.5	38.0		5,457
other	22.8	24.5	22.6		5,457
type of start-up					
new firm	72.1	81.2	70.8	***	5,468
takeover	9.5	2.1	10.5	***	5,468
participation	18.4	16.7	18.7		5,468
part-time	53.2	61.3	52.0	***	5,737
team	19.1	17.8	19.4		5,705
employees (= yes)	28.4	17.9	30.1	***	5,630
solo (= no team, no employees)	63.0	71.8	61.6	***	5,584
occupation					
liberal professions	25.6	47.2	22.2	***	5,756
craft	18.0	6.7	19.8	***	5,756
other	56.4	46.1	58.0	***	5,756
industry					
manufacturing	4.1	5.0	4.0		5,756
construction	7.7	0.0	8.9	***	5,756
other non-service sectors	5.4	0.0	6.3	***	5,756
trade	19.8	3.4	22.4	***	5,756
transport and communications	3.5	0.1	4.0	***	5,756
financial services	4.9	0.0	5.6	***	5,756
commercial services	27.4	61.9	22.0	***	5,756
personal services	27.2	29.7	26.9		5,756
region (= Eastern Germany)	16.6	14.8	16.9		5,756
market novelty					
no novelty	86.9	82.4	87.5	***	5,696
regional novelty	8.3	10.2	8.0	*	5,696
national novelty	2.7	4.3	2.4	*	5,696
global novelty	2.2	3.2	2.0	***	5,696
use of resources					

	(1) all industries	(2) creative industries	(3) other industries	(4) significance (2)-(3)	(5) number of observations (entrepreneurs)
no resources	9.7	11.1	9.4		5,348
only material resources	23.9	29.7	22.9	***	5,348
(also) financial resources	66.4	59.2	67.6	***	5,348
sources of financial resources (a)					
only own financial resources	64.8	75.6	63.3	***	3,148
only external financial resources	8.1	4.6	8.5	***	3,148
own and external financial resources	27.1	19.8	28.1	***	3,148
amount of financial resources (a)					
1 to 5,000 Euro	54.7	72.5	52.3	***	3,533
>5,000 to 10,000 Euro	13.2	8.4	13.8	***	3,533
>10,000 to 25,000 Euro	14.9	9.8	15.7	***	3,533
>25,000 to 50,000 Euro	9.7	7.0	10.1	**	3,533
>50,000 to 100,000 Euro	4.3	0.7	4.8	***	3,533
>100,000 Euro	3.2	1.7	3.4	***	3,533
amount of external financial resources (b)					
1 to 5,000 Euro	41.5	58.8	40.0	***	1,052
>5,000 to 10,000 Euro	15.0	11.3	15.3		1,052
>10,000 to 25,000 Euro	19.7	14.6	20.2		1,052
>25,000 to 50,000 Euro	12.6	8.6	13.0		1,052
>50,000 to 100,000 Euro	5.4	3.3	5.5		1,052
>100,000 Euro	5.8	3.5	6.0		1,052
external financing sources (b)					
bank loans	40.6	34.2	41.1		966
credit lines and overdraft	19.4	33.1	18.2	***	966
promotional loans from KfW or financial institutions of the German States	20.5	16.2	20.9		966
money from family and friends	29.4	48.5	27.7	***	966
subsidies from the federal employment agency	28.8	28.4	28.9		966
others (e.g., equity capital)	16.2	17.9	16.0		966
difficulties					
acquisition of orders/customer contacts	27.8	34.8	26.7	***	4,111
financing difficulties	14.5	11.2	15.0	***	4,660
types of financing difficulties (c)					
bank loan not received	38.7	11.6	42.0	***	521
bank loan not received to full extent	13.6	7.4	14.4	*	526
bank loan only with inferior conditions	14.1	16.6	13.8		519
subsidy from the federal employment agency not received	19.3	18.0	19.5		524
public promotional loan not received	13.1	8.0	13.7		524
difficulties in obtaining other financing types	7.0	9.7	6.8		503
own financial resources are not sufficient	60.3	59.0	60.4		520
other	21.1	18.3	21.5		524
change of household income					
increased	49.2	53.8	48.4	**	4,688
unchanged	33.3	29.9	33.9	**	4,688
decreased	17.5	16.3	17.7		4,688
survey wave					
2007	25.6	23.5	25.9		5,756
2008	24.4	24.9	24.4		5,756
2009	25.1	27.2	24.8		5,756
2010	24.9	24.5	25.0		5,756
city size					
up to 5,000 inhabitants	14.4	11.3	14.9	***	5,756
> 5,000–20,000 inhabitants	24.2	16.8	25.4	***	5,756

	(1) all industries	(2) creative industries	(3) other industries	(4) significance (2)-(3)	(5) number of observations (entrepreneurs)
> 20,000–100,000 inhabitants	25.2	20.7	25.9	***	5,756
> 100,000–500,000 inhabitants	15.5	19.7	14.9	***	5,756
> 500,000 inhabitants	20.7	31.6	19.0	***	5,756
mobile phone	11.5	13.5	11.2	*	5,756

Shares in percent, population-weighted. Test of equal proportions: significance levels * 10 %, ** 5 %, *** 1 %. (a) Conditional on the use of financial resources. (b) Conditional on the use of external financial resources. (c) Conditional on the occurrence of financing difficulties. Data source: KfW Start-up Monitor, waves 2007–2010.

Table A.3: Personal Characteristics of Creative Starters versus Non-Starters

	(1) entrepreneurs in creative industries	(2) entrepreneur in other industries	(3) non-entrepreneurs	(4) significance (1)-(3)	(5) number of observations non-entrepreneurs
gender (= female)	35.9	40.8	50.5	***	104,529
age					
18–24 years	15.9	10.5	13.1	**	16,900
25–34 years	39.4	25.9	16.1	***	28,054
35–44 years	22.7	32.2	23.1		45,893
45–54 years	13.0	19.7	23.9	***	49,478
55–67 years	9.0	11.7	23.8	***	44,785
education					
university	22.2	13.4	8.7	***	21,595
technical college	14.8	10.3	8.4	***	16,863
technical school	4.7	9.2	4.4		4,487
vocational training or school	30.4	48.1	52.1	***	87,857
no degree	28.0	19.1	26.4		23,435
migration	12.6	17.3	16.5	***	13,156
employment status					
employed	42.7	54.4	59.6	***	23,669
self-employed	7.9	9.2	6.1	*	2,540
unemployed	15.9	28.3	8.0	***	2,609
out of labor force	33.5	18.1	26.4	***	8,799
region (= Eastern Germany)	14.8	16.9	18.9	***	43,585

Shares in percent, population-weighted. Test of equal proportions: significance levels * 10 %, ** 5 %, *** 1 %. Figures for entrepreneurs in columns (1) and (2) are identical to those in columns (2) and (3) of Table A.2 and are repeated here to facilitate the comparison with non-entrepreneurs in column (3). Data source: KfW Start-up Monitor, waves 2007–2010.

Table A.4: Difficulties in the Start-up Process

	Probit (1) **financing difficulties**			Probit (2) **difficulties with acquisition of orders/customer contacts**		
	dF/dx		t-value	dF/dx		t-value
creative industries (= yes)	0.005		0.32	0.037		1.51
market novelty (= yes)	0.056	***	3.23	0.069	***	2.86
occupation						
liberal professions	-0.037	**	-2.56	0.002		0.09
craft	-0.013		-0.66	-0.009		-0.28
other			(reference)			
industry						
manufacturing	0.028		0.86	-0.033		-0.80
construction	0.019		0.63	-0.038		-0.92
trade	0.033	*	1.92	0.003		0.11
commercial services			(reference)			
personal services	0.034	**	2.10	-0.038	*	-1.87
other sectors	-0.011		-0.43	-0.201	***	-7.20
type of start-up						
new firm			(reference)			
takeover	0.002		0.11	-0.101	***	-3.54
participation	-0.021		-1.40	-0.038	*	-1.74
part-time (= yes)	-0.044	***	-3.71	0.014		0.82
team (= yes)	0.035	**	2.17	-0.010		-0.43
employees (= yes)	0.026	**	1.99	-0.051	***	-2.67
use of financial resources						
no use of financial resources	-0.077	***	-6.65	-0.107	***	-6.24
1 to 10,000 Euro			(reference)			
>10,000 to 25,000 Euro	0.074	***	3.70	-0.025		-0.97
>25,000 Euro	0.078	***	3.83	-0.077	***	-3.04
gender (= female)	0.013		1.10	0.021		1.26
age						
18–24 years	-0.019		-0.86	-0.051		-1.47
25–34 years	-0.015		-1.08	-0.060	***	-3.01
35–44 years			(reference)			
45–54 years	-0.028	**	-2.14	-0.023		-1.11
55–64 years	-0.038	**	-2.49	-0.019		-0.75
education						
university	-0.027	*	-1.93	0.081	***	3.56
technical college	-0.009		-0.58	0.031		1.26
technical school	0.024		0.96	0.092	**	2.11
voc. training or school			(reference)			
no degree	0.051	**	2.51	0.010		0.33
employment status						
employed			(reference)			
self-employed	0.052	**	2.56	-0.012		-0.48
unemployed	0.086	***	4.82	0.085	***	3.64
out of labor force	0.014		0.81	0.009		0.38
migration (= yes)	0.112	***	5.45	0.033		1.24
region (= Eastern Germany)	-0.006		-0.43	-0.027		-1.35
necessity motive (= yes)	0.026	**	2.19	0.090	***	5.21

further covariates		
yearly dummies, city size, mobile	yes	yes
number of observations	3,848	3,398
observed probability	13.67 %	30.96 %
estimated probability	13.67 %	30.95 %
pseudo-R^2	0.118	0.063

Average marginal effects, heteroskedasticity consistent t-values, significance levels * 10 %, ** 5 %, *** 1 %. (a) waves 2008–2010 only. Data source: KfW Start-up Monitor, waves 2007–2010.

Tables and Figures to Be Placed in the Text

Table 1: Start-up Decision in Creative Industries versus other Industries

	Multinomial Probit						Probit		
	(1) **start-up in creative industries** (starters *y=1*, non-starters *y=0*)			(2) **start-up in other industries** (starters *y=2*, non-starters *y=0*)			(3) **start-up in creative industries** (creative starters: *y=1*, other starters *y=0*)		
	dF/dx		t-value	dF/dx		t-value	dF/dx		t-value
gender (= female)	-0.009	***	-7.21	-0.025	***	-8.29	-0.037	***	-3.93
age									
18–24 years	0.002		0.60	-0.030	***	-5.42	0.050	**	2.14
35–44 years				(reference)					
25–34 years	0.010	***	4.93	0.015	***	3.38	0.049	***	3.67
45–54 years	-0.006	***	-4.30	-0.037	***	-10.33	-0.008		-0.62
55–67 years	-0.013	***	-9.92	-0.070	***	-19.92	-0.022		-1.44
education									
university	0.025	***	8.74	0.051	***	10.34	0.080	***	5.63
technical college	0.018	***	6.15	0.026	***	5.16	0.073	***	4.40
technical school	-0.001		-0.17	0.042	***	5.06	-0.041	**	-2.02
voc. training or school				(reference)					
no degree	0.004		1.63	-0.022	***	-4.76	0.053	***	2.81
employment status									
employed				(reference)					
self-employed	0.012	***	3.63	0.054	***	7.65	0.023		1.34
unemployed	0.032	***	7.66	0.145	***	18.80	0.028	*	1.88
out of labor force	0.015	***	6.49	0.016	***	3.55	0.058	***	4.02
migration	-0.006	***	-3.83	0.012	**	2.17	-0.049	***	-3.82
region (= Eastern Germany)	-0.004	***	-2.97	-0.023	***	-6.54	-0.018		-1.50
necessity motive (= yes)							0.003		0.31
yearly dummies									
2007	0.007	***	2.91	0.027	***	5.26	0.009		0.59
2008	0.001		0.30	-0.008	*	-1.82	0.009		0.58
2009	-0.001		-0.61	-0.023	***	-5.12	0.015		0.91
2010				(reference)					
city size									
up to 5,000	-0.009	***	-5.79	0.001		0.16	-0.057	***	-4.56
> 5,000 to 20,000	-0.011	***	-7.48	0.001		0.11	-0.070	***	-6.21
> 20,000 to 100,000	-0.010	***	-7.25	-0.006		-1.39	-0.064	***	-5.58
> 100,000 to 500,000	-0.005	***	-2.94	-0.014	***	-2.88	-0.020		-1.49
> 500,000				(reference)					
mobile phone (= yes)	-0.001		-0.55	-0.013	**	-2.30	-0.001		-0.08
number of observations	43,099						5,205		
observed probability	1.73 %			10.99 %			13.64 %		
estimated probability	1.73 %			10.99 %			13.64 %		
pseudo-R^2	0.063						0.055		

Average marginal effects, heteroskedasticity consistent t-values, significance levels * 10 %, ** 5 %, *** 1 %. Data source: KfW Start-up Monitor, waves 2007–2010.

Table 2: Scope and Intensity of Self-Employment

	Probit (1) **part-time** yes/no			Probit (2) **team** yes/no			Probit (3) **employees** yes/no		
	dF/dx		t-value	dF/dx		t-value	dF/dx		t-value
creative industries (= yes)	0.039	*	1.91	0.030	*	1.84	-0.032	*	-1.79
market novelty (= yes)	-0.028		-1.43	0.034	**	2.22	0.055	***	3.14
occupation									
liberal professions	-0.079	***	-4.13	-0.011		-0.77	-0.032	*	-1.88
craft	-0.054	**	-2.04	-0.027		-1.47	0.049	**	2.06
other				(reference)					
industry									
manufacturing	0.059		1.64	0.093	***	2.69	-0.014		-0.47
construction	-0.015		-0.38	0.029		0.90	0.010		0.29
trade	0.094	***	4.75	0.040	**	2.42	-0.030	*	-1.83
commercial services				(reference)					
personal services	0.118	***	6.53	-0.004		-0.27	-0.006		-0.38
other sectors	0.317	***	12.29	0.019		0.72	-0.084	***	-3.31
type of start-up									
new firm				(reference)					
takeover	-0.119	***	-4.17	0.042	*	1.88	0.263	***	9.24
participation	0.102	***	5.35	0.222	***	12.45	0.054	***	3.14
part-time (= yes)				0.037	***	3.39	-0.102	***	-7.80
team (= yes)	0.069	***	3.54				0.239	***	12.22
employees (= yes)	-0.140	***	-7.91	0.181	***	11.90			
use of financial resources									
no use of financial resources	0.022		1.40	-0.016		-1.33	-0.010		-0.72
1 to 10,000 Euro				(reference)					
>10,000 to 25,000 Euro	-0.179	***	-7.66	0.058	***	2.85	0.103	***	4.64
>25,000 Euro	-0.166	***	-7.19	0.077	***	3.95	0.261	***	10.75
gender (= female)	0.064	***	4.30	-0.025	**	-2.34	-0.035	***	-2.73
age (ref.: 35–44 years)									
18–24 years	-0.001		-0.02	0.057	**	2.31	0.040		1.43
25–34 years	-0.008		-0.45	0.004		0.30	-0.003		-0.16
35–44 years				(reference)					
45–54 years	-0.007		-0.36	-0.015		-1.12	-0.006		-0.38
55–64 years	0.035		1.59	-0.024		-1.51	0.015		0.73
education									
university	-0.006		-0.32	0.017		1.15	0.004		0.27
technical college	-0.001		-0.03	-0.022		-1.50	0.005		0.25
technical school	-0.061	*	-1.99	-0.024		-1.15	-0.030		-1.18
voc. training or school				(reference)					
no degree	0.039		1.63	-0.002		-0.11	-0.017		-0.86
employment status									
Employed				(reference)					
self-employed	0.029		1.26	0.026		1.47	0.022		1.08
unemployed	-0.245	***	-12.46	-0.044	***	-3.15	-0.036	**	-2.24
out of labor force	0.088	***	4.56	-0.010		-0.71	-0.062	***	-3.91
migration (= yes)	-0.053	**	-2.27	0.022		1.21	0.046	**	2.23
region (= Eastern Germany)	-0.057	***	-3.19	0.001		0.05	-0.004		-0.28
necessity motive (= yes)	-0.130	***	-8.81	-0.025	**	-2.28	-0.062	***	-4.92

further covariates			
yearly dummies, city size, mobile	yes	Yes	yes
number of observations	4,506	4,506	4,506
observed probability	51.62 %	16.53 %	25.52 %
estimated probability	51.66 %	16.54 %	25.51 %
pseudo-R^2	0.158	0.166	0.183

Average marginal effects, heteroskedasticity consistent t-values, significance levels * 10 %, ** 5 %, *** 1 %. Data source: KfW Start-up Monitor, waves 2007–2010.

Table 3: Use of Material and Financial Resources

	Probit (1) **use of material and/or financial resources** (vs. no resources)			Probit (2) **use of financial resources** yes/no			Probit (3) **use of external financial resources** yes/no		
	dF/dx.		t-value	dF/dx		t-value	dF/dx		t-value
creative industries (= yes)	0.006		0.53	-0.048	**	-2.28	-0.005		-0.18
market novelty (= yes)	0.023	**	2.22	0.082	***	4.37	0.041	*	1.70
occupation									
liberal professions	0.008		0.79	-0.040	**	-2.01	-0.019		-0.77
craft	0.016		1.26	0.058	**	2.32	-0.019		-0.62
other				(reference)					
industry									
manufacturing	-0.049	*	-1.78	-0.004		-0.11	0.090	*	1.87
construction	-0.005		-0.20	-0.027		-0.68	0.108	**	2.23
trade	0.011		1.02	0.079	***	4.16	0.037		1.45
commercial services				(reference)					
personal services	0.006		0.58	0.046	***	2.61	0.108	***	4.51
other sectors	-0.040	*	-1.66	0.100	***	3.30	0.409	***	10.73
type of start-up									
new firm				(reference)					
takeover	-0.073	***	-3.38	-0.114	***	-3.80	0.119	***	3.24
participation	-0.045	***	-3.60	-0.103	***	-5.18	-0.003		-0.10
part-time (= yes)	-0.006		-0.72	-0.066	***	-4.47	-0.192	***	-10.41
team (= yes)	0.011		1.08	0.053	***	2.89	0.066	***	2.72
employees (= yes)	0.013		1.45	0.076	***	4.74	0.109	***	5.25
gender (= female)	-0.034	***	-3.97	-0.052	***	-3.52	0.030		1.60
age									
18–24 years	-0.014		-0.80	-0.038		-1.21	-0.013		-0.31
25–34 years	-0.004		-0.39	-0.021		-1.16	-0.007		-0.31
35–44 years				(reference)					
45–54 years	0.001		0.05	0.022		1.18	-0.008		-0.38
55–64 years	-0.002		-0.17	-0.002		-0.07	-0.035		-1.29
education									
university	0.013		1.31	0.039	**	2.12	-0.004		-0.17
technical college	0.019	*	1.84	0.046	**	2.34	-0.012		-0.47
technical school	0.037	***	2.73	0.043		1.43	0.093	**	2.39
voc. training or school				(reference)					
no degree	-0.040	***	-2.70	-0.023		-0.98	0.009		0.27
employment status									
employed				(reference)					
self-employed	0.008		0.62	0.002		0.11	0.030		1.06
unemployed	0.018	*	1.73	-0.003		-0.14	0.070	***	2.82
out of labor force	-0.012		-1.13	-0.020		-1.02	-0.013		-0.52
migration (= yes)	0.002		0.14	0.013		0.58	0.040		1.38
region (= Eastern Germany)	0.017	*	1.75	0.012		0.66	-0.027		-1.24
necessity motive (= yes)	-0.028	***	-3.18	-0.048	***	-3.30	0.003		0.18
further covariates									
yearly dummies, city size, mobile	yes			yes			yes		
number of observations	4,501			4,506			2,842		
observed probability	92.58 %			69.55 %			34.03 %		
estimated probability	92.58 %			69.56 %			33.89 %		
pseudo-R^2	0.072			0.055			0.103		

Average marginal effects. Heteroskedasticity consistent t-values, significance levels * 10 %, ** 5 %, *** 1 %. Data source: KfW Start-up Monitor, waves 2007–2010.

Table 4: Amounts of Financial and External Financial Resources

	Tobit (1) log. financing volume			Tobit (2) log. external financing volume		
	coeff.		t-value	coeff.		t-value
creative industries (= yes)	-0.714	***	-2.66	-0.263		-0.36
market novelty (= yes)	0.940	***	4.10	0.865		1.43
occupation						
liberal professions	-0.661	***	-2.71	-0.781		-1.21
craft	0.773	**	2.57	-0.622		-0.78
other			(reference)			
industry						
manufacturing	-0.006		-0.01	2.529	**	2.16
construction	-0.416		-0.95	2.878	**	2.49
trade	1.035	***	4.16	1.082		1.61
commercial services			(reference)			
personal services	0.757	***	3.22	2.886	***	4.69
other sectors	2.533	***	6.09	11.123	***	11.25
type of start-up						
new firm			(reference)			
takeover	-0.926	**	-2.46	3.049	***	3.80
participation	-1.598	***	-6.37	-0.158		-0.23
part-time (= yes)	-1.465	***	-7.94	-5.197	***	-10.55
team (= yes)	1.159	***	4.98	2.129	***	3.56
employees (= yes)	1.685	***	8.54	3.250	***	6.52
gender (= female)	-0.972	***	-5.26	0.524		1.08
age						
18–24 years	-1.110	***	-2.78	-0.641		-0.60
25–34 years	-0.473	**	-2.10	-0.279		-0.47
35–44 years			(reference)			
45–54 years	0.365	*	1.65	-0.138		-0.24
55–64 years	0.208		0.74	-0.895		-1.19
education						
university	0.767	***	3.25	0.137		0.22
technical college	0.573	**	2.32	-0.221		-0.33
technical school	0.753	**	2.07	2.401	***	2.78
voc. training or school			(reference)			
no degree	-0.572	*	-1.86	-0.051		-0.06
employment status						
employed			(reference)			
self-employed	0.193		0.67	0.918		1.25
unemployed	-0.233		-0.97	1.642	***	2.78
out of labor force	-0.355		-1.42	-0.416		-0.60
migration (= yes)	0.328		1.17	1.070		1.50
region (= Eastern Germany)	-0.073		-0.34	-0.855		-1.50
necessity motive (= yes)	-0.762	***	-4.14	0.001		0.00
further covariates						
yearly dummies, city size, mobile		yes			yes	
constant	5.276	***	13.56	-5.493	***	-5.36
sigma		5.322			9.479	
number of observations		4,512			2,844	
number of censored observations		1,378			1,877	
pseudo-R^2		0.027			0.045	

Volumes in log. Euro. Heteroskedasticity consistent t-values, significance levels * 10 %, ** 5 %, *** 1 %. Data source: KfW Start-up Monitor, waves 2007–2010.

Table 5: Start-up Success

	(1) Discrete Hazard Rate Model (a)			(2) Probit			(3) Probit		
	start-up ended			**increase in household income (**yes/no)			**market novelty** yes/no		
	dF/dx		t-value	dF/dx		t-value	dF/dx		t-value
creative industries (= yes)	-0.0020	**	-2.25	-0.009		-0.37	0.051	***	2.93
market novelty (= yes)	0.0036	***	2.79	-0.015		-0.63			
occupation									
liberal professions	-0.0031	***	-3.40	0.012		0.50	-0.003		-0.21
craft	-0.0024	**	-2.22	0.048		1.54	-0.044	**	-2.58
other				(reference)					
industry									
manufacturing	-0.0026	*	-1.84	-0.135	***	-3.24	0.169	***	4.24
construction	-0.0010		-0.53	-0.043		-0.97	-0.030		-1.03
trade	0.0010		0.97	-0.091	***	-3.73	0.102	***	5.59
commercial services				(reference)					
personal services	-0.0001		-0.12	-0.013		-0.60	0.034	**	2.18
other sectors	-0.0043	***	-3.94	-0.045		-1.13	-0.033		-1.29
type of start-up									
new firm				(reference)					
takeover	0.0008		0.50	-0.009		-0.29	-0.077	***	-5.21
participation	0.0065	***	4.95	0.099	***	4.16	0.000		0.01
part-time (= yes)	0.0008		1.08	0.029		1.61	-0.019		-1.63
team (= yes)	0.0023	**	1.98	-0.048	**	-2.04	0.031	**	2.06
employees (= yes)	-0.0019	**	-2.40	0.090	***	4.41	0.042	***	3.03
use of financial resources									
no use of financial resources	0.0032	***	3.73	0.041	**	2.16	-0.047	***	-4.28
1 to 10,000 Euro				(reference)					
>10,000 to 25,000 Euro	-0.0023	**	-2.31	-0.059	**	-2.13	0.010		0.55
>25,000 Euro	-0.0041	***	-4.64	-0.018		-0.65	-0.008		-0.45
gender (= female)	0.0009		1.15	-0.039	**	-2.21	0.015		1.33
age									
18–24 years	0.0126	***	3.62	0.136	***	3.58	0.046	*	1.70
25–34 years	0.0019	*	1.87	0.065	***	3.01	0.005		0.34
35–44 years				(reference)					
45–54 years	-0.0007		-0.74	-0.091	***	-4.21	0.028	*	1.90
55–64 years	0.0001		0.07	-0.122	***	-4.68	0.015		0.85
education									
university	0.0001		0.15	0.008		0.37	0.023		1.51
technical college	-0.0013		-1.40	0.002		0.09	-0.013		-0.89
technical school	-0.0004		-0.26	-0.003		-0.08	0.024		0.98
voc. training or school				(reference)					
no degree	0.0004		0.37	-0.026		-0.91	0.018		0.92
employment status									
employed				(reference)					
self-employed	-0.0031	***	-3.31	0.014		0.53	0.016		0.90
unemployed	0.0016		1.44	-0.035		-1.49	0.027	*	1.72
out of labor force	-0.0009		-0.97	0.042	*	1.80	-0.008		-0.53
migration (= yes)	0.0016		1.28	0.040		1.46	-0.005		-0.31
region (= Eastern Germany)	-0.0019	**	-2.46	0.009		0.42	0.008		0.62
necessity motive (= yes)	0.0031	***	3.87	-0.030	*	-1.67	-0.061	***	-5.79

further covariates			
duration dummies (b)	yes		
yearly dummies, city size, mobile	yes	Yes	yes
rho	0.371		
number of person months	67,577		
number of persons	4,487	3,719	4,506
pseudo-R^2	0.052	0.044	0.063

Average marginal effects. Heteroskedasticity consistent t-values, significance levels * 10 %, ** 5 %, *** 1 %. (a) Discrete hazard rate model with random individual-specific effects. (b) Duration dummies in three-month periods, 24-36 months condensed. Data source: KfW Start-up Monitor, waves 2007–2010.

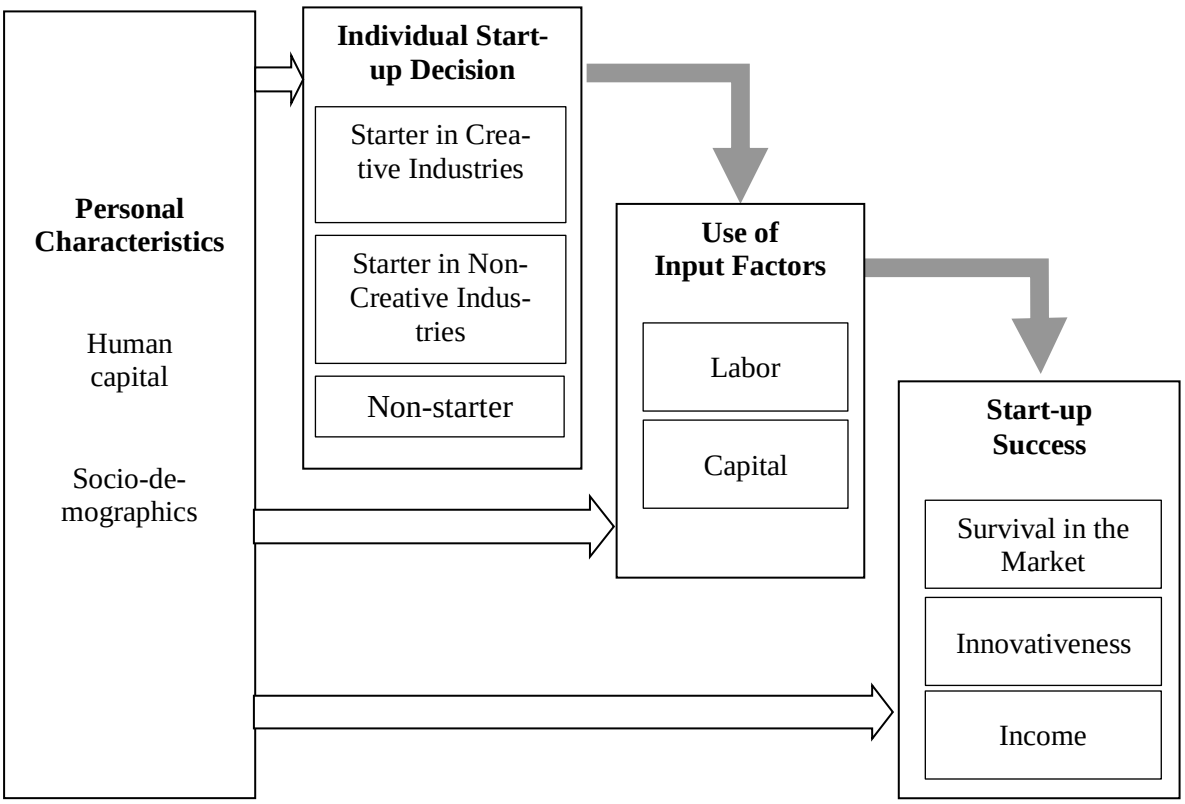
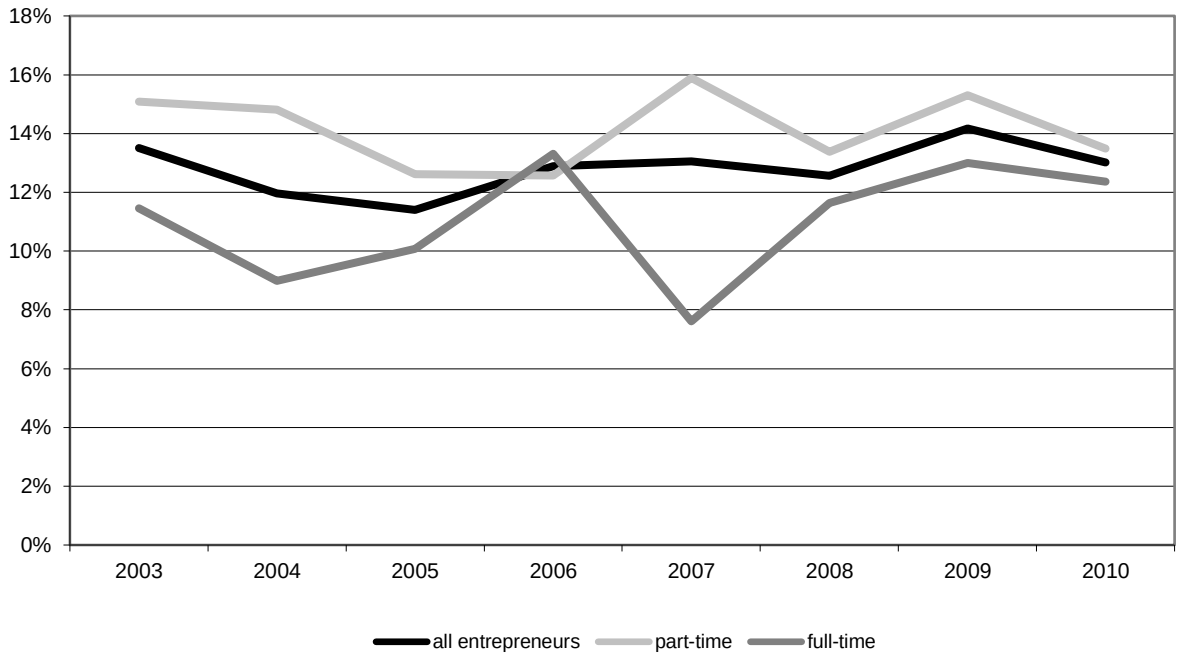
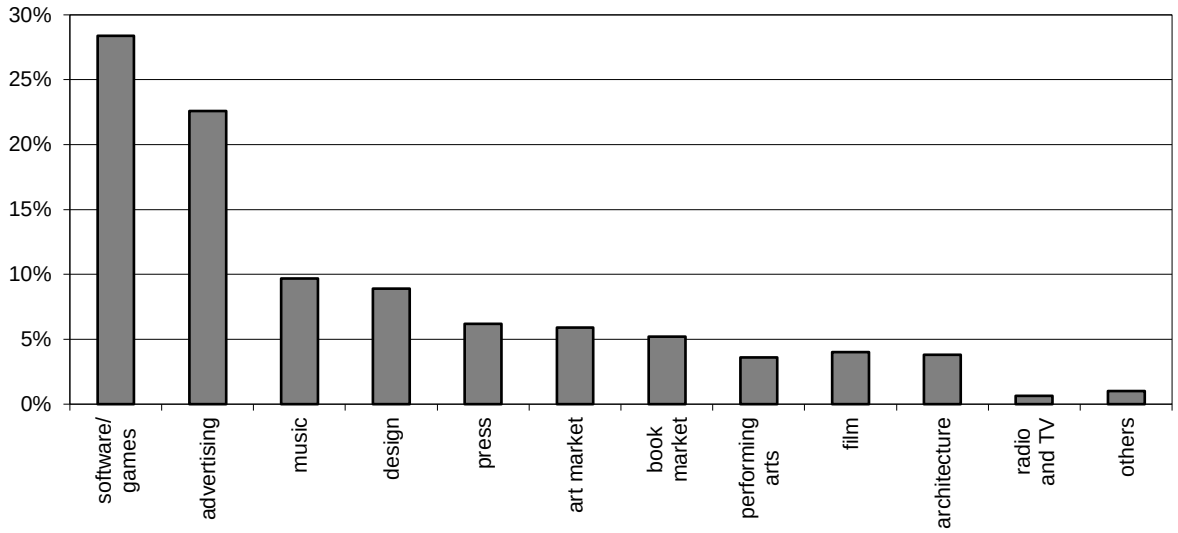


Figure 1: Conceptualization of the Start-up Process



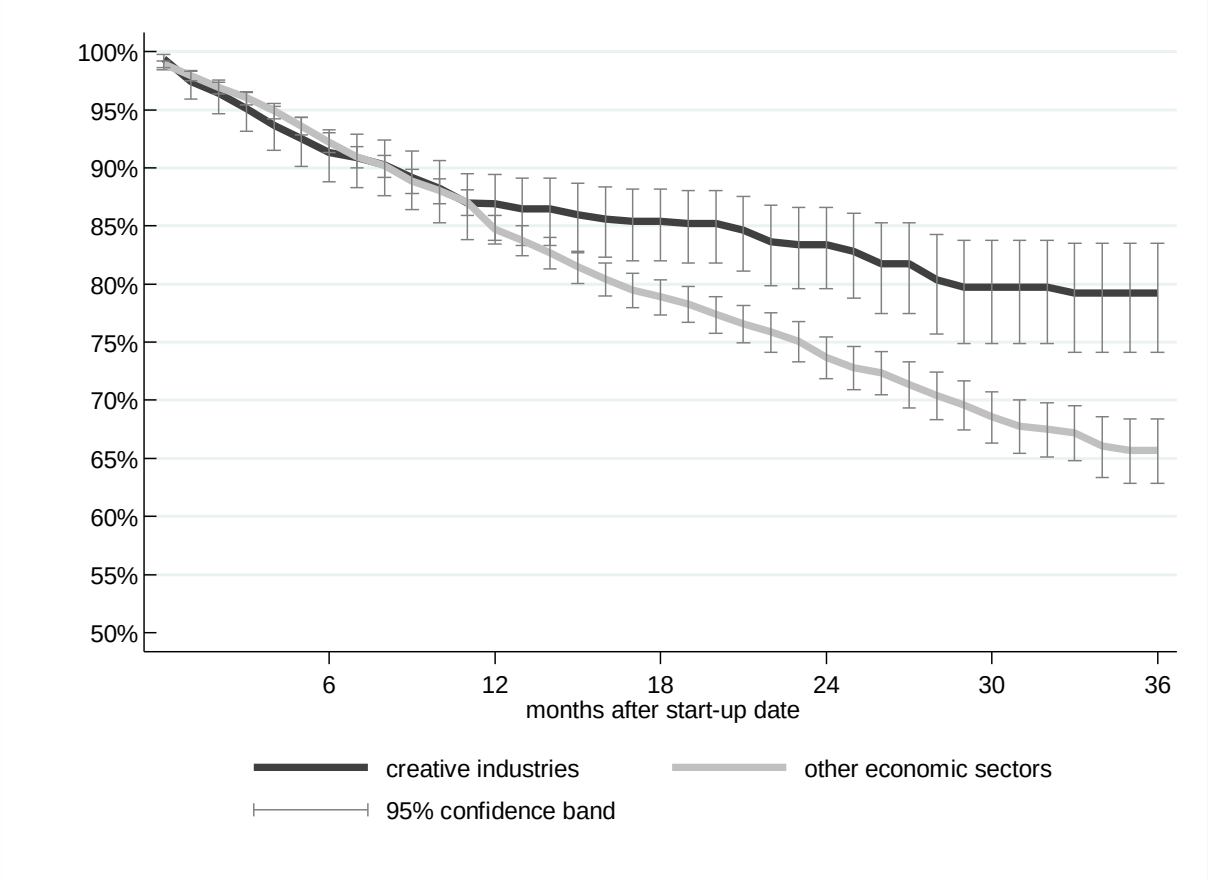
Share of creative start-ups in percent, calculation using population weights. Data source: KfW Start-up Monitor.

Figure 2: Start-Ups in Creative Industries: Full-timers vs. Part-timers



Submarket shares among creative industries, calculation using population weights. Data source: KfW Start-up Monitor, waves 2003-2010.

Figure 3: Start-ups in the Submarkets of Creative Industries



Kaplan-Meier estimates (population-weighted) of survival rates in the first 36 months after start-up date. Data source: KfW Start-up Monitor, waves 2007-2010.

Figure 4: Stability of Start-Ups in Creative Industries