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Conditions for growth in one-person startups: A longitudinal study spanning eight years

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In the European Union, one-person businesses (OPBs) are increasingly regarded as an important alternative to dependent employment. From an economic policy standpoint, the growth potential of such businesses is especially attractive. This paper analyzes the growth potential of OPBs by postulating five key groups of enterprise growth predictors: personal traits, resources, strategy, industry, and organizational structures and systems. The framework model was adapted to suit the specific circumstances of OPBs. The model was tested using a longitudinal data set comprising 188 OPBs which were observed over a period of eight years. At the end of the observation period, the OPBs included in the study had an average of 1.33 employees. The gender of the founder, capital requirements at the time of establishment, and growth strategy proved to be the most important predictors of growth. In addition, human capital resources also tended to have a positive impact. The traits of the person founding the business were not found to affect growth. In summary, it is possible to draw empirically reliable conclusions about growth potential on the basis of the «seriousness» of an OPB startup project.

Condiciones de crecimiento de las empresas nacientes unipersonales: un estudio longitudinal durante ocho años. Este trabajo analiza el potencial de crecimiento de las empresas unipersonales (OPBs) postulando cinco grupos de predictores clave para el crecimiento de la empresa: rasgos de personalidad, recursos, estrategias, industria y estructuras de organización y sistemas. El modelo se adaptó a las circunstancias específicas de las OPBs. Los datos longitudinales se tomaron de 188 OPBs que fueron observadas durante un período de ocho años. Al final del período de observación, las OPBs incluidas en el estudio tenían un promedio de 1,33 empleados. El género del fundador, los requisitos de capital en el momento de establecimiento y la estrategia de crecimiento demostraron ser los predictores más importantes del crecimiento. Además, los recursos de capital humano también tendían a tener un impacto positivo. No se encontró efecto de los rasgos de personalidad sobre el crecimiento. En resumen, es posible extraer conclusiones empíricamente fiables sobre el potencial de crecimiento basado en la seriedad de un proyecto inicial de OPB.

One-person businesses (OPBs), which are generally defined as enterprises which operate without dependent employees, account for a considerable share of the population of small and medium-sized enterprises in the EU, and this share has grown steadily in recent years (European Commission, 2005). Recent developments have shown that OPBs represent an increasingly significant alternative to dependent employment (Levine, 2004). From an economic policy standpoint, these businesses are important not only due to their high prevalence, but also due to their growth potential (e.g., Blanchflower, 2000). It is therefore not surprising that many countries regard the promotion of OPBs as a strategy for securing jobs and as a key source of potential growth.

The shift in the size structure of businesses toward OPBs has also raised awareness of the fact that OPBs constitute an important subgroup in addition to the usual official classification into micro, small, medium-sized and large enterprises. This particular subgroup may also be distinguished by a specific configuration of characteristics related to the environment, enterprise, person and development.

This point is addressed by the research question in this article: Under what conditions are one person startups able to grow? In order to answer this question, our analysis relies on a broad based model which comprises various predictors of enterprise growth and borrows from Gilbert, McDougall and Audretsch (2006) in order to examine how personal traits, available resources, strategy, industry and social capital affect the medium and long-term growth of one-person startups.

The empirical basis for our analysis is provided by a subsample of 203 businesses which were founded as OPBs from the longitudinal data set in the Vienna Entrepreneurship Studies (e.g., Korunka, Frank, Lueger, & Mugler, 2003). In their fundamental design as well as their operationalization of survey dimensions, the Vienna Entrepreneurship Studies take an interdisciplinary approach, asserting the synergetic combination of a social science perspective on business administration with theories from

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psychology and sociology. The studies analyze the development of 600 business startups over a period of nearly eight years.

The results of the analyses reveal that the growth potential of one-person startups is slight in absolute terms, but certainly relevant. At the end of the observation period, 54% of the businesses in our sample had at least one half-time employee. In this context, effective predictors of growth in one-person startups include the gender of the founder (one-person businesses founded by women show substantially lower growth potential) and the startup size in terms of capital requirements (larger startups exhibit markedly higher growth potential), but not the psychological traits of the founders.

Theoretical background

Definition and previous scholarly research

In order to structure our analysis of previous scholarly work on OPBs, we rely on the established classification of entrepreneurship research as proposed by Stevenson and Jarillo (1990). This classification appears suitable insofar as one-person business founders constitute a specific form of entrepreneur. Stevenson and Jarillo distinguish between (1) the economic approach to entrepreneurship research (i.e., what happens when entrepreneurs act?), (2) the psychological/sociological approach (i.e., why do entrepreneurs act?) and (3) the management-oriented approach (i.e., how do entrepreneurs act?). As indicated in the introduction, previous scholarly research on OPBs has often been conducted against the backdrop of job creation, thus focusing clearly on the economic approach. In this context, a certain research tradition has emerged around the significance of self-employment in relation to dependent employment and unemployment; however, this research has yielded highly divergent findings (e.g., Blanchflower, 2000). With regard to employment policy, many are interested in the extent to which self-employment is able to reduce unemployment (e.g., Rissmann, 2003). This leads to different interpretations of the connection between unemployment and self-employment. At a macroeconomic level increasing unemployment can prompt people to take refuge in self-employment and at the same time diminishes the entrepreneurial opportunities available (Audretsch et al., 2006). In addition, an increase in the number of startups can also be attributed to an entrepreneurial impulse which may be able to reduce the rate of unemployment (e.g., Pfeiffer, 1994). It has been assumed that an increasing number of business startups will reduce unemployment by creating job opportunities in the case of growth, or by creating innovation incentives which stimulate the market (Stel, Carree, & Thurik, 2005).

In the psychological approach, scholars have argued that unemployment as a push factor increases the probability of starting one's own business due to the reduced opportunity costs (Parker, 2004; Sánchez, 2010a). At the same time, however, it has been argued that unemployment generally affects less qualified employees for whom startup opportunities are limited, or that such opportunities simply decline in times of economic stagnation (e.g., Hurst & Lusardi, 2004). Other studies addressing the motives for self-employment refer to the attraction of independent work compared to dependent employment and the higher degree of work satisfaction associated with self employment (Bradley & Roberts, 2004; Blanchflower & Oswald, 2007) as well as the possibility of earning one's own income as an alternative to dependent employment (Rissman, 2003).

Another approach taken in psychological entrepreneurship research is the attempt to identify the specific personality traits of self-employed people (Beugelsdijk & Noorderhaven, 2005; Sánchez, 2010b; Singh & DeNoble, 2003) as well as their sociodemographic characteristics (Hipple, 2005). However, the research conducted in this area has not revealed a clear picture at all. For example, a study of data from the European Values Survey comparing dependent employees with self-employed people yielded only few characteristic differences: The analysis did reveal a stronger sense of individual responsibility and effort among the (predominantly male) self-employed, but what remains unclear is the extent to which these differences result from self-employment or whether other effects are at play in this context (Beugelsdijk & Noorderhaven, 2005).

As for the management-oriented approach, research largely focuses on the specific characteristics of OPBs and their structural differences compared to larger companies (Roodt, 2005; Wellington, 2006). However, the bulk of scholarly works in this area develop arguments without the support of empirical findings. With regard to structure, the following unique characteristics of OPBs can primarily be identified:

- In one-person businesses, it is not possible to delegate tasks, decisions and responsibility within the enterprise. Although this means that it is not necessary to deal with other partners or employees (i.e., low social complexity), in many cases it imposes highly complex requirements on the individual (Roodt, 2005). In this context, switching between various and sometimes contradictory roles and the accompanying requirements (e.g., dealing with customers, suppliers, banks) creates high social demands in external communications. As outsourcing certain activities would be associated with additional costs, many OPBs simply cannot afford to do so.
- Through this coupling of the enterprise with the person, the identity of the enterprise largely corresponds to that of the entrepreneur. OPBs therefore depend on the founder's specific ideas as well as his/her specific set of skills and strategies. This makes OPBs very flexible, but at the same time their lack of social balancing mechanisms makes them highly susceptible to personal preferences as well as specific blind spots in the perception of enterprise development and of the entrepreneur's role in this development.
- In addition, the establishment and development of the business is embedded in biographical development processes, which is why many business decisions can only be understood in the context of general life decisions of the founder. In this respect, the business may perform a wide variety of functions for the person, for example as a means of self-realization, as an economic basis, as a means of escaping unemployment, or as a sideline.

Conditions for growth in one-person businesses

As discussed in the previous section, the studies found in the literature on growth in OPBs to date tend to take the economic approach, as they address the impact of OPBs on overall economic growth, usually with regard to employment effects (e.g., Audretsch et al., 2006; van Stel, Carree, & Thurik, 2005). If one-person startups provide an important stimulus for the economy, then not only the number of such startups but also their growth will be a decisive factor. Only then can they also make a substantial

contribution to relieving the burden on the labor market (Van Praag, 2003; Marmet, 2005).

In contrast to the economically oriented stream of research on OPB growth, which has already established itself as a research tradition to a certain extent, scholarly work on the conditions for OPB growth at the individual enterprise level is still in its fledgling stages. For this reason, it appears useful to take the insights gained from research on the conditions for startup growth in general as a point of departure, because large shares of startups are launched as one-person businesses.

Gilbert, McDougall and Audretsch (2006) first highlight two aspects which essentially distinguish the study of growth conditions for startups compared to established companies: (1) New venture growth takes place against the backdrop of the «liability of newness» and the «liability of smallness,» and is therefore a matter of attaining viability, while growth in established companies is a question of maintaining viability. (2) The variance in growth rates for new ventures is markedly higher than for established companies because Gibrat's law —that is, the independence of growth from business size and age— does not apply to startups.

Based on an analysis of 48 empirical studies conducted between the 1980s and 2006, the authors proceed to derive five essential groups of predictors of new venture growth, specifically: personal traits, resources, strategy, industry and organizational structures and systems. In our study, these five groups of predictors form the basis for the construction of an exploratory model explaining the growth of one-person startups.

In addition, the literature indicates that enterprise growth does not follow a continuous path. For example, Garnsey, Stam and Heffernan (2006) conclude that very few businesses grow at a steady pace. The more probable scenarios are growth followed by a collapse in development, early growth which stabilizes relatively quickly, or delayed growth. Therefore, the choice of the (long-term) observation period is an especially significant decision in analyses of the conditions for growth.

Finally, in any discussion of growth it is also important to specify how it is measured. There are various ways to identify growth which can be applied individually or in combination with one another (cf. Garnsey, Stam, & Heffernan, 2006; Sánchez, 2009). The most important growth indicators for startups are revenues, market share, and the number of employees (Gilbert et al., 2006):

- Revenue growth indicates the extent to which customers increasingly accept an enterprise's products or services. One key disadvantage of using revenues as a measure for growth is that they depend on the availability of saleable products or services, which may not be the case for a long time in certain industries (e.g., biotechnology).
- Growth in market share also points to an increase in customer acceptance of an enterprise's products and/or services. However, this measure is not very appropriate for small businesses and OPBs in particular because their market shares tend to be far smaller and are thus difficult to measure.
- Growth in the number of employees is an indicator which lends itself well to standardization and comparison. This indicator plays a decisive role with regard to labor policy issues, and it is also relatively easy to determine. Moreover, it is especially important in the study of OPBs because hiring an employee marks a significant change in the structure of the business.

This article pursues the following objectives: (1) to determine the long-term growth potential (the share of companies which grow, in terms of their number of employees) of one-person startups, and (2) to identify and compare the long-term predictors of growth on the basis of a model constructed using the dimensions of personal traits, resources, strategy, industry, and organizational structures and systems (Gilbert et al., 2006).

Method

Participants and procedure

We pursue the objectives of the study using a subsample of one-person startups from the Vienna Entrepreneurship Studies (VES), in which Austrian business startups were observed in a longitudinal study over a period of nearly eight years.

Conducted in 1998, the base survey included a sample which was representative in terms of essential criteria (gender, age, startup characteristics) and comprised 1,169 persons who had either recently started a business (new ventures; n= 627), or who had reached various stages of the startup process or abandoned the process at least temporarily at the time (founders and abandoners; n= 542). The results of the base study, which was among the largest of its kind in German-speaking countries, have already been published in a number of articles (e.g., Frank, Korunka, & Lueger, 2007; Korunka, Frank, Lueger, & Mugler, 2003).

In order to enable the planned longitudinal surveys, respondents were asked to provide their addresses and telephone numbers for the purpose of subsequent contact. Addresses were available for 929 of the 1,169 respondents (79.6%).

In the fall of 2005, the subjects were contacted again by telephone in order to ask how their businesses had developed. In this part of the study, a total of 600 respondents were reached (rate of response relative to t0: 64.6%). The missing data sets mainly refer to people who could no longer be reached (due to address and/or name changes). This data set forms the basis for the analyses presented below. In order to optimize the data basis for our analyses, we excluded the following cases from the longitudinal data set (n= 600):

Businesses launched in 1996 or earlier (n= 50), or in 2000 or later (n= 21).

Sale/transfer of the business during the observation period (n= 20).

Team startups which had no employees at the time of establishment (n= 52).

Planned startups which had not been launched by time t1 (n= 106). The data set used for the evaluations below thus comprises 351 businesses which were founded between 1997 and 1999, which were not team startups without employees at the time of establishment, and which were not sold or transferred during the observation period. Of those 351 businesses, 203 were founded without dependent employees and can thus be considered one-person startups. After eight years, 167 of those one-person startups had become active businesses and thus comprise the analysis samples for our study of startup growth. The average age of the respondents at the time of the base survey was 35.7 years, and the sample comprises 75.4% male respondents. A majority of these businesses can be assigned to the trades (72%) and commerce (21%) industry groups.

Instrument and data analysis

At the time of the initial survey, a questionnaire consisting of scales and indices relating to the configuration dimensions *person*, *resources*, *environment* and *process* was used. The *personal traits* dimension comprises the most important sociodemographic characteristics mentioned in the relevant literature (Katz, Brockhaus Sr., & Hills, 1993), specifically gender and age. In addition, this dimension also includes three personality traits which the literature describes as especially relevant in connection with starting a business: *internal locus of control*, *need for achievement* and *risk propensity* (Rauch & Frese, 2000).

Finally, this dimension is completed by a push motive which is especially relevant to one-person startups, namely the impending threat of unemployment or loss of income (Amit & Muller, 1996).

The two *resource aspects* cited most frequently in the literature and considered relevant to startup growth are human capital (defined as previous experience relevant to starting a business) and financial capital (Gilbert et al., 2006).

The *strategy* dimension first depicts strategic decisions made in the course of the startup process with regard to the scope of the startup (full-time or sideline startup, startup size in terms of capital requirements). In addition, this dimension also includes the businesses' strategic orientation from the commencement of business activities onward. Innovation and specialization were also included in the model as additional strategic orientation possibilities.

The *industry* dimension was used to depict the specific context in which each business operates. The industry determines the barriers to entry for the startup (e.g., capital requirements, required qualifications, etc.), and at the same time certain characteristics of the industry —such as the level of competition or industry dynamics— have a crucial influence on potential growth. We categorized the industries into two broader groups, namely trades and commerce.

The final dimension, which was suggested by Gilbert et al., (2006), is *organizational structures and systems* and had to be adapted to one-person startups. As explained above, the internal organizational structures in OPBs are characterized by those of the enterprise and the entrepreneur, which is why it appears to make little sense to capture this dimension. Therefore, for the purposes of our analysis we rely on external organizational structures and systems and include the founder's *social capital* in the model. The dimension of social capital is depicted using the aspects of networks (e.g., Larson & Starr, 1993) and family role models (e.g., Bird, 1993). Table 1 summarizes the survey dimensions and key values.

Table 1
Survey dimensions

Dimensions/aspects	**Sample item / source**	**Scale type**	**Key values**
Personal traits (t_0; questionnaire)			
Gender		Individual item	Male: 75.4%
Age	Age of new business owner (median split: younger/older than 34 years)[1]	Individual item	Over 34 years: 49%
Internal locus of control	(Modick, 1977)	Scale (8 items; alpha= .68)	79.3
Need for achievement	(Frese, 1998)	Scale (7 items; alpha = .72)	79.6
Risk propensity	(Rauch & Frese, 2000)	Scale (8 items; alpha = .70)	56.1
Push motive	The business was founded due to impending unemployment and/or the threat of a massive loss of income.	Individual item	Yes: 35.5%
Resources (t_0; questionnaire)			
Human capital	Previous experience in business management	Scale (5 items; alpha = .82)	10.7
Financial capital	Above-average income and/or sufficient financial collateral	Individual item	Yes: 74.9%
Strategy (t_0; questionnaire)			
Full-time startup	No / yes	Individual item	Yes: 82.8%
Startup size (capital requirements)	Median split (less/more than €36,000)	Individual item	Over €36,000: 27.6%
Strategy: Growth	Planned expansion (growth in number of employees) and/or strategic orientation toward profit maximization	Individual item	Yes: 42.9%
Strategy: Innovation	Strategic orientation toward innovative products/services	Individual item	Yes: 70.0%
Strategy: Specialization	Strategic orientation toward specialization in terms of customers/offerings	Individual item	Yes: 55.2%
Industry (t_0; questionnaire)			
Industry: Trades	No / yes	Individual item	Yes: 72.4%
Industry: Commerce	No / yes	Individual item	Yes: 20.7%
Social capital (t_0; questionnaire)			
Social capital: Networks	Previous customer contacts	Scale (8 items; alpha = .75)	39.8
Social capital: Family role models	Successful business founder in family (no/yes)	Individual item	Yes: 23.2%
Target variable: Growth (telephone interviews at t_1; t_2)			
Growth (t_1)	How many employees does the business have?	Individual item	0.82
Growth (t_2)	How many employees does the business have?	Individual item	1.33

Results

Growth potential of one-person startups

In order to calculate the number of employees in an enterprise, the number of full-time employees and the number of half-time employees (50%) were each added up (not including the founder).

In absolute terms, the growth observed in the number of employees is relatively low in the one-person startups: After eight years (in 2005), the OPBs had an average of 1.33 employees (median= 0.5, range= 0 - 14.5).

Separating the businesses with and without growth intentions yields an interesting result: In those businesses which did not indicate growth intentions at time t0 (n= 108), the average number of employees came to 0.84 persons after eight years (median= 0, range= 0 - 10.5), while those founders who did indicate that they planned to grow at time t0 (n= 80) had an average of 1.94 employees after eight years (median= 1, range= 0 - 14.5).

These results allow us to conclude that one-person startups do have long-term growth potential (although it remains relatively low in absolute terms) and that this potential can already be recognized in the founders' growth intentions at a very early juncture.

Table 2
Predictors of long-term growth in one-person startups

Dimensions/aspects	**Long-term growth Chi^2= 39.72, p =.00** **Nagelkerke's R^2= .283** **(B/odds ratios)**	
Personal characteristics		
Gender	-1.441	.237**
Age	.110	1.116
Internal locus of control	.017	1.017
Need for achievement	-.030	.971
Risk propensity	.005	1.005
Push motive	-.612	.542
Resources		
Human capital	.345	1.412+
Financial capital	.670	1.954
Strategy		
Full-time startup	.749	2.115
Startup size (capital requirements)	.993	2.700**
Strategy: Growth	.489	1.631
Strategy: Innovation	.338	1.402
Strategy: Specialization	.092	1.096
Industry		
Industry: Trades	-.498	.607
Industry: Commerce	-.279	.756
Social capital		
Social capital: Networks	-.045	.956
Social capital: Family role models	.081	1.084

** p <.01; * p<.05; + p<.10

Predictors of growth in one-person startups

In the second step of the analysis, we used a logistic regression model to analyze the predictors of growth in one-person businesses on the basis of our working configuration theory model. In light of the low level of absolute growth and the definition of OPBs used, we defined growth in the number of employees (i.e., the hiring of at least one half-time employee within eight years) as the dependent variable. In other words, the dependent variable is used to verify whether the business has already grown out of the OPB category.

On the basis of this definition, 90 of the 167 businesses (54%) had grown by the time of the second survey. Table 2 shows the results generated by the logistic regression model used to determine and compare the long-term predictors of growth.

First, the table clearly shows that the model is statistically significant and can explain approximately 28% of the variance in growth. The gender of the founder and the size of the startup in terms of capital requirements have an impact on growth. While the growth potential of one-person startups launched by women is substantially lower, growth potential increases markedly along with higher startup capital requirements. Finally, human capital also shows a tendency ($p<0.1$) to influence growth.

Discussion

In this article, we set out to determine the long-term growth potential of one-person startups and to identify effective long-term predictors of growth by means of exploratory analysis on the basis of a broadly defined model.

The growth potential of one-person startups, which is low in absolute terms but certainly does exist, can be highlighted as a core result of this study. In light of the large (and increasing) number of one-person businesses in European economies, the fact that long-term growth was observed in 54% of one-person startups points to considerable employment potential. With regard to growth predictors, our study confirms the medium and long-term impacts of the founder's gender as well as the startup's capital requirements, thus supporting the idea that the findings of traditional entrepreneurship research also apply to one-person businesses. The substantially lower growth potential of businesses founded by women has been confirmed by multiple studies (e.g., Dahlqvist, Davidsson, & Wiklund, 2000). Frequently cited explanations include the tendency to start businesses in «typical women's industries» which are characterized by lower growth potential as well as smaller startup sizes due to increased financing problems. The positive effect of higher startup capital resources on enterprise growth is also well documented in general entrepreneurship literature (e.g., Lee, Lee, & Pennings, 2001).

The role of the founder's resources in terms of human capital, a factor which is often associated with startup growth potential in general entrepreneurship literature (e.g., Baum, Locke, & Smith, 2001), can also be identified —at least as a statistical trend— in the OPBs observed in this study.

Overall, the combination of growth predictors indicates that a certain «seriousness» in the startup project is conducive to subsequent growth in one-person startups. This seriousness is reflected in larger startup sizes (despite a lack of employees) combined with growth intentions. The classic personality traits analyzed in entrepreneurship research (internal locus of control, need for achievement and risk propensity) do not have an impact

on enterprise growth. This can be explained by the fact that business owners are already a selected group, and that these classic personality traits are more important in the decision to pursue an entrepreneurial career in the first place and less relevant to later developments (i.e., survival and enterprise growth).

Although the research method used and the data available provide a very sound basis in general, this study is also subject to certain limitations. First, the sample analyzed consists of startups which were launched in the late 1990s and thus in a different economic and sociopolitical environment compared to the present day. Since then, the number of startups and the share of one-person startups have continued to increase, which may have also affected their quality. The increased number of one-person startups has included a larger share of «push» startups, which may have exacerbated the problems associated with the startups. On the other hand, the willingness to support this type of business as well as the political and social acceptance of these enterprises have increased. Second, all of the dependent variables were collected at the time of the base survey and may have changed over the time period of the longitudinal survey. Third, the study can explain a substantial share (nearly 30%) of variance in the growth of one-person startups; nevertheless, it is important to note that process-related conditions or changes in general economic conditions can have just as strong an influence on growth. These conditions are not taken into account in this study. Finally, the analysis was performed without accounting for interaction effects between the independent dimensions and their aspects. Including interaction effects could further enhance the insights generated by this study, but it would also create methodological problems due to the relatively small number of cases examined.

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