Are jacks-of-all-trades successful entrepreneurs? Revisiting Lazear's theory of entrepreneurship

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Abstract

Purpose – The purpose of this paper is to identify human capital factors that pertain both to setting up and successfully running a business. To achieve this objective, the authors apply and extend the theory of career choice offered by Lazear (2005) that explains individual selection into entrepreneurship.

Design/methodology/approach – The authors hypothesise that individuals with broader educational and professional backgrounds are more likely to start a business and are more likely to run a business in the long term. The authors tested the hypotheses using unique data from 800 current entrepreneurs, 800 employees who were previously entrepreneurs and 842 employees with no entrepreneurial experience, by means of a logit regression with robust standard errors and extensive robustness checks.

Findings – The authors empirically show that individuals with more diverse educational and professional backgrounds tend to have both greater chances of starting a company, as well as a higher probability of entrepreneurial success. Surprisingly, having managerial experience proved to exert a negative influence on the likelihood of starting a business while having an insignificant impact on the odds of entrepreneurial success.

Research limitations/implications – The findings are informative for those planning or pursuing an entrepreneurial career, but they are also relevant for the purpose of entrepreneurship education.

Originality/value – The author's extend the body of research supporting Lazear's (2005) theory by showing that broad education and professional experience not only contribute to a higher propensity to start a company but they are also success factors in business *per se*.

Keywords Entrepreneurship, Lazear's theory of entrepreneurship, Career choice, Business survival, Successful entrepreneurship

Paper type Research paper

1. Introduction

Despite the large number of studies on the determinants of individual entrepreneurship, relatively little research addresses the issue of the personal characteristics that make it possible both to set up and sustain a successful business (Saridakis *et al.*, 2008; Arribas and Vila, 2007; Åstebro and Bernhardt, 2005; Boyer and Blazy, 2014). The entrepreneurship research focusses more on identifying the precursors of an entrepreneurial career. It investigates entrepreneurial skills and the experiences and knowledge that are required in the process of starting a business (Davidsson and Honig, 2003). Even more often, they look at the antecedents of entrepreneurial behaviour, like entrepreneurial motives and intentions (Krueger *et al.*, 2000; Douglas and Shepherd, 2002; Liñán and Chen, 2009; Zhao *et al.*, 2010),

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entrepreneurial attitudes (Harris and Gibson, 2008; Bosma and Schutjens, 2009) or entrepreneurial orientation (Lumpkin and Dess, 1996, 2001; Wiklund and Shepherd, 2005; Rauch *et al.*, 2009).

However, there is an obvious difference between becoming an entrepreneur and being a successful one. In this sense, it is unclear whether the same set of factors are able to explain both situations. If we were able to extract some characteristics responsible for both business set up and its successful continuation, we could better understand the core aspects of entrepreneurship but also better prepare individuals for a lasting entrepreneurial venture.

Operationalising successful entrepreneurship is a difficult task as the meaning of this concept is very broad and relative. In order to apply a measure of entrepreneurial success, one may consider, for example, the entrepreneur's self-satisfaction, company growth rate, as well as its size, market share or financial outcomes. Therefore, the measures may relate both to the individual's perception and business performance. We decided to focus on the latter, but we depart from the very primary economic sense of entrepreneurial activity – business survival – seeing it as a *sine qua non* condition of business success. Therefore, we approach entrepreneurship as a human activity and analyse it beyond the traditional view where business survival depends on framework conditions, like industries or branches, geography, innovation level or business cycle. However, business survival might be considered a proxy of successful entrepreneurship only if it is persistent. Hence, in our study, by successful entrepreneurship, we mean personally and continuously running one's own business for at least three years. We explain the reasons why we applied a rule that a business must have been run for three years in the methodological section of this paper.

We claim that paying more attention to personal-level determinants of a successful start-up and continued entrepreneurship is necessary, as both society and the economy are interested in ventures that bring real and sustained value. An overwhelming amount of research focusses on start-ups, and the dominating philosophy of innovativeness in launching new ventures shades the discussion on the characteristics needed to run a business in the long term. Therefore, we address the following question: what personal characteristics make entrepreneurial individuals able to set up and run their businesses in a continuous, i.e. successful way?

As we are interested in what makes individuals successful in setting up and running a business, we look closer at one of the most recognised theories of career choice and entrepreneurship (Hsieh *et al.*, 2017; Kurczewska *et al.*, 2020) offered by Lazear (2005) and confirmed in many other empirical studies (for example, Tegtmeier *et al.*, 2016; Åstebro and Thompson, 2011; Backes-Gellner and Moog, 2013; Hartog *et al.*, 2010; Stuetzer *et al.*, 2013; Wagner, 2003, Wagner, 2006). His theory explains individual selection into entrepreneurship. In the "jack-of-all-trades hypothesis", Lazear assumed that individuals need sufficient skills and knowledge in a variety of areas to succeed as entrepreneurs, while paid employees benefit from being specialists in a certain area that is demanded by the labour market (Lazear, 2005). Thus, the theory posits that entrepreneurs are more likely to have broader skills which are subsequently complemented by the expert competencies of their employees. In practice, this means that individuals with different skill sets and backgrounds, both in education and professional experience, who play different roles during their careers, have a greater chance of becoming entrepreneurs than individuals who follow the more predefined path of salaried employees. However, the theory is silent about the factors that make it possible to sustain a business in the longer term.

We complement Lazear's theory by questioning whether the same set of characteristics that make individuals the "jack-of-all-trades" type of entrepreneurs also enable them to run a business continuously. Consequently, the aim of this paper is to identify factors that pertain to both setting up and successfully running a business and, following Lazear, which are related to the knowledge, skills and experience of entrepreneurs. We investigate whether

variety in the educational and professional background contributes not only to the decision to become self-employed but also whether it increases the probability of becoming a long-lasting, successful entrepreneur. We hypothesise that the probability of continuing to run a company in the longer-term increases with the variety of education gained, but also with the breadth of professional experience. On our way to better understanding the factors that contribute to entrepreneurial success, we also study the level of entrepreneurial self-efficacy. Following Tegtmeier *et al.* (2016), we consider that the perception of skills is as important as the skills *per se*; therefore, they have a significant impact on entrepreneurship.

We test our hypotheses using unique data from 800 current entrepreneurs, 800 employees who were previously entrepreneurs and 842 employees with no entrepreneurial experience. This sample composition allows us not only to examine the determinants of becoming an entrepreneur but also to differentiate between entrepreneurs who managed to run a business sustainably for at least three years and individuals who had an entrepreneurial record but who are now paid employees. The hypotheses are tested by means of a logit regression to model: (1) the probability of being an entrepreneur vs only ever being a salaried employee and (2) the probability of business success vs business cessation.

This paper is structured as follows: the next section presents the theoretical considerations around successful entrepreneurship in the light of Lazear's theory. It addresses the gap in this research area and its meaning for our research in terms of hypotheses. Section 3 describes the methodology and data. It is followed by the results section, where we present and discuss our findings on successful entrepreneurship in the context of Lazear's theory. This paper ends with concluding thoughts, implications and limitations.

2. Theoretical grounding: Lazear's theory of entrepreneurship and the entrepreneurial success

The tendency to link entrepreneurship with knowledge and skills goes together with the development of the cognitive stream in the field of entrepreneurship (Mitchell *et al.*, 2007; Haynie *et al.*, 2010). However, there is still a discussion in the entrepreneurship research about the type of knowledge that an entrepreneur has to possess in order to launch a business and survive on the market. There are two opposing views on the need for expert knowledge versus the need for general knowledge. The question is should an entrepreneur be an individual with broad knowledge and a rich set of skills or an expert with a narrow specialisation and a tight focus on a particular field? Supporters of the former view emphasise that a diversified set of skills creates a complex combination which is thus difficult to imitate (Lippman and Rumelt, 1982); this helps a company gain a competitive advantage and offer more solutions to the problems that the company may encounter. The richness of skills is useful when some changes occur, and adaptations are needed or creative solutions are sought (Galunic and Rodan, 1998). Following this line of thought, the entrepreneur may not have the specific knowledge of the expert, but it is the entrepreneur who recognises the value and the opportunity of the expert's knowledge (Aldrich and Martinez, 2007). Therefore, it is the generalised knowledge of how to organise specialised knowledge that is the entrepreneur's critical resource. Moreover, broader strategies of generalists ensure survival and prospective growth. They fit in wider contexts of an uncertain environment as they are less dependent on a single type of activity.

Supporters of the role of expert knowledge in entrepreneurship argue that being a specialist equips people with a unique set of advanced tools that enable them to create the optimal solutions if a problem arises, and it helps to connect different dots when new and innovative ideas are needed. Specialists have a strategic advantage in a stable environment and narrow niche, whereas generalists are not able to occupy niches. Operating in a niche, specialists try to avoid hard competition and concentrate on the company's expertise. However, there are also voices claiming that the knowledge and skills of both generalists and specialists produce positive outcomes that are necessary for entrepreneurial success. The

reality confirms that both Steve Jobs, seen more as a generalist (trying to match technology with art and the humanities), and Bill Gates, seen more as a specialist (IT-focussed), became outstanding entrepreneurs. Therefore, more nuanced studies are needed to determine what makes an individual an entrepreneur.

One of the most recognised theories that advocate the view of entrepreneurs as generalists is the theory of entrepreneurship proposed by (Edward Lazear 2002, 2005). The theory illustrates individual selection into entrepreneurship, assuming that individuals tend to maximise their lifetime income. It is deemed to be an important extension of human capital theory (Krieger *et al.*, 2018; Saiz-Alvarez, 2019; Liang *et al.*, 2018). The theory explains that a broad set of skills and knowledge let individuals become entrepreneurs, in contrast to having more expert skills and knowledge, which is typical of specialists choosing to be salaried employees (Sorgner and Fritsch, 2018). Lazear calls entrepreneurs "jacks-of-all-trades" as they have wider (but not necessarily deep) knowledge and skills in various business areas but also broad and diverse professional experience (in different industries and different management positions). They perform numerous roles and accomplish various tasks in their life. Lazear tested the theory on Stanford alumni. The data on about 5,000 alumni included information on their postgraduate work experience and incomes, as well as the courses taken when they were students at the Stanford Graduate School of Business. In light of the results of Lazear's study, the Stanford alumni entrepreneurs had studied a more diversified curriculum than those who were employees, and they had had a greater variety of roles in their professional careers before becoming an entrepreneur. The theory was largely supported and extended by Lazear's followers, like Astebro and Thompson (2011), Backes-Gellner and Moog (2013), Hartog *et al.* (2010), Stuetzer *et al.* (2013), Aldén *et al.* (2017), Chen and Thompson (2016) or Wagner (2003, 2006), amongst others. It has been revisited from many angles and for diverse samples. For example, Strohmeyer *et al.* (2017) or Tegtmeier *et al.* (2016) explore the theory from the perspective of gender, while Wagner (2006) sees the theory's potential to explain nascent entrepreneurship.

Although they are numerous, the studies related to Lazear's theory of entrepreneurship suffer from one important shortcoming. They concentrate on the diverse factors that enable someone to become an entrepreneur, but they do not link these factors directly with entrepreneurial performance, understood as sustaining a business in the longer term. It is only implicitly assumed in Lazear's model that jacks-of-all-trades are truly more successful entrepreneurs. Individuals correctly recognise this fact and take it into account in their career choices, and hence they tend to start a business more often if they recognise themselves as having the desired profile.

This paper goes further, and directly identifies the relationship between knowledge and skill heterogeneity, with the entrepreneur's business performance being the indicator of business success. Taking into consideration of the above discussion, we directly test the validity of two hypotheses:

H1. Individuals with a broader educational and professional background are more likely to start a business.

H2. Individuals with a broader educational and professional background are more likely to run a business in a continuous way.

Both hypotheses are linked to Lazear's "jack-of-all-trades" hypothesis. The first hypothesis is closely related to the research originally put forward by Lazear (2005) and subsequently confirmed by numerous other researchers. It proposes the existence of a link between the decision to start a business and education and earlier professional experience. We included it in this study in order to validate it on our dataset and to ensure comparability with the available body of research.

The second hypothesis is the key input of our study. We test if the factors that are recognised in Lazear's theory as drivers of entrepreneurial behaviour (i.e. starting a company) also prove to be factors that drive entrepreneurial success. Verifying this hypothesis will enable us to meet the paper's aim to identify human capital factors that pertain both to setting up and successfully running a business.

Testing the above hypotheses is possible due to our unique dataset, which comprises three sub-samples: (A) paid employees with no entrepreneurial record, (B) current entrepreneurs and (C) former entrepreneurs that stopped running a business. We use business continuation (or discontinuation) as a measure of business performance. We are able to do this by examining the differences between sub-samples B and C. This contrast allows us to use business failure as an objective and ultimate measure of business performance, which considerably extends the ability to measure business performance. It needs to be stressed that we differentiate between business failure and voluntary business discontinuation. We distinguish between forced and voluntary termination in order to control for the fact that some entrepreneurs might prove to be fit for entrepreneurial activities yet voluntarily chose another career path. This enables us to analyse the impact of skills and experience on performance and separate it from the impact of professional and educational record on the individual's changing attitude towards entrepreneurship.

In the entrepreneurship literature, it is also claimed that self-efficacy can predict an individual's entry into business start-up (Zhao *et al.*, 2005; Barbosa *et al.*, 2007; Kickul *et al.*, 2009; Blume and Covin, 2011; Newman *et al.*, 2018). Self-efficacy is typically defined as "the belief in one's capabilities to organise and execute the courses of action required to manage prospective situations" (Bandura, 1995, p. 2). Lazear did not include it in his set of factors explaining entrepreneurial career. However, following Tegtmeier *et al.* (2016), in Lazear's model of entrepreneurship, the perception of skills may be just as important as the skills *per se*. Hence, next to Lazear's original idea of including a rich educational background and professional experience as factors that affect the mode of entry into entrepreneurship, to our group of factors that possibly influence the probability of someone being an entrepreneur in the long term, we also add entrepreneurial self-efficacy. We expect a positive correlation between self-efficacy and the likelihood of being a successful entrepreneur.

3. Data and methodology

3.1 Data source and sample

Data collection. Data were collected by a well-established market and opinion research institute in Poland. The initial sample was randomly selected from the pool of individuals and companies with a Polish telephone number using random digit dialling; they were then interviewed by telephone (CATI). In the process of initial filtering, surveys were administered only to adults who fell into one of the following categories: a self-employed individual, a non–self-employed individual or a non–self-employed individual who was previously an entrepreneur. In the case of company phones, the interviews only continued if the interviewee was the owner of the company. Individuals who claimed to be entrepreneurs were asked additional questions, and the interview was discontinued if they delivered services to one employer and under direct supervision. This additional filtering was applied in order to reduce (though probably not entirely eliminate) the share of pseudo-businesses that, despite having the legal form of a sole proprietorship, are de facto paid employment.

The respondents who fell into any of the four aforementioned categories and met the requirements mentioned above were further interviewed. The respondents were asked about their educational and professional track record, including formal education (secondary vocational education, studies and training), the number of jobs within their professional

career and the positions they had held. Self-employed participants and employees who were previously entrepreneurs were asked about their entrepreneurship record (the years when they started/ended their businesses, legal changes, specialisations, their overall assessment of being an entrepreneur). In the case of employees who were previously entrepreneurs, we also asked about the reasons for terminating their companies.

The use of random digit dialling as the sampling tool in our survey proved to be effective due to the sufficiently large number of entrepreneurs in Polish society. In 2017, the number of active economic entities amounted to two million enterprises (data from the Polish Statistical Office), while the adult population amounted to 30.6*m*. Due to this proportion, we did not need to use the database of enterprises and were able to effectively gather a sufficient number of interviewees randomly.

Sample. Using the described procedure, we collected 2,442 surveys. As a proxy for entrepreneurship, we use the occupational status of being self-employed – the theoretical concept applied by Lazear (2005) and many other scholars who treat self-employment as entrepreneurship (Hsieh *et al.*, 2017). Our sample includes three groups:

(1) 842 individuals who confirmed that they had never been active entrepreneurs in their professional history, regardless of the legal form of the company.

(2) 800 active entrepreneurs. During the screening procedure, we included in this group only individuals who had run a company for at least 36 months, regardless of its legal form. The choice of the minimum life span of three years was guided by the features of the Polish state system of supporting and promoting entrepreneurship. A considerable number of freshly started businesses are supported by different types of subsidies. They also pay a reduced social security contribution, which may be seen as another form of subsidy and which last up to 2.5 years. Also, according to research on Polish entrepreneurs (for example Statistics Poland, GUS), the third year is the most problematic and critical for survival, but this is also a time when the majority of public support ends. Because of this, we assumed that a business that has been run without interruption for three years or more may be truly considered to be successful.

(3) 800 former business owners. We included in this group those who were previously entrepreneurs for at least 12 months within the last 20 years and who are now paid employees. This last limitation allowed us to exclude from the sample those who had ceased their professional activity.

3.2 Empirical methods and choice of regressors

In order to directly test for the validity of both main hypotheses, we used the standard logit regression with robust standard errors and extensive robustness checks. In order to facilitate the comparability of our results with those of other researchers, as a first step, we tested Hypothesis H1. This step is a quasi-replication of the study by Lazear (2005), and its objective is to verify whether individuals with a broader educational and professional background are indeed more likely to start a company. To operationalise this claim, we used a logit regression with the dummy *start* as the dependent variable. The variable *start* takes the value of one for each individual belonging to sub-sample B or C (i.e. those who had ever decided to start a business) and 0 otherwise. After the first regression, we conducted a number of robustness tests, typically by narrowing the set of variables or by excluding some observations according to a selected filter.

In order to assess whether being a jack-of-all-trades truly facilitates business success (Hypothesis H2), we ran a second set of regressions. This time the dependent variable was the dummy *success*, which takes the value of one for each individual from group B (active,

successful entrepreneurs) and 0 otherwise (former entrepreneurs). Group A was excluded from this step of the analysis. Our initial set of regressors was identical in both regressions and was dictated by the detailed review of the literature.

Education. In our study, we measure the breadth of education with two indicators. One (*ledu*) is the highest achieved level of education, ranging from 0 (primary) to 4 (higher). The other is *stud,* which is the total number of fields studied (but not necessarily graduated from). These two indicators jointly represent the breadth of an individual's educational experience.

Breadth of professional experience. Properly assessing the breadth and variety of the professional path is a tedious task, since neither the length (in years) nor the number of positions held represent it properly. One can take several positions that result from getting promotions, but they do not indicate that the person needed to learn new skills or acquire significantly varied experience. Since our dataset included the list of positions held by the individuals, we were able to build an indicator based on the number of *different* activities they performed during their careers prior to (possibly) becoming an entrepreneur. We constructed this indicator (*zsum*) as the number of *different* types of professional activity that the individuals had been involved in during their careers. Our classification is based on the International Standard Classification of Occupations (ISCO, 2007), with modifications needed to take into account the characteristics of our sample. After a thorough analysis of the database, we manually assigned the positions held by interviewees to the following groups:

(1) Managerial positions;

(2) Professional positions, typically requiring technical higher education;

(3) Professional positions, typically requiring non-technical higher education (teachers, lawyers, psychologists, medical professionals etc.);

(4) Specialists, typically with technical secondary education or long-term experience (like jewellers, technologists or foremen);

(5) Sales professionals;

(6) Clerks;

(7) Skilled manual workers and

(8) Unskilled manual workers.

Then, for each individual, we calculated the indicator of the breadth of professional experience as the number of different groups from the above list where the interviewee has been professionally active during his or her career. For example, if an individual was employed as an engineer in different companies in a non-managerial position, he or she has $zsum = 1$, since all the activities were solely in group two. However, if the interviewee had, at some point, been promoted to manager, the value of *zsum* takes the value of 2, since now, in our view, the breadth of professional experience increased significantly and encompasses not only higher technical skills, but also managerial ones. Hence, the values of *zsum* are typically large for jacks-of-all-trades, employed in a number of different industries, while they are small (typically 1 or 2) for those who followed a narrow, highly specialised career path. In order to specifically account for the managerial experience, we also directly added the dummy variable *man,* which takes the value of 1 if the interviewee had had managerial experience during the course of his or her career and 0 otherwise.

Self-efficacy. In addition to factors that reflect an actual set of skills, we include perceived skills using entrepreneurship-based self-efficacy (ESE). The construct of self-efficacy stems from social cognitive theory, where psychosocial functioning is explained as the triadic

reciprocal causation of behaviour, personal factors (e.g. cognitions) and environmental events (Wood and Bandura, 1989). Bandura (1978) describes self-efficacy as the judgement of how successfully someone can execute actions for a specific outcome. ESE represents an individual's perception that he is able to successfully perform the tasks and roles of an entrepreneur (Chen *et al.*, 1998). In our study, we included a number of questions about perceived skills in specific areas, including finance, marketing, sales, logistics, product design and IT. In every area, the interviewees were asked to assess their competence on a 5-point Likert-type scale, where five denotes a high level of self-confidence. The first indicator of self-efficacy (*askills*) was built as a sum of all answers. The other indicator (*conf*) measures the level of general self-confidence in becoming an entrepreneur. It is a Likert-type indicator that measures if the individual agrees with two statements: "I have the character traits that make me an excellent entrepreneur" and "I have skills that (would) make me a good entrepreneur".

Determination to become an entrepreneur. During our survey, we asked a number of questions about entrepreneurial values and attitudes towards starting a business. This allowed us to build a Likert-type indicator, *determin*, that measures the extent to which being entrepreneur is perceived as a measure of success and a desirable final stage of a career. It was calculated as a sum of four indicators, each of which measured the degree to which the interviewee agreed with the following statements: "I always wanted to start a company", "Being an entrepreneur is the ultimate measure of success", "At the end of my professional life, I would like to own a company" and "Given a choice between being an employee or employer, it is better to be an employer." All answers ranged from 1-strongly agree to 5-strongly disagree.

Control variables. In line with the body of similar research, we included several control variables: *sex*, *age*, a dummy variable for having children (*kids*), as well as the age at which the individuals started their first paid job (*agew*). Since the impact of *age* on entrepreneurial activities may not be monotonous and is likely to achieve extremum (minimum or maximum) at a certain age, we decided to include this variable both in the linear and quadratic terms. Another control variable measures the overall level of social and non-professional activity (*life*). This indicator was built as the sum of areas in which an individual is active; they included volunteering, sports, political activity, charity-related activities, hobbies and religion-related activities. We also included three other dummy variables that represent factors that could influence the decision to start a business or its chances of success. The variable *abroad* takes the value of 1 if the individual, prior to starting a business, had spent at least six months abroad. The variable *surr* takes the value of 1 if someone in the close circle of family or friends had run a business, while *lect* equals unity if the individual, prior to starting a business, had taken part in any form of organised entrepreneurial training (courses, classes at school, workshops). The last control variable, *trust,* is a measure of social capital and expresses agreement or disagreement with the statement: "Most people can be trusted." Table 1 presents the descriptions and definitions of all variables used in the analysis.

Table 2 presents the basic statistics that describe the variables in our dataset – their means, standard deviations, minima and maxima.

4. Empirical results

In order to verify Hypothesis H1, that individuals with a broader educational and professional background are more likely to start a business, we ran a logistic regression with the dummy variable *start* as the dependent variable. The results are presented in column (1) in Table 3.

In our sample, the breadth of education (the variables *ledu* and *stud*) turned out to be positively correlated with the propensity to start an own business. Also, the breadth of professional experience (*zsum*) tends to be positively correlated with having an entrepreneurial

Variable	Operationalisation
Dependent variable (H1)	Dummy variable 1 – if the respondent belongs to sub-sample B or C (those who had ever decided to start a business) 0 – otherwise
Dependent variable (H2)	Dummy variable 1 – if the respondent belongs to group B (active, successful entrepreneurs) 0 – if the respondent belongs to group C (former entrepreneurs)
Sex (*sex*)	Dummy variable 1 – male 0 – female
Age (*age*)	Expressed in years and calculated using the year of birth
Age at which the individual started her first paid job (*agew*)	Expressed in years
Dummy variable for having at least one child (*kids-d*)	Dummy variable 1 – the individual has at least one child 0 – otherwise
Number of non-professional activities (*life*)	Sum of declared life activity areas such as sports, hobbies, social activities, charities, volunteering, political activity, travelling and participation in cultural/religious life
International experience (*abroad*)	Dummy variable 1 – if the respondent spent at least six months abroad prior to starting a business 0 – otherwise
Social capital (*trust*)	Dummy variable 1 – if the respondent agreed with the statement "Most people can be trusted" 0 – otherwise
Role models (*surr*)	Dummy variable 1 – if someone in the respondent's close circle of family or friends had a business 0 – otherwise
Entrepreneurial training (*lect*)	Dummy variable 1 – if the respondent had taken part in any form of organised entrepreneurial training (courses, classes at school, workshops) prior to starting a business 0 – otherwise
Highest attained level of education (*ledu*)	The highest completed level of education 0 – primary education or no education 1 – basic vocational education 2 – secondary vocational/secondary general education 3 – post-secondary education 4 – tertiary education
Number of different fields of study (*stud*)	Sum of the number of different fields of study undertaken (but not necessarily completed)
Professional experience (*zsum*)	The number of different types of professional activity that the individual had been involved in during his career
Managerial experience (*man*)	Dummy variable 1 – if the respondent had managerial experience during the course of his career 1 – otherwise

(*continued*)

Table 1.
List of variables and operationalisation

Variable	Operationalisation
Entrepreneurial self-efficacy (*askills*)	Measured as the participants' self-assessment regarding confidence in dealing with different tasks such as setting goals and planning their implementation, identifying new market opportunities, coming up with new products/services/technologies, acquiring new clients, financial management, cooperation with other people, people management, leadership, work under uncertainty or stress, crisis management on a 5-point Likert-type scale (1 = no confidence, 5 = very high confidence) The variable is calculated as the sum of self-assessment for all tasks
General self-confidence in becoming an entrepreneur (*conf*)	It is a Likert-type indicator that measures if the individual agrees with two statements: "I have the character traits that make me an excellent entrepreneur" and "I have skills that (would) make me a good entrepreneur". Answers are measured on a 5-point Likert-type scale
Determination to become an entrepreneur (*determin*)	The sum of 5-level answers (from 1-strongly agree to 5-strongly disagree) to statements like "I always wanted to start a company" or "Being an entrepreneur is the ultimate measure of success"

Table 1.

career. Therefore, Hypothesis 1 has been confirmed. The positive relationship between the breadth of professional experience and the likelihood of starting an own business is, however, non-linear. Individuals that have professional experience in up to two fields tend to be less likely start a company. This tendency is reversed between two and three fields of experience. People with many areas of professional experience (three or more) tend to start a business more often as the number of fields where they have expertise increases. The shape of the resulting *U*-shaped curve is shown in Figure 1.

Interestingly, managerial experience turned out to significantly decrease the chances of becoming an entrepreneur. In turn, the results for three variables that are supposed to measure the perception of skills are mixed. These variables include general self-efficacy (*askills*), entrepreneurial self-efficacy (*conf*), and determination to become an entrepreneur (*determin*). Being statistically significant at conventional levels, the values of point estimates of their respective coefficients are relatively low. Particularly in the case of general self-efficacy (*askills*), the calculated odds ratio amounts to 1.04, with the lower bound of 95% confidence interval barely above one. This means that, while being statistically significant, the impact of the perception of skills on chances of starting a company is limited.

Among the other regressors, sex had a surprisingly strong impact on the outcome, with men being significantly more avid entrepreneurs. Although age had a statistically significant impact, the resulting curve is relatively flat, peaking around the age of 50–55 years. The age of the first paid job tends to be negatively correlated with the dependent variable, while, on average, having children increases the chances that an individual will start a business.

As a robustness check, we ran two more regressions to confirm the invariability of the results. Column (2) of Table 3 shows repeated regression, but with successful entrepreneurs defined as those who had run a company for at least 10 years (instead of the three years assumed in the baseline regression). In turn, column (3) presents the results from a restricted model, after removing all the statistically insignificant regressors. The results are largely the same, both in terms of statistical significance and the values of the coefficients.

In order to verify the main hypothesis of our analysis, H2, according to which individuals with a broader educational and professional background are more likely to run a business in a sustainable way, we ran a second set of regressions. This time, the dependent variable in the logistic regression was the dummy variable *success*, which takes the value of 1 for active,

Variable	Mean	SD	Min	Max
Group A: Paid employees (N_A = 842)				
sex	0.31	0.462	0	1
age	42.75	11.586	20	75
agew	21.32	3.734	15	35
kids_d	0.65	0.478	0	1
Life	3.96	1.894	0	9
abroad	0.13	0.336	0	1
trust	2.74	1.064	1	5
surr	0.79	0.408	0	1
lect_x	0.38	0.486	0	1
ledu	2.42	1.015	0	4
stud	0.34	0.826	0	8
zsum	1.93	0.904	1	5
Man	0.75	0.433	0	1
Askills	24.24	5.893	8	40
conf	6.39	2.071	2	10
Determin	10.78	3.984	4	20
Group B: Successful entrepreneurs (N_B = 800)				
sex	0.67	0.471	0	1
age	45.70	11.108	18	68
agew	19.65	3.041	16	37
kids_d	0.79	0.406	0	1
life	3.87	1.745	0	9
abroad	0.21	0.405	0	1
trust	3.04	1.125	1	5
surr	0.73	0.442	0	1
lect_x	0.29	0.454	0	1
ledu	3.04	1.159	0	4
stud	0.83	0.930	0	4
zsum	1.15	1.197	0	5
man	0.52	0.500	0	1
askills	28.08	4.540	12	40
conf	8.39	1.373	2	10
determin	14.82	3.302	4	20
Group C: Unsuccessful entrepreneurs (NC = 800)				
sex	0.44	0.497	0	1
age	45.83	11.051	20	67
agew	20.92	3.580	15	36
kids_d	0.76	0.426	0	1
life	3.95	1.788	0	9
abroad	0.16	0.369	0	1
trust	2.88	1.017	1	5
surr	0.74	0.436	0	1
lect_x	0.48	0.500	0	1
ledu	2.78	1.236	0	4
stud	0.56	0.703	0	3
zsum	1.05	1.092	0	5
man	0.41	0.492	0	1
askills	25.35	5.000	8	40
conf	6.99	1.985	2	10
determin	12.00	3.843	4	20

Table 2. Basic statistics describing the variables in the dataset

	(1)	(2)	(3)
Sex (*sex*)	0.759***	0.737***	0.771***
	(0.116)	(0.120)	(0.116)
Age (*age*)	0.178***	0.159***	0.176***
	(0.0402)	(0.0409)	(0.0399)
age^2	−0.00162***	−0.00135***	−0.00159***
	(0.000428)	(0.000434)	(0.000425)
Age of first job *(agew)*	−0.0671***	−0.0624***	−0.0688***
	(0.0156)	(0.0157)	(0.0156)
Children (*kids*)	0.266**	0.296**	0.283**
	(0.130)	(0.135)	(0.129)
Non-professional activities (*life)*	0.0509	0.110	
	(0.102)	(0.106)	
$life^2$	−0.0132	−0.0181	
	(0.0124)	(0.0129)	
Foreign experience (*abroad*)	0.0708	0.0118	
	(0.150)	(0.155)	
Social capital (*trust*)	0.0582	0.0442	
	(0.0543)	(0.0565)	
Role models (*surr*)	−0.481***	−0.503***	−0.500***
	(0.133)	(0.136)	(0.131)
Entrepreneurial training (*lect*)	−0.164	−0.0896	
	(0.117)	(0.119)	
Level of education (*ledu*)	0.169**	0.156**	0.172**
	(0.0764)	(0.0737)	(0.0763)
Fields of studies (*stud*)	0.305**	0.190	0.299**
	(0.130)	(0.119)	(0.130)
Professional experience (*zsum*)	−2.161***	−2.127***	−2.151***
	(0.174)	(0.178)	(0.172)
$zsum^2$	0.408***	0.400***	0.403***
	(0.0472)	(0.0481)	(0.0469)
Managerial experience (*man*)	−1.007***	−1.022***	−1.016***
	(0.137)	(0.140)	(0.136)
Self-efficacy (*askills*)	0.0421***	0.0369***	0.0394***
	(0.0121)	(0.0123)	(0.0120)
Entrepreneurial self-confidence (*conf*)	0.120***	0.101***	0.121***
	(0.0379)	(0.0382)	(0.0373)
Entrepreneurial determination (*determin*)	0.0824***	0.0788***	0.0802***
	(0.0170)	(0.0173)	(0.0168)
Constant	−3.712***	−3.405***	−3.493***
	(1.049)	(1.069)	(1.021)
Observations	2,352	2,108	2,352

Note(s): *** p < 0.01, ** p < 0.05

Table 3.
Results of logistic regressions. Dependent variable: the probability of starting a business (H1)

successful entrepreneurs and 0 for former entrepreneurs. The results of the baseline regression are presented in column (1) of Table 4.

Amongst the variables that are the most relevant to Lazear's theory, the results are mixed. Our results confirm the importance of broad professional experience as a success factor in running a sustainable business. Figure 2 shows the non-linear shape of this relationship. It is slightly negative in the range 0–2 and begins to grow rapidly after the individual has gained professional experience in at least two areas.

On the other hand, this time, the level of education showed a negative influence on the chances of survival as an entrepreneur. This is consistent with the negative coefficient for the variable *agew*, which is the age at which an individual started his or her first paid job. At the

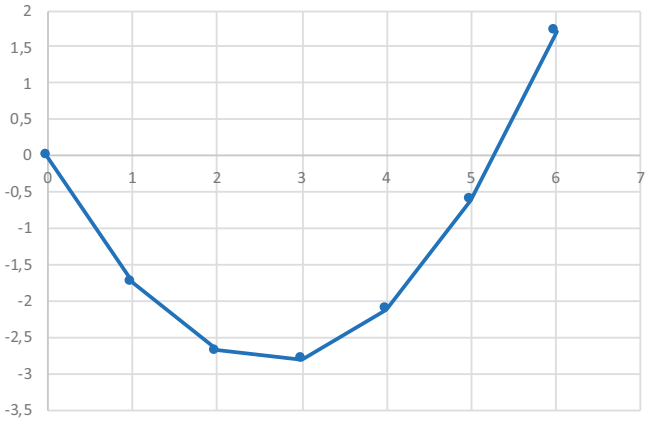

Figure 1.
Influence of the number of areas of professional experience on the likelihood of starting a business

same time, the number of fields studied has a strong and statistically significant impact on success. These three variables combined to create a picture of two groups for which the odds of success are the highest. The first group comprises individuals with only basic education, who started their paid employment earlier than average. The other comprises individuals with higher education, who had possibly studied multiple areas.

In sharp contrast to its negative role in the chances of starting a business, managerial experience (*man*) had a mildly positive, yet barely statistically significant influence on the chances of business success. Hence, our results show that while managers are less likely to start a business (possibly due to the two aforementioned counteracting sets of incentives), when they do, they do not have significantly greater chances of success than non-managers.

Both entrepreneurial self-efficacy (*askills*) and the determination to become an entrepreneur (*determin*) proved to have a statistically significant impact on the chances of business survival. This impact is similar to the one obtained from analysing the chances of starting a business, with high statistical significance but relatively low practical significance. Among the other regressors, none of the following had any significant impact on entrepreneurial success: different areas of non-work activities, living abroad, being a parent or the level of trust. This result is consistent with the analysis of the determinants of becoming an entrepreneur. Age, on the other hand, has an overall negative, albeit weak, influence on the chances of entrepreneurial success.

In order to check if the results are sensitive to some key assumptions, we applied a number of modifications to the baseline model. The results were robust to these changes. We present selected results in columns (2)–(5) of Table 4. Column (2) shows the results after removing all variables that were statistically insignificant in the baseline model. Column (3) presents the results of the baseline model, but with the definition of successful entrepreneurs narrowed down to those who had run a company during at least the previous ten years. In the regression presented in column (4), we narrowed down the definition of unsuccessful entrepreneurs. We included only those who reported that they had closed their business because of different types of difficulties. We defined as unsuccessful only those ex-entrepreneurs who had closed their companies because they reported that they were tired of firm-related obstacles, had problems with low sales or who had difficulties with employees or financial insolvency. We excluded reasons such as finding a more attractive job or a change in life values. However, since these reasons are self-reported and may relate to the distant past, these data should be treated with caution.

	(1)	(2)	(3)	(4)	(5)
Sex (*sex*)	0.646***	0.646***	0.575***	0.633***	0.674***
	(0.127)	(0.127)	(0.150)	(0.152)	(0.166)
Age (*age*)	0.0966**	0.105**	0.220***	0.0867	0.122**
	(0.0450)	(0.0447)	(0.0570)	(0.0564)	(0.0610)
age^2	−0.000918*	−0.000991**	−0.00177***	−0.000733	−0.00119*
	(0.000478)	(0.000476)	(0.000587)	(0.000595)	(0.000644)
Age of first job *(agew)*	−0.0846***	−0.0858***	−0.123***	−0.0986***	−0.0587**
	(0.0201)	(0.0199)	(0.0244)	(0.0238)	(0.0260)
Children (*kids*)	0.191		0.309	0.179	0.198
	(0.160)		(0.198)	(0.188)	(0.209)
Non-professional activities (*life)*	0.0552		0.184	0.0735	0.223
	(0.131)		(0.158)	(0.158)	(0.179)
$life^2$	−0.0154		−0.0274	−0.0185	−0.0335
	(0.0161)		(0.0189)	(0.0192)	(0.0215)
Foreign experience (*abroad*)	0.0973		0.0308	−0.0575	0.212
	(0.159)		(0.189)	(0.194)	(0.205)
Social capital (*trust*)	0.0125		−0.0210	0.0355	0.0164
	(0.0602)		(0.0721)	(0.0701)	(0.0790)
Role models (*surr*)	−0.110		−0.166	−0.0813	−0.0567
	(0.143)		(0.163)	(0.174)	(0.189)
Entrepreneurial training (*lect*)	−1.220***	−1.238***	−1.219***	−1.236***	−1.285***
	(0.136)	(0.134)	(0.159)	(0.162)	(0.177)
Level of education (*ledu*)	−0.167**	−0.166**	−0.154*	−0.216**	−0.230**
	(0.0826)	(0.0814)	(0.0918)	(0.103)	(0.108)
Fields of studies (*stud*)	0.477***	0.466***	0.382***	0.600***	0.538***
	(0.124)	(0.123)	(0.143)	(0.150)	(0.150)
Professional experience (*zsum*)	−0.394**	−0.410**	−0.440**	−0.376*	−0.242
	(0.174)	(0.174)	(0.203)	(0.213)	(0.245)
$zsum^2$	0.116**	0.120**	0.132**	0.0954*	0.0818
	(0.0468)	(0.0472)	(0.0521)	(0.0563)	(0.0664)
Managerial experience (*man*)	0.391**	0.387**	0.420**	0.349*	0.210
	(0.166)	(0.164)	(0.196)	(0.202)	(0.227)
Self-efficacy (*askills*)	0.0657***	0.0649***	0.0730***	0.0733***	0.0650***
	(0.0146)	(0.0145)	(0.0170)	(0.0181)	(0.0192)
Entrepreneurial self-confidence (*conf*)	0.327***	0.323***	0.326***	0.317***	0.352***
	(0.0435)	(0.0431)	(0.0489)	(0.0537)	(0.0584)
Entrepreneurial determination (*determin*)	0.147***	0.147***	0.160***	0.152***	0.166***
	(0.0192)	(0.0191)	(0.0222)	(0.0241)	(0.0258)
Constant	−6.934***	−6.996***	−11.09***	−6.072***	−8.486***
	(1.232)	(1.202)	(1.575)	(1.538)	(1.696)
Observations	1,510	1,510	1,266	1,129	895

Note(s): *** $p < 0.01$, ** $p < 0.05$

Table 4.
Results of logistic regressions. Dependent variable: the probability of running a successful business (H2)

In order to address the possibility that both chances of success and factors that affect them may differ by sector, we also ran a regression where we included a set of 16 sectoral dummy variables. They adopted the value of 1 if the current company (or most recent one, in the case of former entrepreneurs) is active in the given sector and 0 otherwise. The results (for brevity not reported here) were very close to those reported in column (1) of Table 4. Except for trade, where chances of success were higher than average, the other sectoral dummy variables did not have a statistically significant effect on the chances of entrepreneurial success.

Another potential weakness of our study relates to the definition of an entrepreneur. Despite our filtering procedure, one could still argue that a person that does not employ anyone is self-employed rather than a "pure" entrepreneur. In order to address this potential

concern and also as a robustness check, in column (5) of Table 4 we present the results of an additional estimation. In this analysis, the set of both active and former entrepreneurs has been narrowed down to those that employ (or employed in the last enterprise) at least one person. While this more restrictive definition decreased the sample size almost by half, it did not substantially alter the results, which supports our main conclusions.

5. Discussion

In our paper, the main objective of verifying Hypothesis H1 was to validate our dataset with the broad body of evidence that supports the original theory of Lazear (2005) and others, like Wagner (2003), Wagner (2006), Oberschachtsiek (2012), Backes-Gellner and Moog (2013) or Stuetzer *et al.* (2013). We empirically confirmed that individuals with more diverse educational and professional backgrounds indeed tended to have a greater probability of setting up a business.

The main finding of our analysis allowed us to extend this claim. We observed that individuals with a broader educational and professional background not only tend to start businesses more often but they also enjoy considerably greater chances of entrepreneurial success. According to our results, broad professional experience and managerial experience are important success factors in running a business in the longer term.

However, we also observed that the relationship between education and business survival is not so unequivocal. The level of education has a negative influence on the chances of survival as an entrepreneur, but at the same time, the number of fields studied has a strong impact on success. This finding is unexpected as numerous studies demonstrate that the entrepreneur's level of education is linked with firm survival (for example, Hay and Ross, 1989; Cooper *et al.*, 1989; Peña, 2002; Cenciarelli, 2018). The explanation could be that the higher education gained, the more specialised an individual becomes; therefore, the expert path may become a more natural labour choice, whereas general knowledge and basic skills in various fields needed to operate a company on a daily basis might be missing. However, while we may provide speculations, we do not have a compelling explanation that would make this phenomenon clear. Hence, we have decided to leave this puzzle for future studies.

When it comes to professional experience, we found another surprising result in our study. Individuals with managerial experience start their own companies less frequently than those without any. Our interpretation of this result is that at least two conflicting mechanisms are at play here. Managerial experience increases overall skills, possibly increasing the chances of entrepreneurial success. On the other hand, people with such experience may benefit from

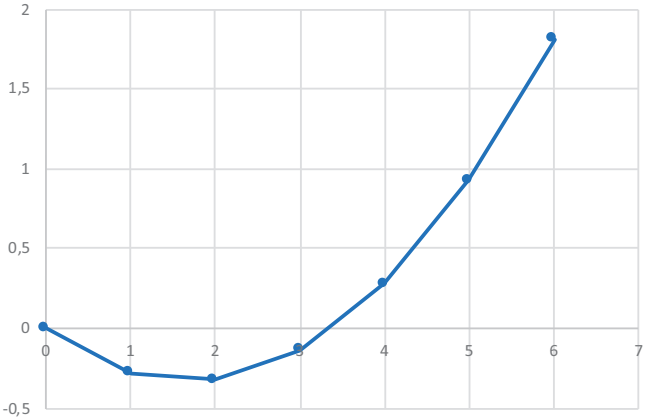

Figure 2.
Influence of the number of areas of professional experience on the likelihood of entrepreneurial success

higher salaries, which increases the alternative cost of starting a business. In our view, the latter mechanism proved to be stronger in our sample. On the other hand, having managerial experience has a mildly positive, yet close to insignificant impact on entrepreneurial success. To some extent, this is consistent with the results of the study conducted by Stuart and Abetti (1990), who found that general business management may be over-emphasised in entrepreneurship.

We found it interesting that having other active entrepreneurs in the social background proved to have a strong *negative* impact on the probability of starting a company. This result contradicts those of Schoon and Duckworth (2012), who observed that in a cohort of British individuals, having a self-employed father during adolescence significantly increased the chances of someone running a business later during their professional life. We interpret this difference as a consequence of the relatively turbulent post-transition times in Poland. While potentially profitable, running a business in the years immediately after the sociopolitical change of the 1990s was a difficult task, resulting in close friends and family being painfully aware of all the downsides of the entrepreneurial lifestyle. Also, while having entrepreneurs in their close social circle proved to have a strong deterrent effect on starting a business, it has no effect on the ability to run a successful business.

On the other hand, having previous formal training in entrepreneurship was negatively correlated with the odds of running a long-term sustainable business. This observation has at least two possible interpretations. It may result from a self-selection mechanism: individuals with lesser entrepreneurial skills may choose different forms of training that are still not sufficient to put them on a par with "natural born" entrepreneurs. Also, in Poland in recent years, the vast majority of such training was for free and massively financed from EU funds. Although we cannot present rigorous evidence for this claim, according to anecdotal evidence, such training is notorious for its low quality, focussing on rent-seeking rather than profound entrepreneurial education. This would suggest that the effect of such training diverted scarce resources, such as time, away from true entrepreneurial activities towards rent-seeking behaviour. However, our results do not allow us to say which of these possible interpretations are more likely.

6. Conclusions

The available body of research shows that people with diverse skills and experience are more likely to start a business. However, it proves less about how these characteristics influence the likelihood of further entrepreneurial success, understood as personally and continuously running one's own business. In order to address this issue, we proposed extending Lazear's model of entrepreneurship (Lazear, 2005). The aim of this paper was to identify factors related to knowledge, skills and experience of entrepreneurs that pertain to setting up and running a business successfully. To achieve that aim, we first validated Lazear's theory on our dataset and ensured comparability with the available body of research. In the next step, we tested if the factors that are recognised as drivers of entrepreneurial behaviour (i.e. starting a company) in Lazear's theory and related studies also proved to be factors that drive entrepreneurial success. To do this, we included in the research sample both successful entrepreneurs and those who ceased running their business and chose salaried work, as well as people who had only ever been salaried employees.

In light of our results, in general, individuals with more diverse educational and professional backgrounds tend to have greater chances of business start-up and entrepreneurial success. Using our extensive dataset, we confirmed Lazear's original hypothesis, that individuals with a broader educational and professional background are more likely to start a business. We were also able to extend it from merely starting a business to the area of business success. Our results showed that individuals with broader professional

experience have greater chances of business success. However, the relationship between education and business survival is not definite. The level of education has a negative influence on the chances of survival as an entrepreneur, but at the same time, the number of fields studied has a strong impact on business success.

The paper's contribution is that it provides new insight into the sources of successful entrepreneurship, in particular, those that are related to entrepreneurs' knowledge and experiences. In light of our results, broad education and professional experience not only contribute to a higher propensity to start a company but they are also success factors *per se*. Therefore, we extended prior work on career choices and entrepreneurship, in particular, Lazear's theory, by providing evidence on the role that the educational and professional path play in entrepreneurial performance, understood as business survival.

Our findings are informative and of practical value for those planning or following an entrepreneurial career. They indicate that pursuing variety in education and accumulating numerous and diverse experiences is key for both business start-up and its continuation. Attending various business events and workshops, trying different business-related activates, but also self-directed learning and a wide range of business interests should be helpful in building entrepreneurial skills and knowledge that are useful throughout the entrepreneurial process. The results might also be useful for managers planning an entrepreneurial career; although managerial experience proved to decrease the chances of becoming an entrepreneur, at the same time, it has a positive influence on the chances of business success. Our findings are also relevant for entrepreneurship education. As educators, to be able to "produce" more successful entrepreneurs, we need to create a learning environment that increases the variety and scope of skills and knowledge; we also need to expose students to diverse experiences related to the entrepreneurial career path. Moreover, as self-efficacy and determination seem to play an important role in becoming an entrepreneur and being a successful one, when teaching entrepreneurship, more focus on building individuals' beliefs in their entrepreneurial abilities and entrepreneurial attitudes is recommended. The implications may also refer to public policy. In most countries, public policy supports nascent entrepreneurship, but it relates less to any further stages of an entrepreneurial career when designing entrepreneurship-related regulations. Assuming that societies and economies need more sustainable businesses, more understanding of continued entrepreneurial success is needed to propose relevant remedies.

We acknowledge that the paper has some important limitations, mainly resulting from the choice of sample used in the study. We tested our hypotheses on individuals from the single-country setting of Poland. The study refers to one particular context; therefore, one should be careful about generalising the findings to other populations and the matter needs further validation. There might be particular characteristics of the Polish business framework conditions that influenced the respondents' answers. What may be equally disputable is the measurement of successful entrepreneurship that was applied in the study. Extending the survival period to more than three years but also referring to success in terms of business performance or the self-satisfaction of the entrepreneurs might bring more nuanced results. Likewise, an interesting idea would be to include financial results as a success measure of companies, assuming that an increase in revenues is a sign of their success. Nevertheless, this choice would be similarly disputable, since self-reported financial data are known to be of limited reliability.

Despite all these limitations, we hope that the results presented in this paper will serve as a starting point for future studies on entrepreneurial success *per se*, as well as on further extending Lazear's theory in a way that it considers the success factors of entrepreneurship. The discussion raised a few under-investigated topics related to entrepreneurship which might create interesting avenues for further exploration.

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