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Address:
The ROCKWOOL Foundation Research Unit
Ny Kongensgade 6
1472 Copenhagen, Denmark

Telephone +45 33 34 48 00
E-mail: kontakt@rff.dk
en.rockwoolfonden.dk/research/

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# Who is a successful entrepreneur, and why?*

Marek Giebel† and Anders Sørensen‡

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**Abstract**

*In this paper, we examine who becomes a successful entrepreneur and why. For this purpose, we explore the traits of a firm when it opens and the attributes of entrepreneurs themselves. To analyze these characteristics, we use data from newly incorporated and unincorporated firms in Denmark from 2001-2019 and link them to Danish register data to exploit firm and founder information. When examining who becomes an entrepreneur in the first step, we find that a meaningful model of selection into entrepreneurship cannot be formulated. Next, we investigate the population of founders and their firms. Notably, firm type is crucial for the success of new ventures. Even when a large set of covariates describing the characteristics of the founder is included, the legal form of a limited liability company (LLC) is crucial for success. We then use machine learning methods to identify founders who choose LLC as a legal form and to identify entrepreneurial success. Our results indicate that founders with an entrepreneurial background are likely to open LLCs and that choosing LLCs is crucial for success.*

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† Copenhagen Business School, Department of Economics, mg.eco@cbs.dk.
‡ The Rockwool Roundation and Copenhagen Business School, Department of Economics, as.eco@cbs.dk.

# 1 Introduction

New firms are important for economic growth (Decker et al. 2014; Levine and Rubinstein 2017; Pugsley and Sahin 2019). In this context, it is puzzling that research has shown that many businesses found in the United States are started without large growth ambitions and that benefits other than higher earnings could drive firm founding incentives (Hurst & Pugsley 2012). Although these observations might be true, successful firms exist (e.g., Pugsley et al. 2019; Sedláček & Sterk 2017). Thus, the question of where these successful firms come from arises. On the one hand, firms can be hit by shocks after being founded, which enables growth (Pugsley et al. 2019). On the other hand, initial conditions might determine the growth potential of new firms (Levine and Rubinstein 2017; Pugsley et al. 2019). Thus, ex ante heterogeneity is a key determinant of differences in employment between firms over their lifecycle (Pugsley et al. 2019). The success of firms also largely depends on their economic conditions when they are founded (e.g., Sedláček & Sterk, 2017). However, the following questions remain: who is a successful entrepreneur, and why?

In this paper, we analyze the question of where successful firms come from. Thus, we consider the traits of firms when they open and those of entrepreneurs. From the firm perspective, successful firms may be more likely to be "mature" when they open. However, successful firms may have a specific legal form that is important in itself. With respect to the traits of entrepreneurs, the question remains whether firms eventually become successful and are more likely to be opened by older entrepreneurs, whether it is important that entrepreneurs bring with them a rich job history, or whether most successful entrepreneurs learn on the job and when aging. To determine the impact of these factors, it is important to also consider the following question: What is a successful new firm? Thus, in light of the above arguments, whether success is limited to a firm's

survival could be questioned. Indeed, sales or employment levels could determine the success of newly founded firms.

We address these questions by using Danish register data, which comprise detailed information regarding founders and firms. Thus, we are able to determine the characteristics of a firm's founder and exploit firm characteristics. We begin by investigating who becomes an entrepreneur. An analysis of an extensive set of founder characteristics for the full population of potential Danish founders reveals that characteristics such as age, education, entrepreneurial experience, and wealth are drivers of entrepreneurship, but their influence is rather marginal. Thus, a strong model of selection into entrepreneurship cannot be formulated.

In the next step, we extend these considerations by analyzing the determinants of founding within the entrepreneurial population. For this purpose, we focus on the cohorts of newly started firms after the founding year in this part of the analysis. By combining regression and machine learning methods, we can determine who chooses to open limited liability companies (LLCs) or operate their firms as sole proprietors (SPs). Our results reveal that founder characteristics are important determinants of firm-type choice, as older, male, wealthier individuals with an entrepreneurial background are more likely to found incorporated firms.

Finally, we analyze who becomes a successful entrepreneur. We determine success according to several dimensions, including the probability of firm survival, employment and sales. By combining these variables with the rich set of firm and founder characteristics, we are able to determine whether the traits of a firm, its founder, or both led to firm success. From a methodological perspective, we apply simple linear regressions and more sophisticated approaches such as machine learning. Firm type is notably important for the success of new firms, even when a large set of covariates describing traits of the founder is included. The result is reinforced when

machine learning is used to identify founders who choose LLCs and the way in which this affects their entrepreneurial success.

We contribute to several strands of literature by analyzing the determinants of entrepreneurship and the success of entrepreneurial activity via a comprehensive set of Danish firm and founder characteristics. This allows us to first contribute evidence to the literature on the founder determinants of firms (e.g., Ahn and Winters 2022; Azoulay et al. 2020; Blanchflower and Oswald 1998; Hamilton 2000; Kerr et al. 2018; Kihlstrom and Laffont 1979; Vereshchagina and Hopenhayn 2009; Vladasel et al. 2021; Zhang and Acs 2018) and entrepreneurship in Denmark (e.g., Iversen et al. 2016; Malchow-Møller et al. 2011). Specifically, we show that a variety of founder characteristics are important determinants of entrepreneurship. Extending these considerations to entrepreneurial success, we add to these strands of literature that firm and founder characteristics are important success factors. By combining entrepreneur and venture characteristics, we are able to specifically emphasize the role of the firm type that is decisive for the success of newly founded ventures. In that context, we find that founding a limited liability company is highly correlated with having a successful firm. On the one hand, this contributes an important factor to the discussion about the initial heterogeneity in entrepreneurship and startup growth (e.g., Decker et al. 2014; Hurst & Pugsley 2012; Pugsley and Sahin 2019; Sedláček & Sterk 2017). On the other hand, analyzing the firm type–success relationship in detail enables us to contribute further evidence to a strand of literature that determines the impact of firm type on the success of newly founded firms (e.g., Guzman and Stern 2020; Levine and Rubinstein 2017).

The rest of this article is structured as follows: Section 2 provides a description of the data and methodology. Then, Section 3 describes the results of who becomes an entrepreneur, the choice of firm type, and success determinants. Finally, the last section, Section 4, concludes.

## 2 Data and methodology

### 2.1 Data

We use Danish register data to analyze who becomes a successful entrepreneur and why. By employing these data, we are able to combine individual characteristics with those of the respective founded firms. For the latter, we use data from newly founded firms between 2001 and 2019. Thus, we include sole proprietors (Enkeltmandsvirksomhed), public LLCs (Aktieselskab A/S), nonpublic LLCs (Anpartselskab ApS), and entrepreneurial companies (Iværksætterselskab IVS) that only existed between 2014 and 2019. Notably, "new firm" is defined on the basis of Statistics Denmark's effort to identify newly founded firms and related entrepreneurs. Thus, truly new firms are emphasized, and firms that have reopened or already operated under a different name are excluded. Shaw and Sørensen (2019) provide a more detailed description of this process. Only companies registered in the present year and subject to VAT in the private sector are included, while firms such as public and municipal entities, defense and social funds, and government-supported enterprises are excluded. This ensures that the data cover only profit-oriented active firms. To capture the latter point, firms are declared active if employment amounts to at least 0.5 FTE for one year and/or if revenues of a certain size are achieved. The revenue threshold varies according to the sector in which the firms operate to account for the respective heterogeneity.

An advantage of using Danish register data is that we can combine firm- and person-level data. Thus, we use individual-level data from 1990 to 2019. We focus on the full population between the ages of 18 and 65 who are eligible to found a firm. We use Statistics Denmark's identification of entrepreneurs to capture firm founder characteristics so that we can directly determine the founder of each focal firm.

Our extensive dataset allows us to exploit a rich set of founder-related characteristics. We first use basic personal characteristics such as age, gender, and citizenship. Next, we add information regarding the respective person's family background. We thereby consider whether the person is married and has children separately. To capture influences related to the founder's education, we add five categories, from primary school to PhD degree (primary education, secondary education, vocational training, bachelor's, and master's/PhD). Furthermore, we include a set of wealth-related measures, as these likely also influence the probability of founding and success. For this purpose, we add net wealth as the difference between a person's liabilities and assets. To reduce the influence of outlier observations and improve comparability among individuals, we scale net wealth by half of the sum of liabilities and assets, similar to applying the symmetric growth rate (e.g., Chodorow-Reich 2014). As an additional determinant related to a person's wealth, we add a variable indicating the homeownership of the focal person.

We extend these baseline person characteristics by adding labor market and experience-related information. First, we add a set of variables that capture a person's status in the previous year and include the following options: employed, self-employed, a hybrid status of being employed and a firm owner, and retired. In addition to these employment status-related variables, we add an indicator that captures whether the person has switched jobs in the last three years. Another variable that covers a person's work experience is constructed as an indicator of whether the individual has worked as CEO or in upper management. Furthermore, we cover sectoral experience by using a variable related to a person's work experience in the same industry as the firm was founded. We add a final variable that captures entrepreneurial experience in the past. The indicator for previous founding experience takes unit value if one of these conditions holds between 1990 and 2019: the person founded an 'active' firm, was a self-employed business owner

with profits greater than salary and pension, or was full-time employed and ‘self-employed’ with profits lower than salary and pension.

While we can use the variables described above to determine family relations in a narrower sense, we extend this by including further details regarding the focal person's parents. Since we can distinguish between a person’s mother and father, we add the following variables. First, we add an indicator for the mother’s and father's founding experience, which is constructed in the same way as the indicator for the focal person. To capture the parents' financial background, we add the parent’s wealth, which is constructed like that of the potential founder. This allows us to capture the potential wealth background of the founding person.

In addition to the extensive set of individual characteristics, we add firm-related variables. First, we add a set of indicators related to the business sector in which the firm operates via the 3-digit NACE classification, the region in which the firm is located, and the firm’s legal form. Additionally, we employ a dummy variable that captures whether the firm is an LLC. For this purpose, we group public and nonpublic LLCs (A/S and ApS) and entrepreneurial companies (IVS). The reference group includes SP entrepreneurs. We add firm-related variables that serve as outcome measures when determining whether an entrepreneur was successful. First, we apply an indicator variable that takes a unit value if the firm survived $n$ years after the founding year $t$ until year $t + n$. Survival is thereby indicated by the status active as defined above (i.e., at least 0.5 FTE in the respective year and/or revenue above the specified threshold value). Furthermore, we add two success measures related to sales and employment. First, we construct a dummy variable that takes a value of one if the firm is in the upper 10% of the distribution of the respective measure of the starting cohort in the $n$ years after founding. Second, we extend this definition by constructing an indicator that takes unit value if the firm stays in the upper part of the distribution over $n$ years.

## 2.2 Methodology

We want to analyze who becomes a successful entrepreneur and why. Thus, to determine how success relates to the characteristics of the firm's founder and the firm itself, we want to analyze the following relationships:

$$\text{Founder}_{ij} = f(\text{Founder characteristics}_i) \quad (1)$$

$$\text{Success}_{ij} = f(\text{Founder characteristics}_i, \text{ Firm characteristics}_j). \quad (2)$$

In Equation (1), the variable Founder takes a unit value if the respective person *i* founded a firm *j*. Whether the individual is an entrepreneur depends on a set of observable founder characteristics. We use the full population of potential founders in the first step and limit this to the founding population in the second step. In the latter, we determine the type of firm (LLC or SP) that is found by the respective entrepreneur. Next, in Equation (2), we analyze the success determinants. The indicator 'Success' represents one of the success measures described previously. The success of a firm is determined by a set of founder and firm characteristics. The latter also includes the firm type.

From a methodological perspective, we begin by applying linear regression techniques following the literature (e.g., Belenzon et al. 2017; Folta et al. 2010; Goedhuys & Sleuwaegen 2010; Reichenstein et al. 2010). This allows us to understand the conditional distribution of outcome variables given explanatory variables. Moreover, we can make point predictions by the mean or median of the conditional distribution. However, whether the modeling choices are correct from an economic and econometric perspective remains unsure. This can result in incorrect conclusions related to important determinants and false claims from a theoretical perspective.

To overcome these limitations, we extend the analysis by applying machine learning techniques for model selection and prediction (e.g., Athey & Imbens 2017; Mullainathan & Spiess 2017; Varian 2014), which have also become more important in entrepreneurship research (Coad and Srhoj 2020). Specifically, we apply two techniques that are well established in the literature. First, we use the LASSO technique to select important variables (e.g., Mullainathan & Spiess 2017; Nazemi and Fabozzi 2018). Second, we use regression trees for predictions (e.g., Varian 2014). By using these techniques, we are able to uncover generalizable patterns and determine which variables are important for determining the outcome.

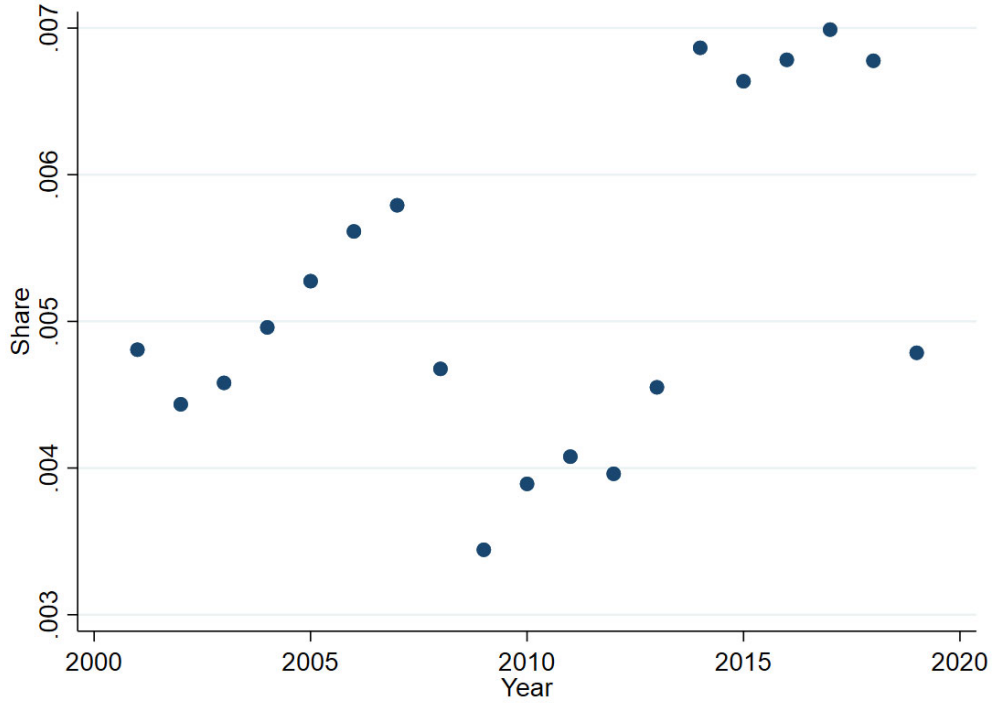
# 3 Results

## 3.1 Who becomes an entrepreneur?

We begin by analyzing who becomes an entrepreneur. To do so, we use the full population of people who are eligible to found a firm. The share of founders from 2001 to 2019 is depicted in Figure 1. We make some interesting observations regarding the pattern of creating new ventures over time. First, the average share of founders in the population varies between approximately 0.35% and 0.7%. This implies that only a minor share of less than 1% of the population engages in entrepreneurial activities. The pattern of founding over time indicates that a greater share of the population was founders until the onset of the financial crisis in 2008/2009. After this period, the average number of entrepreneurs in the population was relatively lower. In the period after 2013, the share of founders increased and remained relatively constant until 2018. Interestingly, the pattern in this period seems to continue the trend of the precrisis period, as if there has been no crisis. The share of newly founded firms decreased sharply in 2019. The pattern between 2014 and

2019 could be explained by the introduction of the new firm type of the entrepreneurial company (IVS), which made firm creation easier.

**Figure 1: Founder share (full population)**




The descriptive statistics for the full population of potential founders are shown in Table 1. It also shows the characteristics of founders and non-founders separately. The table shows that a minority of the population are actually founders. A comparison of the characteristics of the two groups shows that founders are older and are more likely to already have experience in founding firms. Moreover, they are better educated and wealthier than non-founders.

**Table 1: Descriptive statistics for founder characteristics – full population**

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | All | | Non-founders | | SP-founders | | LLC-founders | |
| | Mean | SD | Mean | SD | Mean | SD | Mean | SD |
| Age | 33.395 | (9.536) | 33.388 | (9.542) | 32.852 | (8.049) | 36.252 | (8.499) |
| Female | 0.489 | (0.500) | 0.491 | (0.500) | 0.331 | (0.470) | 0.172 | (0.377) |
| Married | 0.371 | (0.483) | 0.371 | (0.483) | 0.388 | (0.487) | 0.486 | (0.500) |
| Danish citizenship | 0.966 | (0.181) | 0.966 | (0.181) | 0.949 | (0.221) | 0.949 | (0.219) |
| Highschool degree | 0.486 | (0.500) | 0.486 | (0.500) | 0.527 | (0.499) | 0.478 | (0.500) |
| Vocational training | 0.050 | (0.219) | 0.050 | (0.218) | 0.053 | (0.223) | 0.082 | (0.274) |
| University degree | 0.031 | (0.174) | 0.031 | (0.174) | 0.029 | (0.167) | 0.041 | (0.198) |
| PhD degree | 0.218 | (0.413) | 0.218 | (0.413) | 0.206 | (0.404) | 0.274 | (0.446) |
| Has children | 0.534 | (0.499) | 0.533 | (0.499) | 0.566 | (0.496) | 0.681 | (0.466) |
| Has siblings | 1.345 | (0.996) | 1.344 | (0.996) | 1.386 | (1.053) | 1.348 | (1.003) |
| Entrepreneurial experience | 0.182 | (0.386) | 0.181 | (0.385) | 0.155 | (0.362) | 0.598 | (0.490) |
| Wage last year | 10.592 | (4.179) | 10.591 | (4.179) | 11.123 | (3.694) | 10.482 | (4.805) |
| Home owner | 0.461 | (0.498) | 0.460 | (0.498) | 0.557 | (0.497) | 0.675 | (0.468) |
| Management experience | 0.025 | (0.157) | 0.025 | (0.156) | 0.016 | (0.125) | 0.101 | (0.301) |
| Wealth last year | 0.057 | (1.340) | 0.058 | (1.341) | -0.140 | (1.242) | -0.015 | (1.103) |
| Employee last year | 0.731 | (0.443) | 0.731 | (0.443) | 0.800 | (0.400) | 0.619 | (0.486) |
| Retired last year | 0.026 | (0.159) | 0.026 | (0.160) | 0.004 | (0.060) | 0.003 | (0.053) |
| Job switch last three years | 0.872 | (0.335) | 0.871 | (0.335) | 0.900 | (0.300) | 0.918 | (0.275) |
| Entrepreneurial experience (father) | 0.332 | (0.471) | 0.331 | (0.470) | 0.421 | (0.494) | 0.476 | (0.499) |
| Entrepreneurial experience (mother) | 0.337 | (0.473) | 0.336 | (0.472) | 0.429 | (0.495) | 0.478 | (0.500) |
| Wealth last year (father) | 0.643 | (1.218) | 0.643 | (1.218) | 0.565 | (1.231) | 0.676 | (1.213) |
| Wealth last year (mother) | 0.646 | (1.341) | 0.646 | (1.341) | 0.618 | (1.343) | 0.758 | (1.273) |
| Observations | 26201895 | | 26028917 | | 91556 | | 81422 | |

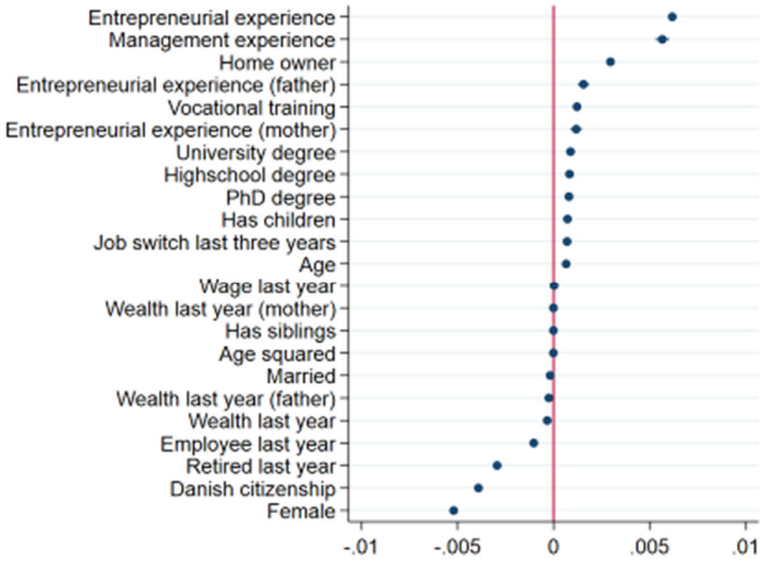
In the next step, we regress an indicator variable of whether the individual founded a firm on a set of person characteristics. The results are shown in Panels (a) and (b) of Figure 2. The related regression results are shown in Tables A3 and A4 of Appendix A. To obtain the results in Panel (a), we use the full population. We find that the entrepreneurial experience of a person, as well as that of family members, increases the probability of founding a new firm. In addition to these factors, home ownership, which might indicate higher wealth and better education, contributes positively to the founding of a new firm. Additionally, age has a positive effect on new venture creation, which points in a similar direction as the result of experience. In contrast, we find that being employed in the previous year, retirement in the previous year, and having a female gender reduce the probability of engaging in entrepreneurial activities. Regarding the size of the effects, the picture in Figure 1 has been strengthened. The impact on the probability of founding varies between an approximately -0.5% decrease for females and a 0.5% increase for individuals with entrepreneurial experience.

The results in Figure 1 and Table 1 show that many people never consider becoming entrepreneurs. This motivated us to construct a sample of individuals with a "nonzero probability" of becoming entrepreneurs (Figure 2, Panel (b)). We construct these counterfactual founders from the pool of potential founders and use an indicator for founding a firm in the next year, three years, or five years as an outcome variable. We use individual characteristics three years prior as explanatory variables. This allows us to create three samples that include the actual founders and individuals with more than a 1% probability of founding a firm. The results when the analysis is repeated for the subsamples are shown in Figure 2, Panel (b). They are similar to those before but increase slightly in terms of the size of the coefficients. Interestingly, we observe that the effect of

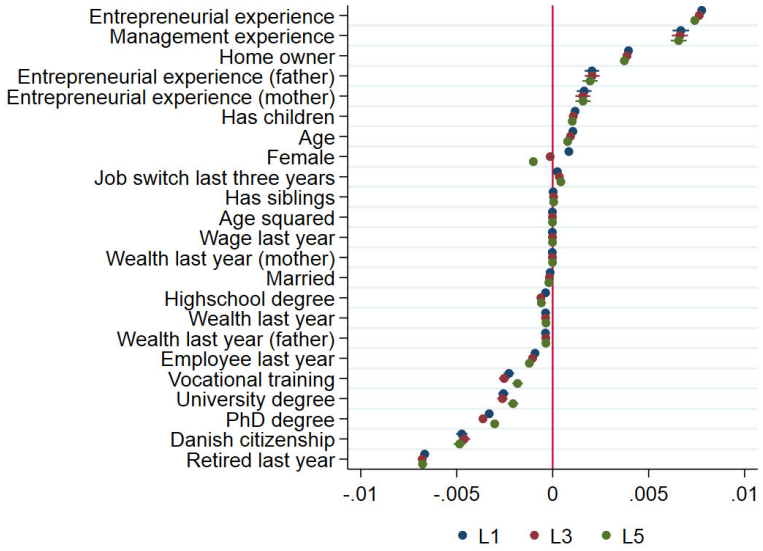
gender varies according to the chosen sample. Moreover, the effect of education is much lower, or even negative, than previously reported.

**Figure 2: Founder determinants**

(a) Full population determinants




(b) Counterfactual founder determinants




*Notes*: The figure shows the results of regressing a founder dummy variable on founder determinants. In Panel (a), all non-founders are considered. In Panel (b), subpopulations of non-founders are constructed that have at least a 1% probability of founding a firm in the next year (L1), the next three years (L3), or the next five years (L5). The corresponding regression results for constructing the counterfactual founders are shown in Appendix A, Table A4. The corresponding estimation results for Panels (a) and (b) are shown in Appendix A, Table A3. The horizontal lines indicate 95% confidence intervals.

In summary, we find that it is difficult to obtain a good selection model for entrepreneurship. Very few variables have explanatory power, so it is impossible to predict who will become an entrepreneur. The exercise with the constructed counterfactual founders shows a pattern that is similar to that of the full population. Consequently, even with this restricted sample, it is very difficult to predict anything.

### 3.2. Choice of firm type/legal form

In the next step, we analyze the determinants of founded firms by type over time by restricting the sample of individuals to the population of entrepreneurs in our database. In this regard, Figure 3 shows the institutional relationship of firm types over time (Panel (a)) and the actual founded share of firms for each firm type (Panel (b)). First, the depicted pattern in Panel (a) indicates that there is some heterogeneity related to the costs of new venture foundations. The cost of creating an SP firm is zero, in contrast to the nonzero costs of founding an LLC firm. Notably, this is, among other things, related to the fact that an LLC firm comes with downside insurance. This amenity of LLCs is counteracted by, for example, higher administrative costs such as higher reporting requirements than SPs. The graph indicates that the costs of forming an LLC decreased gradually over time. Thus, starting at 125,000 DKK until 2009, the costs were lowered to 50,000 DKK between 2014 and 2019. In the same time horizon, the entrepreneurship company was introduced. What becomes evident from the graph is that this company costs only 1 DKK. At the same time, however, it has similar amenities to LLCs and comparable nonmonetary costs. A distinct characteristic is that the founder is supposed to add equity to the firm until the usual capital requirement for an LLC is reached to finally transform it into a public (A/S) or nonpublic LLC (ApS).

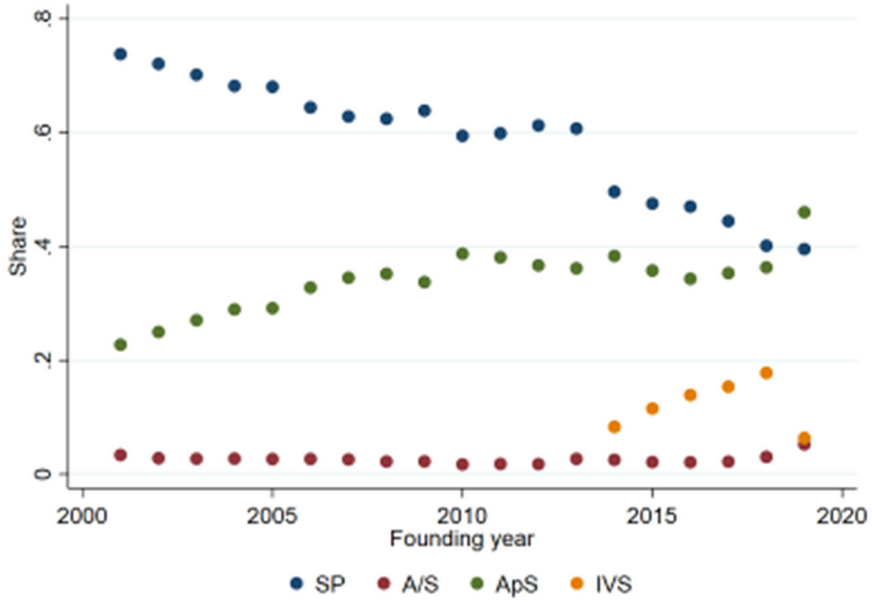
The pattern of newly founded firms in Panel (b) of Figure 2 indicates the following. The share of sole proprietors (SP) decreased over time from approximately 75% in 2001 to approximately 40% in 2019. This might be strongly related to the fact that other firm types became preferred. The increase in ApS firms (nonpublic LLC) in the population coincides with the decrease in costs for this firm type. Interestingly, when the IVS type was introduced in 2014, the share of ApS firm foundations remained relatively constant. At the same time, however, the share of SPs notably decreased. Both patterns can be explained by the introduction of the IVS firm type, which experienced an increase in adoption until 2019, when it was abolished.

To better understand the characteristics of firm founders, we begin by comparing the means of entrepreneurs of the different types and periods in Table 2. What becomes evident in the comparison of the means of SP and LLC founders is that the latter are, on average, older and less likely to be female. With respect to family background, individuals who create a new limited liability company are more likely to be married and have children. This might highlight the importance of downside insurance since these persons might be less inclined to take risks. Moreover, the figures suggest that LLC founders are slightly better educated and are more likely to have experience than SP founders are. Regarding wages, the comparison suggests that LLC founders are wealthier than their SP founding counterparts but earned a lower wage in the last year before founding the new firm.

**Figure 3: Share of newly founded firms by type over time**

(a) Firm types and founding costs


(b) Share of firm types over time



## Table 2: Descriptive statistics for founder characteristics

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SP until 2009 | | LLC until 2009 | | SP 2010-2013 | | LLC 2010-2013 | | SP 2014-2019 | | LLC 2014-2019 | |
| | Mean | SD | Mean | SD | Mean | SD | Mean | SD | Mean | SD | Mean | SD |
| Age | 32.550 | (7.147) | 35.419 | (6.848) | 34.500 | (8.188) | 37.621 | (7.581) | 36.699 | (8.508) | 39.257 | (8.106) |
| Female | 0.325 | (0.468) | 0.145 | (0.352) | 0.369 | (0.483) | 0.163 | (0.369) | 0.393 | (0.488) | 0.179 | (0.383) |
| Danish citizenship | 0.959 | (0.198) | 0.978 | (0.145) | 0.943 | (0.231) | 0.956 | (0.204) | 0.950 | (0.217) | 0.934 | (0.247) |
| Highschool degree | 0.552 | (0.497) | 0.530 | (0.499) | 0.505 | (0.500) | 0.482 | (0.500) | 0.478 | (0.500) | 0.448 | (0.497) |
| Vocational training | 0.052 | (0.222) | 0.087 | (0.281) | 0.056 | (0.230) | 0.085 | (0.279) | 0.055 | (0.227) | 0.082 | (0.275) |
| University degree | 0.022 | (0.145) | 0.030 | (0.171) | 0.034 | (0.181) | 0.032 | (0.176) | 0.029 | (0.168) | 0.035 | (0.183) |
| PhD degree | 0.176 | (0.381) | 0.228 | (0.419) | 0.260 | (0.439) | 0.279 | (0.449) | 0.316 | (0.465) | 0.321 | (0.467) |
| Married | 0.451 | (0.498) | 0.561 | (0.496) | 0.483 | (0.500) | 0.589 | (0.492) | 0.508 | (0.500) | 0.584 | (0.493) |
| Has children | 0.687 | (0.464) | 0.786 | (0.410) | 0.745 | (0.436) | 0.853 | (0.354) | 0.880 | (0.325) | 0.930 | (0.254) |
| Has siblings | 1.416 | (1.069) | 1.363 | (0.968) | 1.384 | (1.042) | 1.349 | (1.011) | 1.343 | (1.003) | 1.362 | (1.038) |
| Entrepreneurial experience | 0.154 | (0.361) | 0.603 | (0.489) | 0.135 | (0.341) | 0.659 | (0.474) | 0.167 | (0.373) | 0.675 | (0.468) |
| Entrepreneurial experience (father) | 0.389 | (0.488) | 0.429 | (0.495) | 0.429 | (0.495) | 0.465 | (0.499) | 0.451 | (0.498) | 0.492 | (0.500) |
| Entrepreneurial experience (mother) | 0.396 | (0.489) | 0.430 | (0.495) | 0.440 | (0.496) | 0.466 | (0.499) | 0.463 | (0.499) | 0.494 | (0.500) |
| Wealth last year (father) | 0.594 | (1.240) | 0.787 | (1.197) | 0.587 | (1.213) | 0.724 | (1.207) | 0.605 | (1.208) | 0.685 | (1.208) |
| Wealth last year (mother) | 0.654 | (1.374) | 0.883 | (1.284) | 0.595 | (1.325) | 0.807 | (1.256) | 0.623 | (1.299) | 0.761 | (1.267) |
| Wage last year | 11.155 | (3.580) | 9.964 | (5.093) | 11.296 | (3.664) | 10.326 | (5.045) | 11.400 | (3.779) | 10.892 | (4.688) |
| Home owner | 0.616 | (0.486) | 0.757 | (0.429) | 0.605 | (0.489) | 0.747 | (0.434) | 0.651 | (0.477) | 0.745 | (0.436) |
| Wealth last year | -0.202 | (1.172) | -0.018 | (1.004) | -0.181 | (1.154) | -0.076 | (0.997) | -0.129 | (1.113) | -0.068 | (0.997) |
| Management experience | 0.014 | (0.117) | 0.071 | (0.256) | 0.022 | (0.146) | 0.115 | (0.319) | 0.027 | (0.163) | 0.130 | (0.336) |
| Industry experience last three years | 0.097 | (0.296) | 0.108 | (0.310) | 0.409 | (0.492) | 0.398 | (0.489) | 0.382 | (0.486) | 0.351 | (0.477) |
| Job switch last three years | 0.595 | (0.491) | 0.608 | (0.488) | 0.533 | (0.499) | 0.501 | (0.500) | 0.486 | (0.500) | 0.490 | (0.500) |
| Employee last year | 0.817 | (0.386) | 0.593 | (0.491) | 0.811 | (0.391) | 0.599 | (0.490) | 0.808 | (0.394) | 0.633 | (0.482) |
| Retired last year | 0.003 | (0.052) | 0.002 | (0.041) | 0.003 | (0.059) | 0.003 | (0.053) | 0.003 | (0.055) | 0.004 | (0.060) |
| Observations | 44000 | | 23343 | | 13541 | | 11615 | | 12958 | | 21315 | |

In the next step, we adjust Equation (2) by regressing a dummy variable for founding an LLC firm on individual characteristics. Again, we restrict this analysis to the sample of founders in the population. The results are shown in Panels (a) and (b) of Figure 4. The related regression results are shown in Tables A5 and A6 of Appendix A. They largely confirm the more descriptive findings before. In Panel (a) of Figure 4, we show the characteristics of LLC founders by pooling nonpublic and public LLCs into one category. The estimates suggest that more experienced and better-educated individuals are more likely to found an LLC. Interestingly, wealth and age also contribute positively to the likelihood of forming an LLC-type firm. The estimates do not support the claim that married persons and those with children are more likely to be founders of a limited liability company. The factors that reduce the probability of creating an LLC are having a female gender and being employed in the previous year. Furthermore, we distinguish LLCs into public and nonpublic to determine whether one subtype might drive the effects. The results of this exercise are shown in Panel (b) of Figure 4. The estimates suggest that the effects for nonpublic LLCs are similar to the pooled LLC effects in Panel (a). For nonpublic LLCs, the coefficients point in the same direction. However, they are much smaller in magnitude.

Finally, we utilize a machine learning approach to analyze which characteristics could be good predictors of whether an individual chooses the LLC firm type. From a methodological perspective, we begin by selecting variables that are important determinants of the founding of an LLC-type firm. We follow three approaches in that regard. First, we pick the variables with the highest coefficients in absolute terms in the regressions discussed above. Second, we apply the LASSO technique and use the variables that first enter the model when the algorithm is performed to find the optimum that have the highest explanatory power in the model. Finally, we use ad hoc variables that could be assumed to influence the LLC foundation from a theoretical perspective.

The variables determined in the processes are entrepreneurial experience, managerial experience, and employment in the last period for the first two approaches. For the ad hoc variables, we determined that age, gender, and entrepreneurial experience were important (e.g., Azoulay et al. 2020; Shaw and Sørensen 2019). The variables chosen in each approach are summarized in Appendix A, Table A1.

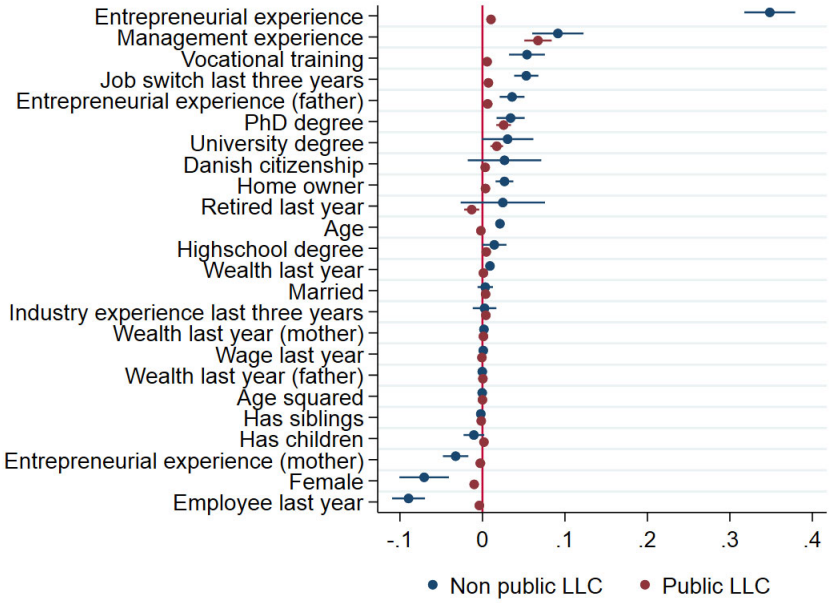
In the second step, we apply these to a regression tree technique to obtain predictions. The tree is depicted in Figure 5, which shows that entrepreneurial experience is the first decision variable that is followed by gender. Age is important only when an individual has no entrepreneurial experience and is not female. The predictions at the bottom of the tree indicate that the LLC share is approximately 62% for females and 82% for males in the population share with entrepreneurial experience. For the share without experience, the predicted probability of forming an LLC is between 20 and 24% and, thus, much lower. Within this part of the tree, females without entrepreneurial experience are approximately 20% likely to form an LLC, and males older than 27 without entrepreneurial experience are predicted to create an LLC with a 34% likelihood.

In summary, we find that the predictors of forming an LLC with the highest coefficient are age, gender, entrepreneurial experience, and education. When we apply a machine learning approach to obtain further insights, we find that important selected predictors are entrepreneurial background, management experience, and gender. Consequently, founder characteristics are important determinants of firm-type choice. Older and male individuals who are wealthier and have an entrepreneurial background are more likely than other individuals to found an incorporated firm.

**Figure 4: Determinants of newly founded firms by type**

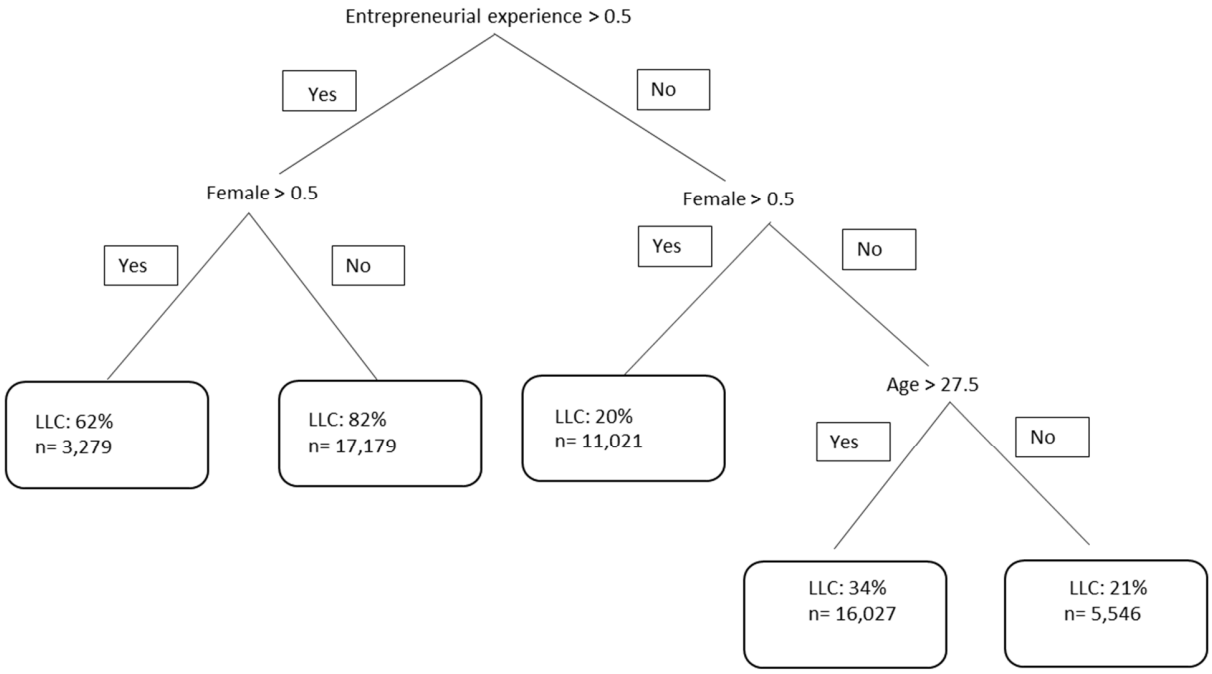
(a) Pooled LLC type


(b) Public and nonpublic LLC




*Notes*: The figure shows the results of regressing an LLC (limited liability corporation) dummy variable on founder determinants. The horizontal lines indicate 95% confidence intervals. The corresponding estimation results are shown in Appendix A, Tables A5 and A6.

**Figure 5: Regression tree – Determinants of LLC firm type**

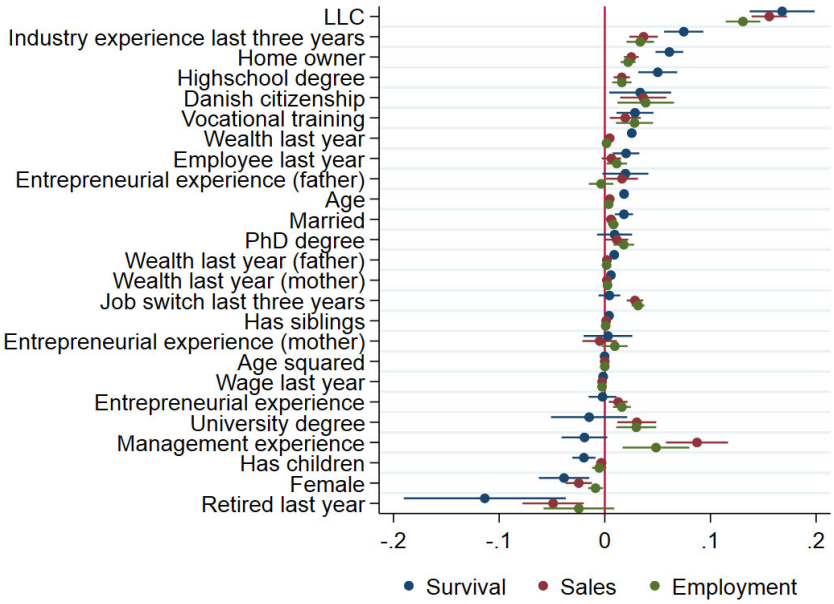



### 3.3. Who becomes a successful entrepreneur?

In the last part of our analysis, we determine who becomes a successful entrepreneur. For this purpose, we have to first determine what the success of a firm actually is. Thus, we distinguish success in two states. The first is at the extensive margin, that is, whether the firm survives. We consider a firm successful if it survives the $n$-th year of its existence and if it survives over time. This information is useful for determining yes–no success, but unfortunately, it does not indicate the degree of success. Thus, at the intensive margin, we consider how successful a firm is relative to the other firms in the same cohort. For this purpose, we define a firm as successful if it is in the top 10% of the distribution of sales or employment. By using these two pieces of information, we can to determine which individual and firm characteristics drive the success of newly founded ventures.

The results when the success indicators are regressed on individual- and firm-level characteristics according to Equation (2) are shown in Figure 6. As shown in the first view, factors affecting firm survival also affect whether the firm is doing well in terms of sales and exports. Thus, firms that are founded as LLCs increase the probability of success to a large degree. Moreover, the results indicate that experience and wealth are among the variables that play a role in firm success. Interestingly, prior entrepreneurial experience is positively associated with being at the top of the distribution of sales and employment but seems to have a negligible effect on firm survival. Higher degrees of education positively affect the probability of success and have a minor effect on firm survival, if at all. A similar observation is made for management experience.

**Figure 6: Determinants of firm success**

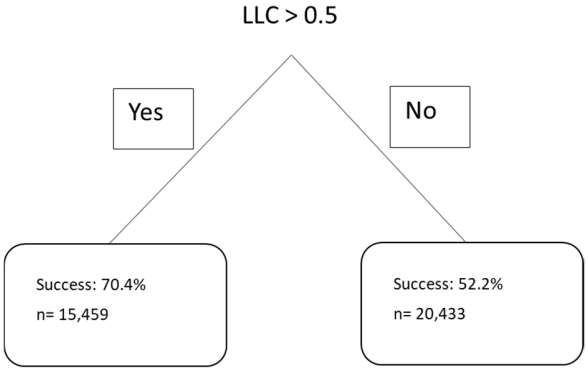



*Notes*: The figure shows the results of regressing success indicators (survival, sales, and employment) on founder determinants. The success determinants are either an indicator for the survival of the firm three years after its establishment, being in the top 10 of the distribution of sales, or being in the top 10% of the distribution of employment. The horizontal lines indicate 95% confidence intervals. The corresponding estimation results are shown in Appendix A, Table A7.

Given that the extended correlations discussed above might suggest limited evidence on the factors that actually predict success, we extend the analysis via a machine learning exercise. We

follow the same approach as in Section 3.2 and use various variable selection approaches and regression trees afterward. Thus, we first determine the most important characteristics for each success measure via the regression approach discussed above, the LASSO technique, and an ad hoc procedure. The set of variables that we determine via these procedures includes the LLC dummy, the homeownership variables, experience related to industry and management, and Danish citizenship. For the ad hoc procedure, we rely on a similar set of variables as in Section 3.2: age, gender, and the LLC indicator. The variables chosen in each approach are summarized in Appendix A, Table A2. In the following step, we use these variables in a regression tree framework to determine the most important determinants and predict success. Surprisingly, in all cases, the regression tree boils down to a choice of founding an LLC firm or not. When the founder chooses the LLC type, the success probability is approximately 70%. This is comparably higher than the success probability for the non-LLC types, which is approximately 52%, see Figure 7.

**Figure 7: Regression tree – Determinants of success**




In the final step of the analysis, we focus on the persistency of success for entrepreneurs. This is rooted in the fact that it remains questionable whether a firm survives over time and how successful firms are over time. Thus, it is particularly important to determine whether success is a persistent pattern or just a one-time observation. We use an adjusted version of Equation (2) to analyze the

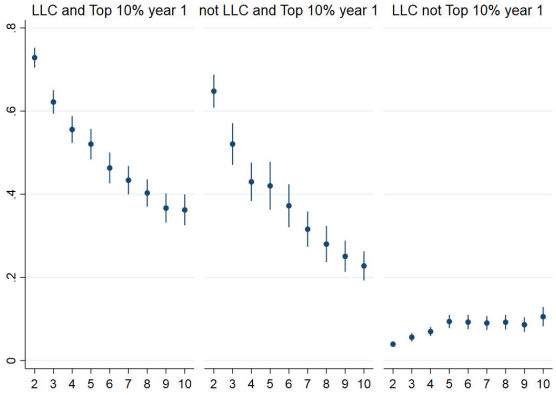
question of success persistency. Specifically, we add and interact the LLC dummy variable with an indicator variable capturing the success of the firm in the first year after its start. This allows us to determine the relative success probability in the years after the first firm year conditional on being an LLC-type firm and success in the first year. Thus, success in period $t + 1$ and LLC serve as predictors for success in period$t + n$.

The results of this exercise are shown in Figure 8, Panels (a) to (c). The patterns are similar for the outcome variables survival, sales, and employment. Thus, being successful in the first year implies a higher probability of being successful in the following years. Interestingly, firms that open as LLCs have a greater probability of success in future years than do firms that do not open as LLCs. This holds true for firms that are initially not successful in the first year and those that are not. For the probability of survival and sales, there is also a small increase in the probability of success visible for firms that open as LLCs and are not initially successful. This underlines the finding above that the LLC type is a strong predictor of success.

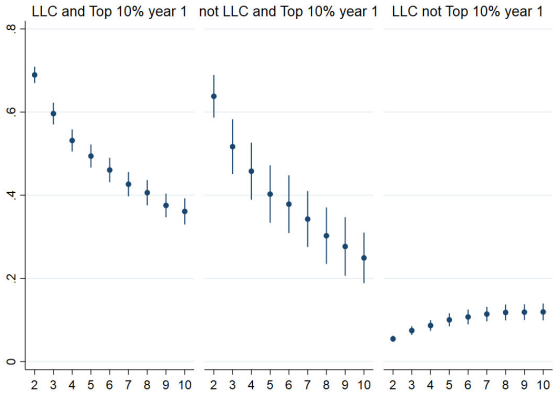
In summary, firm type is notably important for the success of new firms, even when a large set of covariates describing traits of the founder is included. We used machine learning methods to identify founders that choose an LLC and to identify entrepreneurial success. We find that founders with prefounding experience give rise to opening as LLCs and that the choice of LLC is crucial to success, so we focus on three outcome variables: survival and being in the top decile of the sales and employment distribution of the same founding cohort. When we analyze these outcomes after three years, we show that LLC is the main predictor of success. Thus, knowledge about who selects to found an LLC implies knowledge about who will be successful. We make the same observation when we analyze the persistence of success. Thus, LLCs are more likely to remain successful.

**Figure 8: Share of newly founded firms by type over time**

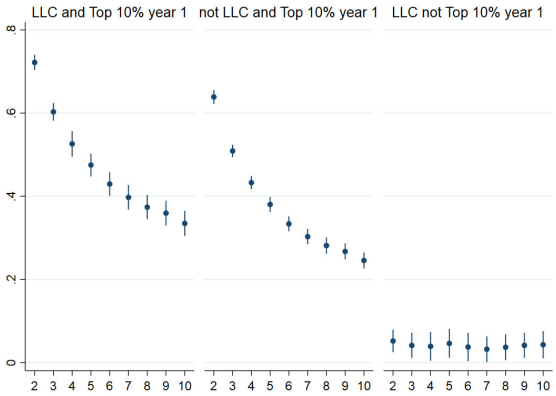
(a) Survival




(b) Sales




(c) Employment




*Notes*: The figure shows the results of regressing success indicators (survival, sales, and employment) on founder determinants, an LLC indicator and success in the first year after the firm was founded. The success determinants are either an indicator for the survival of the firm three years after its establishment, being in the top 10 of the distribution of sales, or being in the top 10% of the distribution of employment. The horizontal lines indicate 95% confidence intervals. The corresponding estimation results are shown in Appendix A, Table A8.

## 4 Conclusion

In this paper, we explore the traits of firms when they open and the attributes of entrepreneurs themselves. For this purpose, we use data from newly founded firms in Denmark in the period 2001-2019 and link them to Danish register data to exploit firm and founder information. This leads to three main results. First, an analysis of who becomes an entrepreneur indicates that it is not possible to formulate a strong model of selection into entrepreneurship. We find that a variety of factors play a role in individuals' founding decisions. However, the individual contribution of these factors to the probability of creating a new venture is marginal, if at all. Second, when we analyze the population of founders, we find that founder characteristics are important determinants of firm type choice. Thus, entrepreneurial experience, education, wealth, and gender in particular are important factors determining whether a person chooses to open as an LLC. Relatedly, our third result shows that firm type is notably important for the success of new ventures. We find not only that opening as an LLC is correlated with greater success but also that it is positively associated with its persistence over time.

Our results have important implications for policymakers, individuals, and firms. First, for policymakers, our results imply that individuals are highly sensitive to creating new firms if these are LLCs. Thus, downward insurance might be an important factor that drives the decision. Policymakers might focus on important determinants that could be possible entry criteria, such as capital requirements. Second, our analysis implies that various factors are important for individuals regarding founding a successful firm. Among the most prevalent characteristics are experience with founding, education, and wealth. However, the initial choice of the firm type is among the most important factors affecting a new venture's success. Finally, for investors and banks, our analysis implies that there are a variety of factors that can affect the success of a newly founded

firm. Although individual characteristics play an important role, the firm type is the most decisive. Thus, credit institutes and investors should be particularly attentive to the type of newly founded firms.

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## Appendix A – Additional tables

Table A1: Variable choice for the regression trees – LLC determinants

| **Outcome variable** | **LLC** |
|---|---|
| **Variable selection approach** | |
| **LASSO** | Entrepreneurial experience<br>Managerial experience<br>Employee in t-1 |
| **Regression** | Entrepreneurial experience<br>Managerial experience<br>Employee in t-1 |
| **Ad hoc** | Entrepreneurial experience<br>Age<br>Gender |

Table A2: Variable choice for the regression trees – success

| Outcome variable | Survival | Sales | Employment |
|---|---|---|---|
| **Variable selection approach** | | | |
| **LASSO** | LLC | LLC | LLC |
| | | Management experience | Home owner |
| | | Home owner | Industry experience |
| **Regression** | LLC | LLC | LLC |
| | Industry experience | Management experience | Management experience |
| | Retired in t-1 | Retired in t-1 | Danish citizenship |
| **Ad hoc** | LLC | LLC | LLC |
| | Age | Age | Age |
| | Gender | Gender | Gender |

Table A3: Founder determinants

| | (1) | (2) | (3) |
|---|---|---|---|
| | Firm founder yes-no | LLC founder yes-no | SP founder yes-no |
| Age | 0.001*** | 0.000*** | 0.000*** |
| | (0.000) | (0.000) | (0.000) |
| Age squared | -0.000*** | -0.000*** | -0.000*** |
| | (0.000) | (0.000) | (0.000) |
| Female | -0.005*** | -0.003*** | -0.002*** |
| | (0.000) | (0.000) | (0.000) |
| Married | -0.000*** | 0.000 | -0.000*** |
| | (0.000) | (0.000) | (0.000) |
| Danish citizenship | -0.004*** | -0.002*** | -0.002*** |
| | (0.000) | (0.000) | (0.000) |
| Has children | 0.001*** | 0.001*** | 0.000*** |
| | (0.000) | (0.000) | (0.000) |
| Highschool degree | 0.001*** | 0.000*** | 0.000*** |
| | (0.000) | (0.000) | (0.000) |
| Vocational training | 0.001*** | 0.001*** | -0.000 |
| | (0.000) | (0.000) | (0.000) |
| University degree | 0.001*** | 0.001*** | -0.000 |
| | (0.000) | (0.000) | (0.000) |
| PhD degree | 0.001*** | 0.001*** | 0.000 |
| | (0.000) | (0.000) | (0.000) |
| Entrepreneurial experience | 0.006*** | 0.008*** | -0.002*** |
| | (0.000) | (0.000) | (0.000) |
| Wage last year | 0.000*** | 0.000*** | -0.000 |
| | (0.000) | (0.000) | (0.000) |
| Home owner | 0.003*** | 0.002*** | 0.001*** |
| | (0.000) | (0.000) | (0.000) |
| Management experience | 0.006*** | 0.007*** | -0.002*** |
| | (0.000) | (0.000) | (0.000) |
| Wealth last year | -0.000*** | -0.000*** | -0.000*** |
| | (0.000) | (0.000) | (0.000) |
| Employee last year | -0.001*** | -0.001*** | 0.000*** |
| | (0.000) | (0.000) | (0.000) |
| Retired last year | -0.003*** | -0.001*** | -0.002*** |
| | (0.000) | (0.000) | (0.000) |
| Job switch last three years | 0.001*** | 0.001*** | -0.000*** |
| | (0.000) | (0.000) | 0.000*** |
| Has siblings | -0.000 | -0.000*** | (0.000) |
| | (0.000) | (0.000) | 0.000*** |
| Entrepreneurial experience (father) | 0.002*** | 0.001*** | (0.000) |
| | (0.000) | (0.000) | 0.001*** |
| Entrepreneurial experience (mother) | 0.001*** | -0.000 | (0.000) |
| | (0.000) | (0.000) | -0.000*** |
| Wealth last year (father) | -0.000*** | -0.000*** | (0.000) |
| | (0.000) | (0.000) | -0.000 |
| Wealth last year (mother) | -0.000 | 0.000 | (0.000) |
| | (0.000) | (0.000) | 0.002*** |
| Constant | -0.001** | -0.002*** | (0.000) |
| | (0.000) | (0.000) | 0.000*** |
| R-squared | 0.004 | 0.007 | 0.001 |
| Number of observations | 2.28e+07 | 2.27e+07 | 2.27e+07 |

*Notes*: Robust standard errors are shown in parentheses. Significance: *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table A4: The probability of being a founder

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | Firm founder yes-no | | | |
| | Baseline | p(founder>0.01) calculated in | | |
| | | t-1 | t-3 | t-5 |
| Age | 0.001*** | 0.001*** | 0.001*** | 0.001*** |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Age squared | -0.000*** | -0.000*** | -0.000*** | -0.000*** |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Female | -0.005*** | 0.001*** | -0.000* | -0.001*** |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Married | -0.000*** | -0.000* | -0.000** | -0.000*** |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Danish citizenship | -0.004*** | -0.005*** | -0.005*** | -0.005*** |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Highschool degree | 0.001*** | -0.000*** | -0.001*** | -0.001*** |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Vocational training | 0.001*** | -0.002*** | -0.003*** | -0.002*** |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| University degree | 0.001*** | -0.003*** | -0.003*** | -0.002*** |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| PhD degree | 0.001*** | -0.003*** | -0.004*** | -0.003*** |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Has children | 0.001*** | 0.001*** | 0.001*** | 0.001*** |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Has siblings | -0.000 | 0.000 | 0.000 | 0.000* |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Entrepreneurial experience | 0.006*** | 0.008*** | 0.008*** | 0.007*** |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Wage last year | 0.000*** | -0.000* | -0.000 | -0.000 |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Home owner | 0.003*** | 0.004*** | 0.004*** | 0.004*** |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Management experience | 0.006*** | 0.007*** | 0.007*** | 0.007*** |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Wealth last year | -0.000*** | -0.000*** | -0.000*** | -0.000*** |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Employee last year | -0.001*** | -0.001*** | -0.001*** | -0.001*** |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Retired last year | -0.003*** | -0.007*** | -0.007*** | -0.007*** |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Job switch last three years | 0.001*** | 0.000*** | 0.000*** | 0.000*** |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Entrepreneurial experience (father) | 0.002*** | 0.002*** | 0.002*** | 0.002*** |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Entrepreneurial experience (mother) | 0.001*** | 0.002*** | 0.002*** | 0.002*** |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Wealth last year (father) | -0.000*** | -0.000*** | -0.000*** | -0.000*** |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Wealth last year (mother) | -0.000 | -0.000 | -0.000 | -0.000 |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Constant | -0.001** | -0.008*** | -0.005*** | -0.002*** |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| R-squared | 0.004 | 0.004 | 0.004 | 0.004 |
| Number of observations | 2.28e+07 | 1.62e+07 | 1.63e+07 | 1.63e+07 |

*Notes*: Robust standard errors are shown in parentheses. Significance: *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table A5: Determinants of founding an LLC-type firm

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| | Full sample | | | Category vs. SP | |
| | LLC | | | LLC | |
| | Any | Non public | Public | Non public | Public |
| Age | 0.019*** | 0.021*** | -0.002*** | 0.019*** | -0.001 |
| | (0.002) | (0.002) | (0.001) | (0.002) | (0.001) |
| Age squared | -0.000*** | -0.000*** | 0.000*** | -0.000*** | 0.000 |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Female | -0.081*** | -0.071*** | -0.010*** | -0.078*** | -0.026*** |
| | (0.016) | (0.015) | (0.001) | (0.015) | (0.004) |
| Danish citizenship | 0.030 | 0.027 | 0.003 | 0.029 | 0.015*** |
| | (0.022) | (0.023) | (0.002) | (0.022) | (0.004) |
| Highschool degree | 0.019** | 0.014* | 0.005*** | 0.018** | 0.008*** |
| | (0.008) | (0.007) | (0.002) | (0.008) | (0.002) |
| Vocational training | 0.060*** | 0.054*** | 0.006** | 0.059*** | 0.015** |
| | (0.012) | (0.011) | (0.003) | (0.012) | (0.006) |
| University degree | 0.048*** | 0.030* | 0.017*** | 0.043*** | 0.031*** |
| | (0.016) | (0.016) | (0.004) | (0.016) | (0.007) |
| PhD degree | 0.060*** | 0.034*** | 0.026*** | 0.054*** | 0.043*** |
| | (0.009) | (0.009) | (0.005) | (0.009) | (0.008) |
| Married | 0.007 | 0.003 | 0.004*** | 0.006 | 0.007*** |
| | (0.004) | (0.005) | (0.001) | (0.005) | (0.002) |
| Has children | -0.009 | -0.010 | 0.002 | -0.009 | -0.003 |
| | (0.007) | (0.006) | (0.002) | (0.007) | (0.003) |
| Has siblings | -0.003** | -0.002 | -0.001*** | -0.003** | -0.002*** |
| | (0.001) | (0.001) | (0.000) | (0.001) | (0.001) |
| Entrepreneurial experience | 0.359*** | 0.348*** | 0.010*** | 0.364*** | 0.096*** |
| | (0.017) | (0.016) | (0.002) | (0.016) | (0.010) |
| Entrepreneurial experience (father) | 0.042*** | 0.036*** | 0.006** | 0.041*** | 0.012** |
| | (0.007) | (0.008) | (0.003) | (0.007) | (0.005) |
| Entrepreneurial experience (mother) | -0.035*** | -0.033*** | -0.003 | -0.035*** | -0.007 |
| | (0.008) | (0.008) | (0.003) | (0.008) | (0.005) |
| Wealth last year (father) | 0.000 | -0.000 | 0.001 | 0.000 | 0.001 |
| | (0.001) | (0.001) | (0.000) | (0.001) | (0.001) |
| Wealth last year (mother) | 0.003*** | 0.002* | 0.001*** | 0.003*** | 0.002*** |
| | (0.001) | (0.001) | (0.000) | (0.001) | (0.001) |
| Wage last year | 0.000 | 0.001 | -0.001*** | 0.001 | 0.001 |
| | (0.001) | (0.001) | (0.000) | (0.001) | (0.001) |
| Home owner | 0.030*** | 0.027*** | 0.004*** | 0.030*** | 0.009*** |
| | (0.006) | (0.005) | (0.001) | (0.006) | (0.003) |
| Wealth last year | 0.010*** | 0.009*** | 0.001*** | 0.010*** | 0.002** |
| | (0.002) | (0.002) | (0.000) | (0.002) | (0.001) |
| Management experience | 0.159*** | 0.091*** | 0.067*** | 0.156*** | 0.231*** |
| | (0.014) | (0.016) | (0.008) | (0.014) | (0.039) |
| Industry experience last three years | 0.007 | 0.003 | 0.004** | 0.005 | 0.005* |
| | (0.007) | (0.007) | (0.002) | (0.007) | (0.003) |
| Job switch last three years | 0.060*** | 0.053*** | 0.007*** | 0.060*** | 0.016*** |
| | (0.007) | (0.007) | (0.002) | (0.007) | (0.003) |
| Employee last year | -0.093*** | -0.090*** | -0.004** | -0.095*** | -0.044*** |
| | (0.010) | (0.010) | (0.002) | (0.010) | (0.009) |
| Retired last year | 0.012 | 0.025 | -0.013*** | 0.016 | -0.035*** |
| | (0.026) | (0.026) | (0.005) | (0.026) | (0.011) |
| Constant | -0.037 | -0.062 | 0.025** | -0.033 | 0.012 |
| | (0.050) | (0.051) | (0.011) | (0.050) | (0.023) |
| R-squared | 0.419 | 0.362 | 0.065 | 0.415 | 0.327 |
| Number of observations | 105815 | 105815 | 105815 | 102930 | 58598 |

*Notes*: Robust standard errors are shown in parentheses. Significance: *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table A6: Determinants of LLC-type firms founding in separate periods

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | LLC | | | |
| | Any | Until 2009 | 2010-2013 | 2014-2019 |
| Age | 0.019*** | 0.015*** | 0.020*** | 0.015*** |
| | (0.002) | (0.002) | (0.003) | (0.003) |
| Age squared | -0.000*** | -0.000*** | -0.000*** | -0.000*** |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Female | -0.081*** | -0.094*** | -0.067*** | -0.070*** |
| | (0.016) | (0.016) | (0.018) | (0.018) |
| Danish citizenship | 0.030 | 0.089*** | 0.059** | -0.034** |
| | (0.022) | (0.026) | (0.023) | (0.017) |
| Highschool degree | 0.019** | 0.035*** | -0.002 | -0.001 |
| | (0.008) | (0.006) | (0.012) | (0.010) |
| Vocational training | 0.060*** | 0.078*** | 0.035** | 0.044*** |
| | (0.012) | (0.017) | (0.016) | (0.011) |
| University degree | 0.048*** | 0.072*** | 0.013 | 0.029 |
| | (0.016) | (0.017) | (0.022) | (0.020) |
| PhD degree | 0.060*** | 0.084*** | 0.049*** | 0.030*** |
| | (0.009) | (0.010) | (0.016) | (0.012) |
| Married | 0.007 | 0.016*** | 0.003 | 0.004 |
| | (0.004) | (0.005) | (0.007) | (0.006) |
| Has children | -0.009 | -0.020** | -0.004 | 0.002 |
| | (0.007) | (0.008) | (0.008) | (0.009) |
| Has siblings | -0.003** | -0.003* | -0.007** | -0.002 |
| | (0.001) | (0.002) | (0.003) | (0.002) |
| Entrepreneurial experience | 0.359*** | 0.320*** | 0.401*** | 0.367*** |
| | (0.017) | (0.018) | (0.022) | (0.018) |
| Entrepreneurial experience (father) | 0.042*** | 0.043*** | 0.046*** | 0.037*** |
| | (0.007) | (0.014) | (0.017) | (0.009) |
| Entrepreneurial experience (mother) | -0.035*** | -0.030** | -0.041** | -0.039*** |
| | (0.008) | (0.014) | (0.017) | (0.012) |
| Wealth last year (father) | 0.000 | 0.003 | 0.000 | -0.003 |
| | (0.001) | (0.002) | (0.002) | (0.002) |
| Wealth last year (mother) | 0.003*** | 0.003** | 0.005*** | -0.000 |
| | (0.001) | (0.001) | (0.002) | (0.002) |
| Wage last year | 0.000 | 0.001 | 0.000 | -0.000 |
| | (0.001) | (0.001) | (0.001) | (0.001) |
| Home owner | 0.030*** | 0.044*** | 0.034*** | 0.012 |
| | (0.006) | (0.006) | (0.008) | (0.009) |
| Wealth last year | 0.010*** | 0.014*** | 0.009*** | 0.004 |
| | (0.002) | (0.002) | (0.003) | (0.003) |
| Management experience | 0.159*** | 0.178*** | 0.193*** | 0.132*** |
| | (0.014) | (0.022) | (0.021) | (0.012) |
| Industry experience last three years | 0.007 | -0.000 | 0.005 | 0.002 |
| | (0.007) | (0.008) | (0.011) | (0.008) |
| Job switch last three years | 0.060*** | 0.064*** | 0.044*** | 0.065*** |
| | (0.007) | (0.007) | (0.007) | (0.009) |
| Employee last year | -0.093*** | -0.121*** | -0.093*** | -0.058*** |
| | (0.010) | (0.014) | (0.013) | (0.009) |
| Retired last year | 0.012 | -0.080** | 0.026 | 0.076* |
| | (0.026) | (0.040) | (0.049) | (0.046) |
| Constant | -0.037 | -0.093* | -0.077 | 0.194*** |
| | (0.050) | (0.050) | (0.071) | (0.064) |
| R-squared | 0.419 | 0.408 | 0.438 | 0.369 |
| Number of observations | 105815 | 46382 | 25133 | 34253 |

*Notes*: Robust standard errors are shown in parentheses. Significance: *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table A7: Determinants of firm success

| | (1) | (2) | (3) |
|---|---|---|---|
| | Survival t+3 | Sales t+3 | Employment t+3 |
| LLC | 0.168*** | 0.156*** | 0.131*** |
| | (0.016) | (0.009) | (0.008) |
| Age | 0.018*** | 0.005*** | 0.004*** |
| | (0.002) | (0.001) | (0.001) |
| Age squared | -0.000*** | -0.000*** | -0.000*** |
| | (0.000) | (0.000) | (0.000) |
| Female | -0.039*** | -0.025*** | -0.009** |
| | (0.012) | (0.006) | (0.004) |
| Danish citizenship | 0.033** | 0.036*** | 0.039*** |
| | (0.015) | (0.011) | (0.014) |
| Highschool degree | 0.050*** | 0.016*** | 0.016*** |
| | (0.009) | (0.004) | (0.005) |
| Vocational training | 0.029*** | 0.019*** | 0.028*** |
| | (0.009) | (0.007) | (0.009) |
| University degree | -0.015 | 0.030*** | 0.030*** |
| | (0.018) | (0.009) | (0.010) |
| PhD degree | 0.009 | 0.011** | 0.018*** |
| | (0.008) | (0.006) | (0.005) |
| Married | 0.018*** | 0.006** | 0.008*** |
| | (0.004) | (0.003) | (0.003) |
| Has children | -0.020*** | -0.003 | -0.005 |
| | (0.006) | (0.003) | (0.003) |
| Has siblings | 0.004** | 0.001 | 0.001 |
| | (0.002) | (0.001) | (0.001) |
| Entrepreneurial experience | -0.002 | 0.013*** | 0.016*** |
| | (0.007) | (0.005) | (0.004) |
| Entrepreneurial experience (father) | 0.019* | 0.016** | -0.004 |
| | (0.011) | (0.008) | (0.006) |
| Entrepreneurial experience (mother) | 0.003 | -0.005 | 0.009 |
| | (0.012) | (0.008) | (0.006) |
| Wealth last year (father) | 0.009*** | 0.002* | 0.002 |
| | (0.002) | (0.001) | (0.001) |
| Wealth last year (mother) | 0.006*** | 0.002* | 0.003*** |
| | (0.001) | (0.001) | (0.001) |
| Wage last year | -0.002*** | -0.003*** | -0.003*** |
| | (0.001) | (0.001) | (0.000) |
| Home owner | 0.061*** | 0.025*** | 0.022*** |
| | (0.007) | (0.004) | (0.004) |
| Wealth last year | 0.025*** | 0.005*** | 0.002 |
| | (0.002) | (0.001) | (0.001) |
| Management experience | -0.019* | 0.087*** | 0.048*** |
| | (0.011) | (0.015) | (0.016) |
| Industry experience last three years | 0.075*** | 0.037*** | 0.034*** |
| | (0.009) | (0.007) | (0.007) |
| Job switch last three years | 0.004 | 0.029*** | 0.031*** |
| | (0.005) | (0.004) | (0.003) |
| Employee last year | 0.020*** | 0.006 | 0.011** |
| | (0.006) | (0.005) | (0.005) |
| Retired last year | -0.114*** | -0.049*** | -0.025 |
| | (0.039) | (0.015) | (0.017) |
| Constant | 0.038 | -0.106*** | -0.103*** |
| | (0.038) | (0.027) | (0.029) |
| R-squared | 0.083 | 0.158 | 0.114 |
| Number of observations | 90513 | 71038 | 71038 |

*Notes*: Robust standard errors are shown in parentheses. Significance: *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table A8: Determinants of persistent firm success

| | (1) | (2) | (3) |
|---|---|---|---|
| | Survival t+3 | Sales t+3 | Employment t+3 |
| No LLC × Success | 0.516*** | 0.517*** | 0.521*** |
| | (0.008) | (0.033) | (0.025) |
| LLC × No success | 0.038*** | 0.075*** | 0.056*** |
| | (0.012) | (0.005) | (0.005) |
| LLC × Success | 0.605*** | 0.596*** | 0.622*** |
| | (0.009) | (0.013) | (0.014) |
| Age | 0.013*** | 0.002* | 0.001 |
| | (0.002) | (0.001) | (0.001) |
| Age squared | -0.000*** | -0.000** | -0.000** |
| | (0.000) | (0.000) | (0.000) |
| Female | -0.029*** | -0.014*** | -0.007*** |
| | (0.009) | (0.003) | (0.003) |
| Danish citizenship | 0.020* | 0.022*** | 0.016* |
| | (0.012) | (0.006) | (0.008) |
| Highschool degree | 0.035*** | 0.010*** | 0.009*** |
| | (0.007) | (0.003) | (0.002) |
| Vocational training | 0.021*** | 0.014*** | 0.019*** |
| | (0.007) | (0.005) | (0.006) |
| University degree | 0.002 | 0.022*** | 0.016*** |
| | (0.015) | (0.006) | (0.006) |
| PhD degree | 0.010* | 0.008** | 0.012*** |
| | (0.006) | (0.004) | (0.003) |
| Married | 0.011*** | 0.004* | 0.004** |
| | (0.004) | (0.002) | (0.002) |
| Has children | -0.016*** | -0.001 | -0.003 |
| | (0.005) | (0.002) | (0.003) |
| Has siblings | 0.003* | 0.001 | 0.001 |
| | (0.001) | (0.001) | (0.001) |
| Entrepreneurial experience | -0.008 | 0.002 | 0.002 |
| | (0.005) | (0.003) | (0.003) |
| Entrepreneurial experience (father) | 0.013 | 0.010* | -0.006 |
| | (0.009) | (0.006) | (0.006) |
| Entrepreneurial experience (mother) | 0.004 | -0.003 | 0.009 |
| | (0.010) | (0.006) | (0.006) |
| Wealth last year (father) | 0.007*** | 0.002** | 0.001 |
| | (0.001) | (0.001) | (0.001) |
| Wealth last year (mother) | 0.005*** | 0.002* | 0.002*** |
| | (0.001) | (0.001) | (0.001) |
| Wage last year | -0.002*** | -0.001* | -0.001*** |
| | (0.000) | (0.000) | (0.000) |
| Home owner | 0.044*** | 0.015*** | 0.013*** |
| | (0.006) | (0.003) | (0.003) |
| Wealth last year | 0.020*** | 0.005*** | 0.002** |
| | (0.002) | (0.001) | (0.001) |
| Management experience | -0.005 | 0.041*** | 0.017** |
| | (0.008) | (0.008) | (0.008) |
| Industry experience last three years | 0.047*** | 0.017*** | 0.016*** |
| | (0.006) | (0.004) | (0.003) |
| Job switch last three years | 0.002 | 0.010*** | 0.009*** |
| | (0.004) | (0.003) | (0.002) |
| Employee last year | 0.010* | -0.001 | 0.001 |
| | (0.005) | (0.004) | (0.004) |
| Retired last year | -0.071** | -0.017 | -0.020** |
| | (0.032) | (0.013) | (0.010) |
| Constant | -0.171*** | -0.044** | -0.032* |
| | (0.036) | (0.019) | (0.017) |
| **Test for coefficient differences (*p* value)** | | | |
| No LLC × Success vs. LLC × No success | 0.000 | 0.000 | 0.000 |
| No LLC × Success vs. LLC × Success | 0.000 | 0.015 | 0.000 |
| LLC × No success vs. LLC × Success | 0.000 | 0.000 | 0.000 |
| R-squared | 0.263 | 0.378 | 0.374 |
| Number of observations | 90513 | 71034 | 71034 |

*Notes*: Robust standard errors are shown in parentheses. Significance: *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively.