

Entrepreneurial beginning, happy ending?  
Entrepreneurship upon graduation and lifetime earnings.

Adrian Merida  
*almg.ino@cbs.dk*

Vera Rocha  
*vr.ino@cbs.dk*

Copenhagen Business School  
Department of Innovation and Organizational Economics

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**Abstract**

Recent studies comparing lifetime earnings of individuals with and without entrepreneurial experience have challenged the previously stylized fact that entrepreneurship yields lower and riskier earnings. We contribute to the extant understanding of the relationship between entrepreneurial experience and lifetime earnings in three ways. First, we analyze the role of the timing of entrepreneurship within a professional career by exploring whether entrepreneurship influences lifetime earnings differently when it happens at the beginning of the career rather than later. Second, we add to the topic of the value of experimenting in entrepreneurship by considering the relationship between the duration of the entrepreneurial spell and lifetime earnings. Last, we focus exclusively on university graduates, which represent a part of the population with high entrepreneurial potential. Using register data from the population of Denmark, we compare lifetime earnings of graduates who start their careers as entrepreneurs (“early entrepreneurs”), graduates who start as wage-employees but become entrepreneurs later in their careers (“late entrepreneurs”), and graduates who never become entrepreneurs (“never entrepreneurs”). Thanks to the richness of our data, we are able to track the careers and earnings of such graduates during their first 15 years in the labor market. Results from matched samples show an interesting picture. Consistent with recent research, a premium for individuals who ever become entrepreneurs is also present in our sample. Importantly, we find that early entrepreneurs are better-off than never entrepreneurs when they switch quickly to wage-employment after a brief experimentation period in entrepreneurship, or when they are able to run long-lived successful firms. However, attempting entrepreneurship later in the career seems to be the best alternative in terms of risk-reward. Several mechanisms driving these results as well as their potential implications are further discussed.

**JEL classification:** J24, J31, L26, M13.

**Keywords:** Entrepreneurship, graduates, lifetime earnings, experimentation.

## 1. Introduction

Whether entrepreneurship is a profitable experience is still under intense debate in the literature. Studies comparing entrepreneurial earnings to wages from paid-employment have typically found that entrepreneurship provides lower and riskier earnings, which would imply that individuals choose to become and remain entrepreneurs because of the nonpecuniary benefits associated to such occupation (Hamilton, 2000; Moskowitz and Vissing-Jørgensen, 2002). Moreover, research evaluating the returns to entrepreneurial experience finds considerable penalties in subsequent wages compared to a continued (i.e., non-interrupted) paid-employment experience, unless the entrepreneurial spell was successful (Kaiser and Malchow-Møller, 2011).<sup>1</sup>

However, a recent study by Manso (2016) questions the validity of those previous results, by showing that such studies provide biased estimations of the earnings differential because they rely on cross sectional comparisons, which do not reflect the potential value of entrepreneurship as experimentation. By taking advantage of longitudinal data from NLSY79, he finds higher lifetime earnings amongst individuals with entrepreneurial experience compared to those who never became entrepreneurs. Similar results are found by Daly (2015), where an analysis of discounted net present values of future earnings shows not only that individuals are not penalized for attempting (or experimenting with) self-employment, but also enjoy a premium.

The current state of the literature focuses on the value of entrepreneurship from a life cycle perspective, thus acknowledging the relevance of considering self-employment as a reversible experience that involves learning about one's own ability and ideas and whose true value is reflected in lifetime earnings.<sup>2</sup> We contribute to the extant understanding of the relationship between entrepreneurial experience and lifetime earnings in three ways. First, we explore the role of the timing of entrepreneurship within a professional career. In particular, we investigate whether entrepreneurship influences lifetime earnings differently when it happens at the very beginning of the career rather than later. Second, we add to the topic of the value of experimenting in entrepreneurship by considering the relationship between the duration of the entrepreneurial spell and lifetime earnings. Last, we focus exclusively on university graduates, which represent a part of the population with high entrepreneurial and innovative potential (Levine and Rubinstein, 2017).

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<sup>1</sup> Although the seminal work by Evans and Leighton (1989) showed no evidence of a penalty for entrepreneurial spells in subsequent paid-employment, later works have found penalties for entrepreneurial experience both in the US (Williams, 2000; Bruce and Schuetze, 2004) and in Europe (Hyytinen and Rouvinen, 2008; Baptista et al. 2012).

<sup>2</sup> See, for example, Dillon and Stanton (2017) or Humphries (2017) for some recent works on this topic.

According to Manso (2016), experimentation may be even more abundant among innovative startups. To the extent that university graduates are more likely to have innovative ideas than others, we believe that experimentation is a more plausible driver of the decision to become an entrepreneur among them. Moreover, the fact that they arguably have better outside options – in the form of more highly paid jobs –, makes them also more likely to be driven by the identification of an opportunity, so the chances of observing growth-oriented ventures are higher in this sample. From an empirical point of view, focusing on a sample of tertiary educated individuals means that individuals are rather homogeneous in terms of ability and – conditioned on the field of studies – knowledge. This allows avoiding problems of necessity-driven entrepreneurship and enables a fair comparison between entrepreneurs and employees.

In our analysis, we implement a three-way comparison to understand whether the value of entrepreneurial experience depends on the timing within a professional career and its duration. In particular, we compare lifetime earnings of (i) graduates who start their careers as entrepreneurs (hereafter “early entrepreneurs”), (ii) graduates who enter the labor market as wage-employees but become entrepreneurs later in their careers (“late entrepreneurs”), and (iii) graduates who enter paid employment and never become entrepreneurs (“never entrepreneurs”). While the comparison between late and never entrepreneurs has already been examined in previous research, little is known about the other two possible analyses.

Our analysis of the role of starting a professional career through entrepreneurship also adds to the debate of whether and to what extent entrepreneurship should be promoted among graduate students as an alternative to wage-employment. Because policy makers regard entrepreneurship as a source of growth and innovation, an increasing number of entrepreneurship education programs are being established across universities from all over the world – although their effectiveness in increasing entrepreneurial intentions is debatable.<sup>3</sup> Many of them promote starting up real businesses. However, whether it is beneficial for graduates to start their careers as entrepreneurs remains unknown.

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<sup>3</sup> Whereas entrepreneurship education programs seem to be positively related to entrepreneurial intentions when targeting pupils in primary school (Huber et al., 2014) and in secondary school (Elert et al., 2015), there is evidence that these programs are often failing to achieve some of the pursued goals when targeting university students, such as incentivizing entrepreneurial intentions among young individuals (Oosterbeek et al. 2010) and improving their later performance (Fairlie et al. 2015). See Martin et al. (2013) for a recent review.

We find it necessary to provide an answer for that question, since it is sensible to think that this initial occupational choice can affect individuals' careers even in the long-term.<sup>4</sup> Nevertheless, we acknowledge that this is mainly an empirical question, as the direction of the association is difficult to predict *a priori*, due to the high degree of heterogeneity in career paths. For instance, early entrepreneurs may switch to paid-employment at any time or remain entrepreneurs for their entire careers if their firms are successful enough – or if they really enjoy the nonpecuniary benefits of self-employment.

According to the most recent research, individuals who attempt entrepreneurship enjoy, on average, higher lifetime earnings during their careers. However, the relationship may be different for those individuals who attempted self-employment at the very beginning of their careers, when they had no work experience. Past work experience may boost entrepreneurial performance (Casar, 2014), but if experimenting is the easiest way to learn about potential earnings in entrepreneurship, then attempting self-employment earlier in the career may be more rewarding than doing it later (Dillon and Santon, 2017). This trade-off between the value of prior experience and the potential future benefits of learning earlier makes it difficult to find the optimal moment to enter entrepreneurship.

Another related factor is the length of the entrepreneurial spell. Experimentation is only useful when the individual is able to learn quickly and react to the new information (Manso, 2016). This implies that those who learn quickly should leave entrepreneurship if they realize they are not performing well enough, or stay if they are earning – and estimate that will keep earning – more than they would in wage-employment. However, if the individual spends too much time to judge their entrepreneurial potential and leave self-employment too late, they may face realized losses – the wages they could have been receiving had they quitted earlier together with the potential losses from the entrepreneurial venture itself – and potential future losses derived from signaling poor learning abilities.

In sum, we seek to understand to what extent the timing and the duration of the first entrepreneurial spell may lead to differences lifetime earnings, and how these can be explained.

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<sup>4</sup> Several studies provide evidence that initial conditions when entering the labor market lead to persistent effects on individuals' earnings and career prospects. For instance, students graduating in a recession bear a wage penalty that can last for up to ten years (Kahn, 2010; Oreopoulos et al., 2012), MBA graduates who go directly to Wall Street after graduation earn substantially more in the long-term (Oyer, 2008), and PhD students who are first hired by top institutions have more successful careers (Oyer, 2006).

In order to examine these questions we make use of the Danish Integrated Database for Labor Market Research (IDA), which allows us to identify a total of 109,700 individuals who finished their tertiary education at some point between 1981 and 1998. We are then able to track their career paths and their performance during their first 15 years in the labor market. Among those graduates, there are 1,276 (1.16%) who enter the labor market as entrepreneurs, 8,521 (7.77%) who become entrepreneurs at some point within the first 15 years of their labor market career, and 99,903 (91.07%) who never become entrepreneurs within the observed period. Owing to the longitudinal characteristics of our data and the richness of the information available at the individual-level, we are able to estimate the association between their initial career choices and their lifetime earnings.

The remainder of this paper is structured in five sections. Section 2 reviews the literature on the returns to entrepreneurship. The data and the methods employed in the analysis are described in Sections 2 and 3, respectively. Section 4 exhibits and discusses the main results, while Section 5 presents extended analyses to identify the potential mechanisms driving the results. Finally, Section 6 concludes the paper.

## **2. Returns to entrepreneurship and the value of experimentation.**

The literature has traditionally found that entrepreneurship yields smaller and more volatile earnings than wage-employment. In his widely cited paper, Hamilton (2000) used data from the Survey of Income and Program Participation to compute and analyze the earnings differential between individuals in self-employment and wage-employment. Unconditional comparisons of the earnings distributions of self-employed workers and paid employees show that the distribution of entrepreneurial earnings is more skewed and dispersed, owing to the existence of many individuals earning far less than they would in wage-employment and only a few very successful entrepreneurs. In addition, most entrepreneurs have lower initial earnings and slower earnings growth than comparable employees. More specifically, the median business owner earns 35 percent less than the estimated wage he or she would receive in paid-employment. Hamilton proposes the notion of nonpecuniary benefits compensating the smaller earnings of most entrepreneurs, after finding little explanatory power for other determinants of this difference, such as the selection of low-ability employees into self-employment. That is, although there are a few very successful entrepreneurs who earn substantially more than comparable employees, the majority of

the self-employed workers are willing to sacrifice earnings in exchange for some benefits associated to being a business owner, such as being ‘your own boss’, enjoying a more flexible schedule, or having independence and autonomy to make decisions. The apparent earnings disadvantage of entrepreneurs compared to employees has also been found in several other research works (e.g. Moskowitz and Vissing-Jørgensen, 2002; Evans and Leighton, 1989).<sup>5</sup> Typically, the literature has attributed the fact that individuals would still choose to become and remain entrepreneurs despite the –seemingly– lower earnings to the existence of nonpecuniary benefits, to genetic and environmental factors, as well as to cognitive biases caused by certain personality traits. The presence of nonpecuniary benefits in self-employment has been widely considered in the literature (e.g.; Hamilton, 2000; Moskowitz and Vissing-Jørgensen, 2002; Hurst and Pugsley, 2011), and it is fairly established that self-employment yields higher levels of job satisfaction thanks to such benefits (Blanchflower and Oswald, 1998; Benz and Frey, 2008a; 2008b). On the other hand, entrepreneurial intentions may be conditioned by genes and by the level of entrepreneurial activity of the environment where individuals grow (Nicolaou et al., 2008; Lindquist et al., 2015). Finally, some individuals are more likely to enter, remain and even perform differently in entrepreneurship due to certain aspects of their personality, such as different degrees of risk and loss aversion (Hvide and Panos, 2014; Koudstaal et al., 2016), willingness to accept uncertainty in economic decisions (Holm et al., 2013), overconfidence (Hayward et al., 2006), or over-optimism (Lowe and Ziedonis, 2006; Dushnitsky, 2010).

However, instead of providing explanations as to why individuals would choose to enter and stay in entrepreneurship despite the –seemingly– lower earnings, other studies have questioned whether it is true that entrepreneurs earn less. Some of the main factors that raise doubts about such earnings differential are income underreporting by self-employed workers, the degree of heterogeneity among entrepreneurs, as well as potential methodological biases.

Income underreporting of the self-employed is a common concern when analyzing entrepreneurial earnings. By examining the consumption behavior of self-employed workers and employ-

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<sup>5</sup> In addition, several studies have shown a negative effect on subsequent wages of an entrepreneurial spell compared to continued wage-employment experience (Williams, 2000; Bruce and Schuetze, 2004; Hyytinen and Rouvinen, 2008) albeit the penalty tends to dissipate after controlling for selection issues, and it can even turn into a premium if the entrepreneurial venture happened in the same sector than the subsequent paid job – and particularly if it was successful – (Kaiser and Malchow-Møller, 2011), or have other benefits such as higher chances of entering a firm at a managerial position and to get promoted faster within the job ladder (Baptista et al., 2012).

ees, Hurst et al. (2013) find that the former tend to underreport their income by about 25%, and Åstebro and Chen (2014) show that entrepreneurs earn significantly more than employees after controlling for such underreporting.

The high degree of heterogeneity among entrepreneurs may also be behind the conclusion that employees earn more. In this sense, Levine and Rubinstein (2017) propose a distinction between incorporated and unincorporated self-employed. Indeed, these two types of entrepreneurs are substantially different from each other. For instance, incorporated self-employed are more educated, have more ability, exhibit more self-esteem, and are more likely to engage in illicit activities. Incorporated self-employed were also more successful as wage workers than unincorporated self-employed. Once self-employed workers are divided in these two different groups, the picture varies drastically. Whereas unincorporated self-employed earn far less than employees, incorporated self-employed earn much more.<sup>6</sup>

Finally and most recently, Manso (2016) argues that cross-sectional comparisons of wages and entrepreneurial earnings lead to biased results. In particular, he mentions three main sources of bias that may arise in this type of analysis. First, when pooling earnings from entrepreneurship, ventures that survive for longer periods are overweighed – what he refers to as ‘survivorship bias’. Second, cross sectional comparisons implicitly assume that entrepreneurship is an irreversible choice, thus neglecting the possibility that unsuccessful entrepreneurs will not insist with a failed venture or idea and may decide to switch to wage-employment or to attempt self-employment again with a different firm – ‘experimentation bias’.<sup>7</sup> Finally, cross-sectional analyses do not consider the fact that wages for employees may be affected by their past entrepreneurial experience, thus attributing to wage-employment a potential premium derived from a history of entrepreneurship – ‘attribution bias’. Such biases will lead to wrong estimations of the true mean and the true variance of the self-employment earnings.

Therefore, Manso (2016) proposes comparing lifetime earnings of individuals with and without entrepreneurial experience, in order to account for the option value of experimenting in self-

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<sup>6</sup> A similar distinction can be found in Sorgner et al. (2017), who compare earnings of employees, employers (self-employed with employees) and solo self-employed. Overall, their results indicate that, compared to employees, employers earn more while solo entrepreneurs earn less. However, solo entrepreneurs with tertiary education tend to earn more than comparable employees.

<sup>7</sup> Note that the view of entrepreneurship as experimentation had already been exposed in Kerr et al. (2014), where it is argued that the potential success of a product or a business idea, as well as the knowledge required to become successful in entrepreneurship cannot be known unless it is put into practice.

employment and then deciding whether to go on with the firm, to start a different one or to switch back to paid-employment. Indeed, comparisons of lifetime earnings tell a different story: those entrepreneurs who find success in entrepreneurship earn substantially more than comparable employees, whereas those who fail are able to react fast and move quickly (typically within the first two years) to wage-employment, thus limiting their losses. Similar results are provided by Daly (2015), who compared the discounted value of future income of individuals with and without entrepreneurial experience and finds that those who attempted self-employment tend to earn more during the following 15 years, although in most cases the effect seems to be driven by the top of the distribution. This suggests that individual sorting into (and out of) entrepreneurship is not only driven by nonpecuniary benefits, but also by anticipated pecuniary rewards.

Therefore, our approach is to follow Manso's suggestion, and compare earnings over the life cycle rather than at a particular moment of time. The assessment of entrepreneurial earnings from a lifetime point of view is becoming increasingly attractive among scholars. Dillon and Stanton (2017) implement a model of self-employment dynamics over the life cycle and show that transitions between self-employment and wage-employment are abundant and support the notion of experimentation. They also confirm Manso's arguments by showing that, in a cross-sectional setting, the distribution of entrepreneurial earnings suffers from downward bias at the median while the mean is biased upward. Moreover, while entrepreneurship is associated with higher lifetime earnings, there is still a fraction of entrepreneurs (around 15% in the Panel Study of Income Dynamics) for whom the nonpecuniary benefits must be positive. Humphries (2017) also develops a model to analyze the causes and consequences of self-employment over the life cycle in Sweden. Similar to what Manso (2016) and Dillon and Stanton (2017) had found in the US, in Sweden most entrepreneurial spells are short and, in fact, most startups are created with minimal initial investments and the firms that survive typically do not grow at all. The fact that most startups involve little investment is arguably another reflection of the experimentation hypothesis: individuals who are not convinced of their probabilities to succeed and survive will devote the minimum capital required to get the firm running while they learn about their potential. Consistently, brief self-employment spells are more abundant in less capital-intensive industries. As for the comparison of lifetime earnings, those of individuals with experience as incorporated self-employed are higher than those of individuals who never attempt self-employment.



Our work contributes to the extant literature in three ways. First, we examine whether the timing of entrepreneurship within a professional career leads to differences in lifetime earnings by comparing early-career and late-career entrepreneurs. Second, we consider the role of the duration of the entrepreneurial spell in the evolution of lifetime earnings. Finally, our sample is formed exclusively of university graduates, which represent a part of the population with high entrepreneurial potential, thus avoiding potential issues of necessity-driven entrepreneurs.

### **3. Data**

In our analysis, we make use of the ‘Integrated Database for Labor Market Research’ (also known by the acronym ‘IDA’) to estimate the effects on lifetime earnings of choosing entrepreneurship as the main occupation at the time of first entry into the labor market. The IDA dataset is a matched employer-employee database maintained by Statistics Denmark that compiles data based on register information of the Danish population. The structure of the dataset allows tracking individuals and their employment status together with numerous variables that include information on characteristics of the individuals in terms of demographics, parental information, labor market outcomes, and personal income.

In our analysis we focus on graduates from tertiary education – further controlling for differences between Bachelor, Master’s and PhD graduates – who are about to enter the labor market, and we track them during the first 15 years after graduation. We then distinguish between (i) graduates who start their careers as entrepreneurs, (ii) graduates who start as wage-employees but become entrepreneurs within the next 14 years, and (iii) graduates who start as employees and never become entrepreneurs.

We identified first time transitions into the labor market when these graduates finish their tertiary education and become registered (for the first time) either as employees or entrepreneurs in the dataset. In order to mitigate further concerns of necessity entrepreneurship, we only considered graduates who started their professional career in the year of graduation or the next one. Thus, we do not include in our analyses those who found a job or created a startup after more than a full year of inactivity or unemployment, as these ones may have been the ones to find poor jobs or to create companies out of necessity.

Moreover, we restrict the sample to individuals who appear registered in the database every year during the first 15 years after graduation, to avoid further problems caused by attrition. Since

our dataset covers the period 1981 to 2012, this implies that our last cohort of graduates comes from 1998. We also drop individuals with missing values for any of the covariates included in the analysis. These restrictions leave us with a final sample of 109,700 individuals, out of which 1,276 (1.16%) started as entrepreneurs, 8,521 (7.77%) became entrepreneurs later within the next 14 years after entering the labor market, and 99,903 (91.07%) never became entrepreneurs.

At first glance, the number of individuals who choose to become entrepreneurs right after graduation is remarkably low. In relative terms, they account for just 1.16% of the total number of graduates entering the labor market in our sample. While this rate may seem rather low, it is consistent with previous studies focusing on entrepreneurial intentions among university graduates. A recent study by Larsson et al. (2017) offers the closest comparison to our sample, as it considered the entire population of graduates from Sweden. In their study, they showed that only 2.69% of Swedish university graduates entered entrepreneurship within the first three years upon graduation (the comparable percentage in our sample is 2.43%).<sup>8</sup> Similarly, Bergmann et al. (2016) collected data from 61 universities across Europe and found that only 1.6% of all graduates from business and economics studies actually started a company. In the US, where entrepreneurship is still a more common phenomenon than in Europe, Åstebro et al. (2012) found that the proportion of graduate students becoming entrepreneurs within three years after graduation is just below 6%. Even among MBA students at Harvard Business School, the rate of individuals becoming entrepreneurs upon graduation is typically below 4% (Lerner and Malmendier, 2013). In short, entrepreneurship upon graduation is a rare event. We computed lifetime earnings as the average of the gross personal income that each individual had over different time horizons.<sup>9</sup> To be more specific, we calculated an approximation of “lifetime” earnings, since we had to restrict our analysis to the first 15 years of their professional careers. In order to observe the earning dynamics in the short-, medium-, and long-terms, as well as the bigger picture of the entire period, we examined their average (discounted) annual earnings during the years 1 to 5 (first five years in the labor market), years 6 to 10, years 11 to 15, and the entire period (years 1 to 15). The distribu-

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<sup>8</sup> Results using this alternative definition lead to qualitatively similar conclusions and are available from the authors upon request.

<sup>9</sup> Our earnings variable captures the following components of individuals’ personal income: (i) corporate income, (ii), transfer income, (iii) property income, and (iv) other non-classifiable income attributable directly to the individual. When computing lifetime earnings, we first adjusted the income variable for inflation through the Consumer Price Index (CPI). All monetary values in this paper are expressed in thousands of Danish kroner from 2000.

tion of the average discounted annual income for each type of individuals and at the different time horizons is plotted in Figure A1 (see appendix).

Thanks to the richness of our data we are able to include controls for demographic characteristics such as gender, age of graduation, field of study and wealth, as well as for parental information, sector of entry, and labor market dynamics such as unemployment spells, job changes or additional salaries earned from activities other than the main one. Besides the classic demographic variables, we include the quintiles of the Grade Point Average (GPA) that these university graduates achieved when they finished high-school. While far from being a perfect measure of ability, we argue that the inclusion of this variable should help to control for unobserved heterogeneity, to the extent that the correlation between ability and the high-school GPA is positive. Table A1 in the appendix exhibits summary statistics of all the covariates for each of the three groups of individuals.

#### 4. Methodology

The main objective of this analysis is to compare the lifetime earnings of (i) early entrepreneurs, (ii) late entrepreneurs, and (iii) never entrepreneurs, as previously described. Our approach follows a three-way, pairwise analysis. In other words, we first compare late entrepreneurs and never entrepreneurs, then we compare early entrepreneurs to never entrepreneurs, and we finally close the circle by comparing early and late entrepreneurs.

A key part of our analysis requires finding balanced samples in each comparison. Basic descriptive statistics (see table A1 in the appendix) reveal that these groups are composed by very different individuals. For example, the rate of females among early entrepreneurs is 30%, while for late entrepreneurs is 49%, and for never entrepreneurs is 65%.<sup>10</sup> Also, there is a larger fraction of students graduating in business or STEM studies among early entrepreneurs, and they are also more commonly found in the Greater Copenhagen area. Late entrepreneurs tend to be more represented in the top quintiles of the high-school GPA, and they are also more likely to have post-bachelor studies. There are also differences regarding the sectors where each of these individuals

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<sup>10</sup> The fact that our rate of female entrepreneurship is higher than what has usually been found can be explained by two different facts. First, the gender gap in entrepreneurship is far less pronounced in high income countries (Langowitz et al., 2004) and it is decreasing over time (Fairlie, 2004). Second, the gender ratio in our total sample of graduates was approximately 64-36 in favour of women, which might be due to the fact that university enrolments are being increasingly dominated by women (Goldin et al., 2006).

sort into once they enter the labor market, and also regarding the wealth they have in the year before entering the labor market.<sup>11</sup> Moreover, many of these differences significantly influence the probability that an individual becomes an early or a late entrepreneur rather than never attempting entrepreneurship.<sup>12</sup> Ignoring the fact that these groups are different in terms of the distribution of their observable characteristics would lead to biased estimations of the effect of entrepreneurial experience on lifetime earnings – the average treatment effect on the treated (ATT). Thus, we need to generate comparable samples before proceeding with any comparison.

To that end, we match individuals in each respective treatment and control groups through *entropy balancing (EB)*.<sup>13</sup> One of the main advantages that EB has over other alternative matching techniques is that it avoids the necessity of having to “manually” find an appropriate weighting – in the sense that with other techniques one needs to keep changing the specification until a suitable balance is found. Moreover, many of the more commonly used matching techniques often provide less satisfactory levels of covariate balance. Instead, EB allows the researcher to impose a set of balance constraints such that perfect balance is found in the mean, the variance, and even the skewness of all covariates. Then, EB automatically assigns weights to find balanced samples in terms of all covariates, subject to the conditions imposed with respect to the first, second, and third moments. This also implies that balance checking is not required.

Another advantage of EB is that the assigned weights are continuous, instead of being dichotomous as in other methods – such as nearest neighbor matching. This flexible reweighting allows keeping as much information and as many observations as possible, besides achieving high levels of covariate balance.<sup>14</sup>

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<sup>11</sup> In our sample, early entrepreneurs seem to have, on average, a larger wealth in the household compared to the other two groups. It is relevant to include this as a control because this superior financial situation might explain why some start their firms earlier than others, as the entry cost is one of the main barriers for young individuals with entrepreneurial intentions (Hincapié, 2017).

<sup>12</sup> See table A2 in appendix for a simple multinomial logit estimation showing the association of the pre-entry variables on the likelihood to become an early or a late entrepreneur.

<sup>13</sup> A detailed explanation of this technique can be found in Hainmueller (2012). The implementation of this matching procedure is based on the **ebalance** command in Stata, further described in Hainmueller and Xu (2013).

<sup>14</sup> In our particular analysis, this feature of entropy balancing made it preferable over alternatives such as Coarsened Exact Matching or Propensity Score Matching, as these ones were too demanding in terms of the number of observations kept. Given that our treatment group of early entrepreneurs is already rather small, we could correctly implement those two other matching procedures, as problems of balance would arise too often.

We construct matched samples based on individuals' characteristics measured at the time of graduation – *age, gender, whether the graduation corresponds to bachelor or further studies, whether the field of education belongs to business or STEM areas rather than others, whether the individuals graduated in the Greater Copenhagen area, whether they were single or otherwise* –, at the time of entry in the labor market – *namely the industry and the year of entry in the labor market, as well as the wealth they had the year before* – as well as during their first 15 years in the labor market – *whether the individual experiences any unemployment and/or inactive spell, whether the individual has any additional jobs, income from additional jobs, number of job changes and sector changes during the first 15 years in the labor market*. Moreover, we include *grade point average* (in quintiles) that these graduates had during high-school in the matching in order to ensure we have comparable individuals in terms of ability.

We acknowledge our lack of power in terms of controlling for unobserved characteristics which might be driving both their decision to enter self-employment and their capability to generate earnings. However, we are employing practically the same approach as the most recent research works (e.g. Manso, 2016; Daly, 2015), which consists on matching on as many observed characteristics as possible. Furthermore, we were able to include a very wide range of variables that we employ in our matching – which includes a proxy for ability –, and entropy balancing yielded nearly identical treatment and control groups in terms of such covariates.

Since entropy balancing is limited to cases where the treatment variable is binary, we match the three groups on a pairwise comparison approach. We imposed that entropy balancing provided balance in the mean, variance, and skewness of all covariates, since the three groups differed also in the third moment of the distribution of many covariates. After the samples were matched, we run our main regressions by using the weights provided by the EB algorithm to obtain an unbiased – at least in terms of observed characteristics – estimate of the ATT.<sup>15</sup>

## 5. Results

### 5.1. Earning dynamics of late entrepreneurs and never entrepreneurs

We begin our analysis by looking at the comparison between individuals with and without entrepreneurial experience in order to compare our estimates with previous literature. For this analysis we purposely leave out the early entrepreneurs, as they will be the group of interest in the

<sup>15</sup> Replications of the main results using non-matched samples are exhibited in tables A3, A4 and A5.

next estimations. Table 1 analyzes the average earnings over the first 15 years in the labor market and contrast late entrepreneurs with comparable never entrepreneurs during that time window. In each section, four rows and four columns are displayed. The first row exhibits the estimates of the earnings gap between the two groups during the entire 15-year period. The following rows split the time period in three different stages in order to show the evolution of the annual earnings differential. For each period considered, the earnings gap is estimated at the mean, the bottom quartile, the median, and the top quartile. In our sample, the proportion of individuals who became entrepreneurs during their first 15 years (excluding early entrepreneurs) in the labor market is just below 7.86% of the total number of graduates who started their careers as wage-employees.

The results suggest a positive and significant difference in annual earnings favorable to late entrepreneurs. The average difference during the entire period is just below DKK 17,000 (valued in the year 2000) per year.<sup>16</sup> It corresponds to about 5.5% higher earnings relative to what they would have earned, had they never been entrepreneurs.<sup>17</sup> These results are rather similar to the estimates provided by Manso (2016), who finds an average annual premium of around 5% for ever entrepreneurs. During the first five years, the average yearly gap exceeds the amount of DKK 13,000, and the premium increases over time. This is consistent with Daly (2015), who finds that the earnings differential is smaller in the first five years than in the following years. Interestingly, our results suggest that the differences at the median and the top quartile are also favorable to ever entrepreneurs. Individuals who never become entrepreneurs only seem to earn more in the lower tail of the distribution, and just in the long-term.

The average and median individual is better off with some entrepreneurial experience. However, even though we include a proxy for ability in our analysis – namely, the individuals' grade point average in high-school –, the gap might be overestimated due unobserved heterogeneity. Thus, consistent with the findings by Manso (2016) and Daly (2015), (who also cannot control for unobserved heterogeneity) we find that entrepreneurship is not a less profitable career choice, but instead, experiencing an entrepreneurial spell of at least one year is associated with higher earnings over the life cycle.

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<sup>16</sup> In August 2017, the conversion rates from Danish kroner to Euros and US Dollars were € 0.13447 and \$ 0.15778, respectively. The current value of one Danish kroner of the year 2000 equated to 0.2486 US Dollars.

<sup>17</sup> Relative differences are calculated by dividing the estimate between the observed values of individuals in the control group during the corresponding period.

### *5.2. Earning dynamics of early entrepreneurs and never entrepreneurs*

We now focus on table 2, which displays estimates corresponding to the gap in lifetime earnings between a matched sample of graduates who start their professional careers as entrepreneurs and graduates who choose the more common starting point of wage-employment and never become entrepreneurs.

On average, those who chose entrepreneurship early in their careers tend to face a short-term penalty of about 4.6% annually, but are typically able to catch up and actually enjoy a premium of 2.88% in the medium-term and of 3.24% in the long-term. Similarly to the findings in Daly (2015), the main difference in earnings seems to be driven primarily by the upper tail of the distribution, where those who start as entrepreneurs enjoy an annual premium of over DKK 13,000 per year during the first 15 years that widens as time passes. At the median, there seems to be a short-term penalty that dissipates over time, while at the lower tail of the distribution the penalty persists during the entire period. Thus, while the potential premium seems to be larger than the potential penalty, the choice of entrepreneurship as the first main occupation right after graduating from university seems to be relatively risky. This risk, however, is mostly present in the short term, since the median individual catches up after the first five years in the labor market.

### *5.3. Earning dynamics of early entrepreneurs and late entrepreneurs*

Our last comparison involves individuals who become entrepreneurs after graduation and those who start their careers as wage employees but become entrepreneurs at some point within their first 15 years in the labor market. table 3 summarizes the evolution of their earnings differentials.

Early entrepreneurs earn less than their counterparts in all instances, although the differences are not significant in the long-term, except at the median. The comparison seems to suggest that early entrepreneurship is never better than late entrepreneurship. At least in our context, the trade-off between starting a firm earlier in order to experiment sooner or doing it later with more experience under the belt seems to be resolved in favor of the latter. Specifically, early entrepreneurs earn about 4.7% less than late entrepreneurs every year during the entire 15-year period. This suggests that becoming an entrepreneur without previous work experience is a riskier alternative that would typically yield lower earnings.

## 6. Potential mechanisms

### 6.1. *Duration of the entrepreneurial spell*

We now delve deeper into the results previously obtained in table 2 in order to understand the value of entrepreneurship as experimentation among individuals who are about to enter the labor market. We present alternative specifications in table 4 to further understand the effect of the initial entrepreneurial spell on subsequent lifetime earnings. We divide the results in three sections. In Section A, individuals in the treatment group are derived from a subsample of graduates who become entrepreneurs right after graduation and do not switch to wage-employment during their first 15 years in the labor market. The number of treated individuals is just above 10% of the original treatment group in table 2. This low number is explained by the fact that more than half of these early entrepreneurs have exited entrepreneurship after just two years (see Figure A2 in the appendix). Estimates show that individuals who start through and remain in entrepreneurship do not suffer any significant penalty, on average. However, when evaluated at the median, these stayers tend to suffer a marginally significant short-term penalty, and the negative difference persists during the rest of the period, albeit not significantly so, probably due to the small number of observations in the treatment group. However, those at the top of the distribution do earn more than never entrepreneurs. Thus, they are arguably individuals who managed to establish successful companies. However, individuals at the lower tail of the distribution remain entrepreneurs even though their earnings are consistently lower. For this particular group, nonpecuniary benefits might be the reason why they stay in entrepreneurship.

In section B we attempt to understand the value of entrepreneurship upon graduation as an experimentation stage. According to Manso's (2016) model, entrepreneurship is a valuable experimentation only if the individuals are able to learn about the quality of their ideas quickly. Consequently, we now include in the treatment group only individuals who started as entrepreneurs and switched to wage-employment after one year. This group accounts for almost 50% of the total group of graduates becoming entrepreneurs when entering the labor market.

On average, results for this subsample indicate a premium for experimenting with entrepreneurship after graduation. This premium appears in the medium-term and increases in the long-term. Taking the whole period into account, the value of experimentation exceeds DKK 19,250 per year (a premium of approximately 6% annually). The picture at the median is very similar, with those who start as entrepreneurs earning around DKK 16,000 more, although there is indeed



a penalty in the short-term. More importantly, even those at the lower tail of the distribution are able to catch-up quickly after switching to wage-employment, with only a short-term penalty. The annual premium for the most successful early entrepreneurs who move to wage-employment quickly is just approximately DKK 28,500 (almost 9%) during the first 15 years in the labor market, and the gap relative to never entrepreneurs increases over time. This implies that individuals who react quickly after experimenting with entrepreneurship are generally rewarded in the medium- and the long-term, with only short-term penalties that are not persistent and, in most cases, non-significant.

Taken together, results from sections A and B suggest a non-linear relationship between the length of the entrepreneurial spell and the effect on lifetime earnings of starting a career as an entrepreneur. In order to formally test such non-linearity, we implement an additional analysis in Section C in which the length of the entrepreneurial spell and its squared term are used to explain the average earnings of the entire 15-years period. After including all the available controls, we confirm the existence of a U-shaped relationship between the duration of the initial entrepreneurial spell and lifetime earnings. When evaluated at the mean, the inflexion point of this quadratic relationship is estimated to take place after approximately 8 years in entrepreneurship.

To summarize these results, entrepreneurship upon graduation is most valuable when individuals take it as an opportunity to quickly learn about the quality of their ideas and about their own type. Then two optimal scenarios arise. First, they may quickly switch to wage-employment to minimize the potential losses from entrepreneurship and to potentially enjoy significant premiums in the medium-term and in the long-term. Alternatively, they may realize that their venture can become successful and decide to stay in entrepreneurship to obtain higher earnings than what they would earn in wage-employment. However, it also becomes clear from our results that the latter scenario is much more rare than the former. In short, and quoting Manso “if it takes too long to learn about the quality of an idea, there is little value in experimentation”, so switching to wage-employment after several years in entrepreneurship appears to be the least profitable scenario.

## *6.2. Early entrepreneurship and subsequent labor market dynamics*

In an attempt to unveil other potential mechanisms that may be driving the results from table 2, we complement the analysis by looking at the effect of starting through entrepreneurship in subsequent labor market outcomes. Table 5 shows the effect of an early entrepreneurship experi-

ence on the number of job changes, the number of sector changes, the probability of becoming a CEO, and the probability of experiencing unemployment spells. All these events refer to the first 15 years in the labor market.

In our sample, starting through entrepreneurship increases the number of job changes by approximately 3.2% and the number of industry changes by around 36%. According to Topel and Ward (1992), job mobility is more common during the initial years in the labor market and it is positively associated with earnings growth. Hence, if job mobility at early career stages allows individuals to find better matches more rapidly, then this could be a potential explanation for the fact that starting as an entrepreneur yields a premium in the long term. Moreover, the fact that they also perform more industry changes would arguably improve their general skills, while employees gather more industry-specific experience. Connecting this possibility to the Jack-of-all-Trades theory developed by Lazear (2004; 2005), it is expected that early entrepreneurs are likely to become serial entrepreneurs<sup>18</sup> and that they perform better in their subsequent ventures than in the early spell. This is an interesting area for further research.

Murphy and Zabojsnik (2004) argue that general skills are transferable across companies and industries, and individuals with general skills – as opposed to firm- or industry-specific skills – are increasingly more likely to reach managerial positions. In addition, Baptista et al. (2012) found that employees coming from a spell in entrepreneurship are more likely to become managers in the following years. Consistently with these works, we find a significant effect of starting through entrepreneurship on the likelihood to become a CEO. Since managerial positions are more commonly reached at older ages, it is very possible that we are reporting a lower bound of the effect of early entrepreneurship on the likelihood to become a CEO. Since managerial positions are associated with higher earnings, we believe this can be another mechanism driving the results in table 2. In fact, Custódio et al. (2013) found that CEOs with general skills – which they gathered by having held jobs in multiple companies and in different industries – receive a higher pay than other CEOs. Thus, it is possible that not only early entrepreneurs are more likely to become CEOs, but that they also receive a higher executive compensation compared to CEOs who never were entrepreneurs before.

Finally, we find no evidence that starting as an entrepreneur makes individuals more likely to become unemployed during the first 15 years in the labor market. This reveals that individuals

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<sup>18</sup> In fact, about 12% of the early entrepreneurs in our sample started another company right after they closed the first one.

with an early entrepreneurship experience do not have a harder time in finding a job than individuals with a continuous career in wage employment. Otherwise, this could be a reason for them to stay longer in entrepreneurship and to prolong possible necessity-driven entrepreneurial spells – which does not seem to be the case in our sample.

### *6.3. Early vs late entrepreneurs: startup and post-startup performance*

The overall picture from table 3 showed that early entrepreneurs were consistently outperformed by late entrepreneurs. While that comparison allows us to complete the circle of our analysis of the earnings dynamics for each type of individuals during the first years after graduation, an interesting complementary analysis in the comparison of early and late entrepreneurs implies tracking their performance during and after their first entrepreneurial spell. To that end, we analyze five different outcomes that are measured at the moment of startup and beyond. Namely, we look for differences in terms of startup size, income during the first year in entrepreneurship, duration of the entrepreneurial spell, probability of hiring employees, and the first wage they receive when they switch (back) to wage-employment. Moreover, we implement different cut-off points when distinguishing early and late entrepreneurs (sections A and B), as well as a continuous measure for the number of years spent in wage-employment before switching to entrepreneurship for the first time (section C).

Section A exhibits the differences for each outcome by using a strict definition of early entrepreneur. In particular, the treatment group here includes individuals who became entrepreneurs in the year right after graduation, while the control group includes those who became entrepreneurs from their second year in the labor market onwards. Estimates in the first column show that these early entrepreneurs start smaller firms and they experience shorter entrepreneurial spells.<sup>19</sup> Early entrepreneurs also earn less income during their first year as entrepreneurs (which might be one of the reasons for them to leave entrepreneurship earlier) and are less likely to hire employees in the following years (provided that the firm still exists). Finally, early entrepreneurs are also offered smaller wages than late entrepreneurs when moving to wage-employment, even when controlling for aspects such as their age, experience, sector and year when they perform the transition together with characteristics related to their previous entrepreneurial venture, like the duration of

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<sup>19</sup> In this sense, Figure A2 shows significantly different patterns in terms of entrepreneurial spells of early and late entrepreneurs. While almost 50% of early entrepreneurs leave after one year, fewer spells of one year are found among late entrepreneurs, with around 50% of the spells being shorter than two years – which is again consistent with the figures in Manso (2016).

the spell, the initial size of the startup and the income during the first year as entrepreneurs. These patterns are also present and even stronger in section B, where a broader definition of ‘early entrepreneur’ is used. This suggests that starting a firm even later leads to higher differences in favor of late entrepreneurs.

Finally, Section C applies a continuous measure for the experience in wage-employment before starting their companies. An additional year of wage-employment increases the startup size by 8%, the initial entrepreneurial income by more than DKK 11,000 and the number of years in entrepreneurship by 14%. Moreover, each year of wage-employment before startup boosts the likelihood of hiring employees and the wage received after transitioning to wage-employment.

## **7. Conclusion**

The value of entrepreneurial experience has been questioned in the literature, and cross-sectional studies have usually found that entrepreneurship provides lower earnings, being rarely rewarded in subsequent paid-employment. In a recent study, Manso (2016) compared lifetime earnings of individuals with and without entrepreneurial experience and found that those who ever became entrepreneurs have higher earnings. In our paper, we contribute to the ongoing research on the value of entrepreneurial experience by comparing lifetime earnings of university graduates who become entrepreneurs upon graduation, those who become entrepreneurs later and those who never attempt self-employment. Thus, we show that both the timing of the entrepreneurial experience within a professional career and the duration of such entrepreneurial period matters for subsequent labor market success. Moreover, the fact that we focus on a sample of university graduates is a step further in the consideration of highly able individuals with big entrepreneurial potential (Levine and Rubinstein, 2017).

Regressions on matched samples – based on weights obtained through entropy balancing – at the mean, the median, the bottom, and top quartiles of the earnings distribution provided three main sets of results. First, our estimates showed an annual premium of above 5.5% during the first 15 years for individuals with entrepreneurial experience compared to those who never become entrepreneurs, which is consistent with the findings of Manso (2016) and Daly (2015). Indeed, a positive and persistent difference in lifetime earnings in favor of ever entrepreneurs is found at the mean, the median, and the top quartile of the distribution. Second, graduates who start their careers as entrepreneurs tend to earn significantly less during the first 5 years, but this

earnings gap turns into a premium for them in the medium-term and in the long-term. This result, however, is mostly driven by the upper tail of the earnings distribution, since a short-term penalty is present at the median, and a persistent penalty is found at the lowest quartile. Third, compared to late entrepreneurs, early entrepreneurs are persistently worse-off.

Further analyses revealed that early entrepreneurs who never move to wage-employment do not earn significantly less money than never entrepreneurs, although they still bear a short-term penalty at the median. Only those stayers at the top of the income distribution are able to outperform those who never attempt self-employment. Individuals in that particular category managed to establish successful companies that provide higher earnings than what wage-employment could potentially offer. However, the analysis of the bottom quartile suggests that there are still some individuals who remain entrepreneurs despite earning substantially less than their wage-employed counterparts. The argument of nonpecuniary benefits could in fact hold for this particular group of individuals. Moreover, early entrepreneurs who move to wage-employment quickly (after just one year in self-employment) do not bear any penalty and, in fact, enjoy a premium in the medium- and in the long-term.

We investigated some of the potential mechanisms that are driving these results and find evidence consistent with entrepreneurship being an experimentation process, through which individuals may test the quality of their ideas and their own quality as entrepreneurs. Consistently with the most recent research works (e.g. Manso, 2016; Dillon and Stanton, 2017, Humphries, 2017), we find that about half of entrepreneurial spells are ended within two years. However, among early entrepreneurs the median spell is only 1 year, suggesting that experimentation may be a stronger motivation for them to start up a company. Furthermore, entering the labor market via entrepreneurship is associated with more job and industry changes in the future. These transitions may allow individuals to learn about their own “type” and entrepreneurial talent, besides endowing them with general skills that might be more easily transferable across firms and more valuable in leadership positions later on. Indeed, having an entrepreneurial experience in early stages is found to increase one’s likelihood to become a CEO in the future, which may suggest that an (early) entrepreneurial experience may allow individuals to climb the wage-employment career ladder faster than those without such an experience (Baptista et al., 2012).

Finally, we also examine alternative labor market outcomes when comparing early and late entrepreneurs. Early entrepreneurs start smaller firms, have shorter entrepreneurial spells, earn less

money as entrepreneurs and also tend to receive smaller wages when they switch to wage-employment, compared to late entrepreneurs. This suggests that the timing of entrepreneurial experience is valued differently in subsequent wage-employment, and that it is also important for the entrepreneurial performance itself.

Taken together, our results suggest that promoting entrepreneurship among graduates is not necessarily a wrong policy, although individuals with entrepreneurial intentions bear less risk if they spend some time as salaried workers before starting their firms. In fact, early entrepreneurs who react quickly enough by switching to wage employment and those who are able to manage long-lived successful ventures are better-off in the labor market than those who never attempt self-employment at all. In any case, attempting entrepreneurship later in the career seems to be the best alternative in terms of risk-reward. Therefore, policies aimed at providing students with the set of tools and knowledge required to manage their own firms might be more advisable than policies subsidizing rushed startups that could cost them time and money even in the long-term.

A number of limitations are present in our analysis. First, even though we include the high-school Grade Point Average in our estimations in order to reduce the effect of unobserved ability, we are still not able to fully control the potential effects of unobserved heterogeneity, so there might be some remaining bias in our estimates related to individual ability. Thus, our results should be taken with a grain of salt. However, the similarity between our baseline results and those previously found in the literature give us confidence on the validity of our empirical approach in eliminating the most important sources of bias. Moreover, the finding of a U-shaped relationship between the duration of the initial entrepreneurial spell and lifetime earnings raises the question of whether that result is dependent on the mode of exit from entrepreneurship. For example, it could be the case that some of those early entrepreneurs who leave after eight years are able to successfully sell their companies and become even wealthier in the future. We believe that this is an interesting area for future research.

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**Table 1**  
**Differences in lifetime earnings between late and never entrepreneurs.**

	Mean	25 <sup>th</sup> perc.	50 <sup>th</sup> perc.	75 <sup>th</sup> perc.
Years 1 to 15	16.922*** (1.568)	−3.335** (1.574)	17.799*** (2.292)	42.824*** (2.553)
Years 1 to 5	13.419*** (1.099)	3.417** (1.088)	16.550*** (1.459)	21.937*** (1.557)
Years 6 to 10	21.441*** (1.882)	−4.934*** (1.779)	23.172*** (2.149)	44.484*** (2.967)
Years 11 to 15	21.918*** (2.502)	−26.208*** (2.140)	10.915*** (2.894)	71.060*** (4.828)
Late entrepreneurs	8,521	8,521	8,521	8,521
Never entrepreneurs	99,903	99,903	99,903	99,903
Total individuals	108,424	108,424	108,424	108,424

*Note:* The dependent variable is the average earnings of the respective time period, in thousands of 2000 Danish kroner. Earnings are measured since the moment of entry into the labor market. Results for the ‘Mean’ column come from OLS estimations while the estimates for the different percentiles are obtained through quantile regressions. All regressions are based on matched samples obtained through entropy balancing. The matching variables include age of graduation, gender, post-bachelor degree, field of education, experience gathered before graduation, location (Greater Copenhagen area or others), marital status, parental income, parental entrepreneurship, parental education, entry sector, entry year, whether the individual experiences any unemployment and/or inactive spell, whether the individual has any additional jobs, income from additional jobs, number of job changes and sector changes during the first 15 years in the labor market, wealth in the year before entry in the labor market, and the high-school grade point average (in quintiles), which is included as a proxy for ability. Entropy balancing provided balance in the mean, average, and skewness of all covariates.

\*\*\*, \*\*, \* indicate significance at the 99%, 95% and 90% confidence levels. Robust standard errors reported in parentheses.

**Table 2**  
**Differences in lifetime earnings between early and never entrepreneurs.**

	Mean	25 <sup>th</sup> perc.	50 <sup>th</sup> perc.	75 <sup>th</sup> perc.
Years 1 to 15	2.046 (4.358)	-7.124 (5.426)	-4.640 (4.993)	13.224*** (6.809)
Years 1 to 5	-11.178*** (3.612)	-35.175*** (3.916)	-18.575*** (3.889)	-2.295 (5.256)
Years 6 to 10	8.997* (5.166)	-7.907* (4.711)	1.225 (5.872)	26.292*** (9.335)
Years 11 to 15	11.769* (6.346)	-17.194** (6.951)	2.258 (6.293)	44.776*** (11.649)
Early entrepreneurs	1,276	1,276	1,276	1,276
Never entrepreneurs	99,903	99,903	99,903	99,903
Total individuals	101,179	101,179	101,179	101,179

Notes as in table 1.

\*\*\*, \*\*, \* indicate significance at the 99%, 95% and 90% confidence levels. Robust standard errors reported in parentheses.

**Table 3**  
**Differences in lifetime earnings between early and late entrepreneurs.**

	Mean	25 <sup>th</sup> perc.	50 <sup>th</sup> perc.	75 <sup>th</sup> perc.
Years 1 to 15	-16.222** (6.619)	-12.130 (7.889)	-24.479** (9.472)	-30.878*** (8.538)
Years 1 to 5	-19.963*** (5.386)	-33.989*** (7.866)	-30.428*** (6.627)	-19.283*** (7.066)
Years 6 to 10	-17.333** (8.218)	-8.338 (9.017)	-19.538** (9.285)	-29.492** (11.693)
Years 11 to 15	-15.054 (9.712)	-2.806 (12.896)	-26.517* (13.570)	-26.830 (17.387)
Early entrepreneurs	1,276	1,276	1,276	1,276
Late entrepreneurs	8,521	8,521	8,521	8,521
Total individuals	9,797	9,797	9,797	9,797

Notes as in table 1.

\*\*\*, \*\*, \* indicate significance at the 99%, 95% and 90% confidence levels. Robust standard errors reported in parentheses.

**Table 4**  
**Differences in lifetime earnings between early and never entrepreneurs.**  
**Effect of the duration of the entrepreneurial spell.**

	Mean	25 <sup>th</sup> perc.	50 <sup>th</sup> perc.	75 <sup>th</sup> perc.
<b>A. Never entrepreneurs and early entrepreneurs who stay in entrepreneurship.</b>				
Years 1 to 15	-16.619 (17.614)	-51.584*** (17.689)	-32.306* (19.135)	13.929 (36.683)
Years 1 to 5	-13.881 (16.427)	-67.256*** (12.150)	-33.237* (19.899)	2.833 (8.585)
Years 6 to 10	-4.539 (21.068)	-65.827** (11.533)	-21.911 (14.452)	44.259 (58.065)
Years 11 to 15	-12.637 (24.014)	-73.472*** (29.706)	-43.976 (43.993)	63.767* (37.986)
Early entrepreneurs	138	138	138	138
Never entrepreneurs	99,903	99,903	99,903	99,903
Total individuals	100,041	100,041	100,041	100,041
<b>B. Never entrepreneurs and early entrepreneurs who leave entrepreneurship after 1 year.</b>				
Years 1 to 15	19.254*** (5.717)	10.432* (5.921)	16.177** (7.880)	28.541*** (8.604)
Years 1 to 5	-1.992 (4.329)	-8.996** (4.471)	-9.491** (3.828)	-0.806 (5.438)
Years 6 to 10	25.988*** (6.903)	8.171 (5.660)	23.534** (9.683)	39.343*** (9.479)
Years 11 to 15	36.811*** (8.626)	13.542** (6.377)	21.983*** (8.063)	65.124*** (16.721)
Early entrepreneurs	581	581	581	581
Never entrepreneurs	99,903	99,903	99,903	99,903
Total individuals	100,484	100,484	100,484	100,484
<b>C. Effect of an additional year in the initial entrepreneurial spell.</b>				
Length of entrepreneurial spell	-19.424*** (3.624)	-16.068*** (3.245)	-13.539*** (3.045)	-22.384*** (3.682)
Length of entrepreneurial spell <sup>2</sup>	1.096*** (0.281)	0.662*** (0.243)	0.598** (0.250)	1.496*** (0.316)
Total individuals	1,276	1, 276	1, 276	1, 276

\*\*\*, \*\*, \* indicate significance at the 99%, 95% and 90% confidence levels. Robust standard errors reported in parentheses.

**Table 5**

**Differences between early and never entrepreneurs, alternative labor market outcomes.**

	# job changes	# sector changes	Prob. (CEO)	Prob. (unempl.)
<b>A. Never entrepreneurs and early entrepreneurs.</b>				
Starting through entrepreneurship	0.032* (0.017)	0.359*** (0.026)	0.023** (0.011)	0.007 (0.013)
Early entrepreneurs	1,276	1,276	1,276	1,276
Never entrepreneurs	99,903	99,903	99,903	99,903
Total individuals	101,179	101,179	101,179	101,179
<b>B. Never entrepreneurs and early entrepreneurs leaving entrepreneurship after 1 year.</b>				
Starting through entrepreneurship	0.181*** (0.019)	0.431*** (0.034)	0.048*** (0.016)	0.026 (0.018)
Early entrepreneurs	581	581	581	581
Never entrepreneurs	99,903	99,903	99,903	99,903
Total individuals	100,484	100,484	100,484	100,484

*Note:* All estimations are based on matched samples using the same technique and variables as in table 1. Estimates for the number of job changes and the number of sector changes were obtained through *Negative Binomial* estimations. Log-linear OLS regressions yielded virtually the same results. Estimates on the probabilities of becoming a CEO and of becoming unemployed correspond to marginal effects from *logit* estimations evaluated at value zero for the treatment variable.

\*\*\*, \*\*, \* indicate significance at the 99%, 95% and 90% confidence levels. Robust standard errors reported in parentheses.

**Table 6**  
**Differences between early and late entrepreneurs, outcomes measured after startup.**

	Startup size	Income 1 <sup>st</sup> year in SE	Spell length	Prob. (hiring)	1 <sup>st</sup> wage after transition
<b>A. Extensive margin: Early entrepreneurs (at year 1) vs late entrepreneurs.</b>					
Early entrepreneurship	-0.249*** (0.077)	-33.007** (12.833)	-1.959*** (0.329)	-0.067*** (0.021)	-25.250*** (9.364)
Early entrepreneurs	1,276	1,276	1,276	636	1,163
Late entrepreneurs	8,473	8,473	8,473	5,526	5,474
Total individuals	9,749	9,749	9,749	6,162	6,637
<b>B. Extensive margin: Early entrepreneurs (years 1 to 5) vs late entrepreneurs.</b>					
Early entrepreneurship	-0.604*** (0.117)	-53.750*** (20.648)	-0.853** (0.398)	-0.127*** (0.025)	-50.295*** (15.813)
Early entrepreneurs	3,355	3,355	3,355	1,937	2,866
Late entrepreneurs	6,394	6,394	6,394	4,225	3,771
Total individuals	9,749	9,749	9,749	6,162	6,637
<b>C. Intensive margin: Continuous measure.</b>					
Years in WE	0.081*** (0.017)	11.464*** (3.085)	0.141*** (0.050)	0.014*** (0.004)	6.464*** (2.104)
Total individuals	9,749	9,749	9,749	6,162	6,637

Note: The group of interest in Section A includes individuals who started their careers as entrepreneurs, while the comparison group includes individuals who started their careers as wage-employees but became entrepreneurs at some point within their first 15 years in the labor market. In Section B, early entrepreneurs include those who become entrepreneurs at some point within the first 5 years in the labor market, while late entrepreneurs did so within the next ten years in the labor market. In section C all individuals who became entrepreneurs (earlier or later) are pooled.

Estimations in sections A and B are based on a matched sample, using the same technique and variables as in table 1. Estimates for startup size were obtained through *negative binomial* estimations. Log-linear OLS regressions yielded virtually identical results. Estimates for the spell length were obtained through *tobit* estimations, with 481 right-censored observations at 14 years of entrepreneurial spell. Estimates for the probability of hiring employees in the following years after startup correspond to marginal effects from *logit* estimations evaluated at value zero for the treatment variable. Estimates for the income and the wages are obtained through OLS regressions.

The probability of hiring employees does not include entrepreneurs with a spell of just one year. Wages are visible only for those entrepreneurs who switch back to wage-employment. Estimations of the first four columns include the following controls measured at the moment of entry into self-employment: age, experience, marital status, location, wealth (previous year), sector dummies, and year dummies. Estimations in the last column include those same variables, but measured at the year of transition to wage-employment and further controls for the duration of the entrepreneurial spell, the initial size of the startup and the income during the first year as entrepreneurs.

\*\*\*, \*\*, \* indicate significance at the 99%, 95% and 90% confidence levels. Robust standard errors reported in parentheses.



## APPENDIX

**Table A1**

**Descriptive statistics, by type of individuals in the sample (year dummies omitted for simplicity).**

	<b>Early entrepreneurs</b>		<b>Late entrepreneurs</b>		<b>Never entrepreneurs</b>	
	<i>Mean</i>	<i>Std. Dev.</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Mean</i>	<i>Std. Dev.</i>
<b>Average annual income</b>						
Years 1-15	343.66	133.84	346.48	131.42	305.26	97.3
Years 1-5	252.32	115.10	270.27	90.65	242.91	68.10
Years 6-10	363.73	161.52	361.22	157.34	312.67	108.37
Years 11-15	422.78	200.36	418.16	213.76	362.93	142.15
<b>Demographics</b>						
Graduation age	26.47	2.37	26.45	2.30	25.81	2.25
Female	0.30	0.46	0.49	0.50	0.65	0.48
Post-bachelor degree	0.42	0.49	0.46	0.50	0.27	0.44
Business/STEM vs other fields	0.61	0.49	0.48	0.50	0.38	0.49
Experience upon graduation	2.86	4.12	3.57	4.06	3.65	3.97
Greater Copenhagen area	0.59	0.49	0.52	0.50	0.44	0.50
Single	0.86	0.34	0.85	0.35	0.88	0.33
Wealth, year before entry	14.04	108.37	5.91	26.92	4.43	19.19
High school GPA 1 <sup>st</sup> quintile	0.16	0.37	0.13	0.34	0.18	0.38
High school GPA 2 <sup>nd</sup> quintile	0.20	0.40	0.16	0.37	0.21	0.41
High school GPA 3 <sup>rd</sup> quintile	0.22	0.42	0.19	0.39	0.22	0.42
High school GPA 4 <sup>th</sup> quintile	0.22	0.42	0.23	0.42	0.21	0.41
High school GPA 5 <sup>th</sup> quintile	0.20	0.40	0.29	0.45	0.18	0.38
<b>Parental information</b>						
Parental income (thousands DKK)	293.17	468.93	284.77	424.95	243.22	200.14
Parents tertiary education	0.51	0.50	0.52	0.50	0.43	0.50
Parents ever entrepreneur	0.53	0.50	0.48	0.50	0.39	0.49
<b>Entry sector</b>						
Undisclosed	0.15	0.35	0.01	0.07	0.00	0.07
Manufacturing	0.07	0.26	0.11	0.31	0.12	0.33
Construction	0.01	0.12	0.01	0.12	0.01	0.12
Services	0.20	0.40	0.14	0.35	0.12	0.32
Knowledge-based	0.46	0.50	0.25	0.43	0.16	0.37
Others	0.11	0.31	0.48	0.50	0.58	0.49
<b>Labor market dynamics, first 15 years</b>						
Ever unemployed	0.39	0.95	0.26	0.44	0.17	0.37
Ever inactive	0.35	1.05	0.22	0.41	0.12	0.32
Additional jobs (Yes/No)	0.32	0.47	0.37	0.48	0.27	0.44
Additional salaries	2.84	8.60	3.45	8.83	2.39	6.09
# Job changes	4.53	2.44	5.30	2.27	4.26	2.19
# Industry changes	2.16	1.75	1.97	1.75	1.01	1.37
Ever CEO first 15 years	0.16	0.36	0.08	0.27	0.10	0.30
Individuals	1,276		8,521		99,903	
Individuals (%)	1.16		7.77		91.07	

**Table A2**

**Multinomial logit estimations of the probability of being an early or a late entrepreneur.**

<b>Baseline: never entrepreneur</b> <i>Prob. (Y = 0)</i>	<b>Late entrepreneur</b> <i>Prob. (Y = 1)</i>		<b>Early entrepreneur</b> <i>Prob. (Y = 2)</i>	
	<b>Coefficient</b>	<b>Std. Error</b>	<b>Coefficient</b>	<b>Std. Error</b>
Age of graduation	0.076***	0.005	0.099***	0.013
Female	-0.595***	0.026	-1.284***	0.072
Business/STEM vs other fields	0.028***	0.027	0.270***	0.067
Copenhagen area	0.197***	0.024	0.489***	0.059
Single	-0.067*	0.035	-0.078	0.088
GPA 2 <sup>nd</sup> quintile	0.033	0.042	0.028	0.096
GPA 3 <sup>rd</sup> quintile	0.086**	0.041	0.046	0.093
GPA 4 <sup>th</sup> quintile	0.324***	0.039	-0.002	0.095
GPA 5 <sup>th</sup> quintile	0.596***	0.038	-0.062	0.097
Parental income	0.000***	0.000	0.000***	0.000
Parental tertiary education	0.157**	0.024	0.095	0.058
Parental entrepreneurship	0.378***	0.023	0.571***	0.057
Wealth at <i>T-1</i>	0.001***	0.000	0.002***	0.001
Total number of individuals	109,700			

**Table A3**  
**Differences in lifetime earnings between late and never entrepreneurs.**  
**Results from non-matched samples.**

	Mean	25 <sup>th</sup> perc.	50 <sup>th</sup> perc.	75 <sup>th</sup> perc.
Years 1 to 15	16.492 <sup>***</sup> (1.173)	-7.949 <sup>***</sup> (1.078)	10.920 <sup>***</sup> (1.409)	37.726 <sup>***</sup> (2.000)
Years 1 to 5	13.116 <sup>***</sup> (0.846)	4.198 <sup>***</sup> (0.792)	11.858 <sup>***</sup> (0.855)	21.751 <sup>***</sup> (1.143)
Years 6 to 10	21.128 <sup>***</sup> (1.458)	-8.522 <sup>***</sup> (1.559)	14.989 <sup>***</sup> (1.410)	42.966 <sup>***</sup> (2.163)
Years 11 to 15	21.305 <sup>***</sup> (2.038)	-31.526 <sup>***</sup> (1.782)	3.916 <sup>*</sup> (2.217)	61.579 <sup>***</sup> (3.206)
Late entrepreneurs	8,521	8,521	8,521	8,521
Never entrepreneurs	99,903	99,903	99,903	99,903
Total individuals	108,424	108,424	108,424	108,424

*Note:* The dependent variable is the variance earnings of the respective time period, in thousands of 2000 Danish kroner. Earnings are measured since the moment of entry into the labor market. Results for the 'Mean' column come from OLS estimations while the estimates for the different percentiles are obtained through quantile regressions.

All regressions include controls age of graduation, gender, post-bachelor degree, field of education, experience gathered before graduation, location (Greater Copenhagen area or others), marital status, parental income, parental entrepreneurship, parental education, entry sector, entry year, whether the individual experiences any unemployment and/or inactive spell, whether the individual has any additional jobs, income from additional jobs, number of job changes and sector changes during the first 15 years in the labor market, wealth in the year before entry in the labor market, and the high-school grade point average (in quintiles), which is included as a proxy for ability..

\*\*\*, \*\*, \* indicate significance at the 99%, 95% and 90% confidence levels. Robust standard errors reported in parentheses.

**Table A4**  
**Differences in lifetime earnings between early and never entrepreneurs.**  
**Results from non-matched samples.**

	Mean	25 <sup>th</sup> perc.	50 <sup>th</sup> perc.	75 <sup>th</sup> perc.
Starting as an entrepreneur	-10.113*** (3.263)	-26.907*** (4.503)	-8.196*** (3.156)	9.616* (5.352)
Years 1 to 5	-20.670*** (2.918)	-47.502*** (2.962)	-21.828*** (2.922)	0.831 (3.967)
Years 6 to 10	-2.556 (4.049)	-22.701*** (5.274)	-4.219 (3.093)	22.095*** (6.333)
Years 11 to 15	-4.577*** (5.075)	-26.616*** (4.778)	-1.858 (3.954)	27.392*** (7.163)
Late entrepreneurs	1,276	1,276	1,276	1,276
Never entrepreneurs	99,903	99,903	99,903	99,903
Total individuals	101,179	101,179	101,179	101,179

Notes as in table A3.

\*\*\*, \*\*, \* indicate significance at the 99%, 95% and 90% confidence levels. Robust standard errors reported in parentheses.

**Table A5**  
**Differences in lifetime earnings between early and late entrepreneurs.**  
**Results from non-matched samples.**

	<b>Mean</b>	<b>25<sup>th</sup> perc.</b>	<b>50<sup>th</sup> perc.</b>	<b>75<sup>th</sup> perc.</b>
Years 1 to 15	-11.561*** (3.657)	-10.541 <sup>9**</sup> (3.808)	-12.545* (3.630)	-11.466*** (3.978)
Years 1 to 5	-25.318*** (3.234)	-43.533*** (2.831)	-31.665*** (3.162)	-13.121*** (4.129)
Years 6 to 10	-12.301*** (4.612)	-4.859 (4.465)	-10.025** (3.961)	-12.935*** (4.497)
Years 11 to 15	-0.846 (5.912)	2.095*** (4.387)	-3.116 (4.779)	-1.734 (8.363)
Early entrepreneurs	1,276	1,276	1,276	1,276
Late entrepreneurs	8,521	8,521	8,521	8,521
Total individuals	9,797	9,797	9,797	9,797

Notes as in table A3.

\*\*\*, \*\*, \* indicate significance at the 99%, 95% and 90% confidence levels. Robust standard errors reported in parentheses.

**Table A6**  
**Balance of covariates: Late and never entrepreneurs (year dummies omitted for simplicity).**

	Mean			Variance			Skewness		
	Late SE	Never SE		Late SE	Never SE		Late SE	Never SE	
		Pre matching	Post matching		Pre matching	Post matching		Pre matching	Post matching
Age of graduation	26.45	25.81	26.45	5.295	5.076	5.295	0.191	0.527	0.192
Female	0.486	0.655	0.486	0.25	0.226	0.25	0.057	-0.652	0.057
Post-bachelor degree	0.46	0.265	0.46	0.248	0.195	0.248	0.161	1.064	0.162
Business/STEM vs other fields	0.483	0.378	0.483	0.25	0.236	0.25	0.068	0.467	0.068
Experience upon graduation	3.57	3.647	3.57	16.48	15.73	16.48	2.819	2.788	2.819
Greater Copenhagen area	0.524	0.443	0.524	0.249	0.247	0.249	-0.095	0.232	-0.095
Single	0.853	0.877	0.853	0.125	0.108	0.125	-1.155	-2.289	-1.154
High school GPA 2 <sup>nd</sup> quintile	0.161	0.21	0.161	0.135	0.166	0.135	1.845	1.427	1.844
High school GPA 3 <sup>rd</sup> quintile	0.186	0.222	0.186	0.151	0.173	0.151	1.616	1.336	1.616
High school GPA 4 <sup>th</sup> quintile	0.233	0.21	0.233	0.179	0.166	0.179	1.266	1.423	1.266
High school GPA 5 <sup>th</sup> quintile	0.291	0.181	0.291	0.206	0.148	0.206	0.923	1.658	0.923
Parental income	284.8	243.2	284.8	180,581	40,055	180,577	33.55	21	33.54
Parental tertiary education	0.518	0.434	0.518	0.25	0.245	0.25	-0.072	0.264	-0.072
Parental entrepreneurship	0.482	0.393	0.482	0.25	0.239	0.25	0.072	0.438	0.071
Manufacturing industry, at entry	0.108	0.122	0.109	0.097	0.107	0.097	2.519	2.315	2.518
Construction industry, at entry	0.014	0.015	0.014	0.014	0.014	0.014	8.32	8.133	8.32
Service industry, at entry	0.138	0.117	0.138	0.119	0.103	0.119	2.096	2.383	2.096
Knowledge-based industry, at entry	0.253	0.165	0.253	0.189	0.138	0.189	1.134	1.808	1.134
Other industries, at entry	0.481	0.578	0.481	0.25	0.244	0.25	0.077	-0.314	0.077
Wealth, year before entry	7.078	4.91	7.077	1,451	386	1,45	25.12	39.52	25.12
Ever unemployed (first 15 years)	0.258	0.165	0.258	0.192	0.138	0.192	1.104	1.805	1.104
Ever inactive (first 15 years)	0.219	0.118	0.219	0.171	0.104	0.171	1.362	2.367	1.362
Additional jobs (yes/no)	0.373	0.266	0.373	0.234	0.195	0.234	0.524	1.06	0.524
Additional salaries	3.459	2.394	3.459	77.91	37.09	77.91	7.312	4.798	7.312
# Job changes (first 15 years)	5.303	4.262	5.302	5.15	4.776	5.15	0.328	0.387	0.327
# Industry changes (first 15 years)	1.967	1.006	1.967	3.074	1.889	3.074	0.818	1.473	0.818

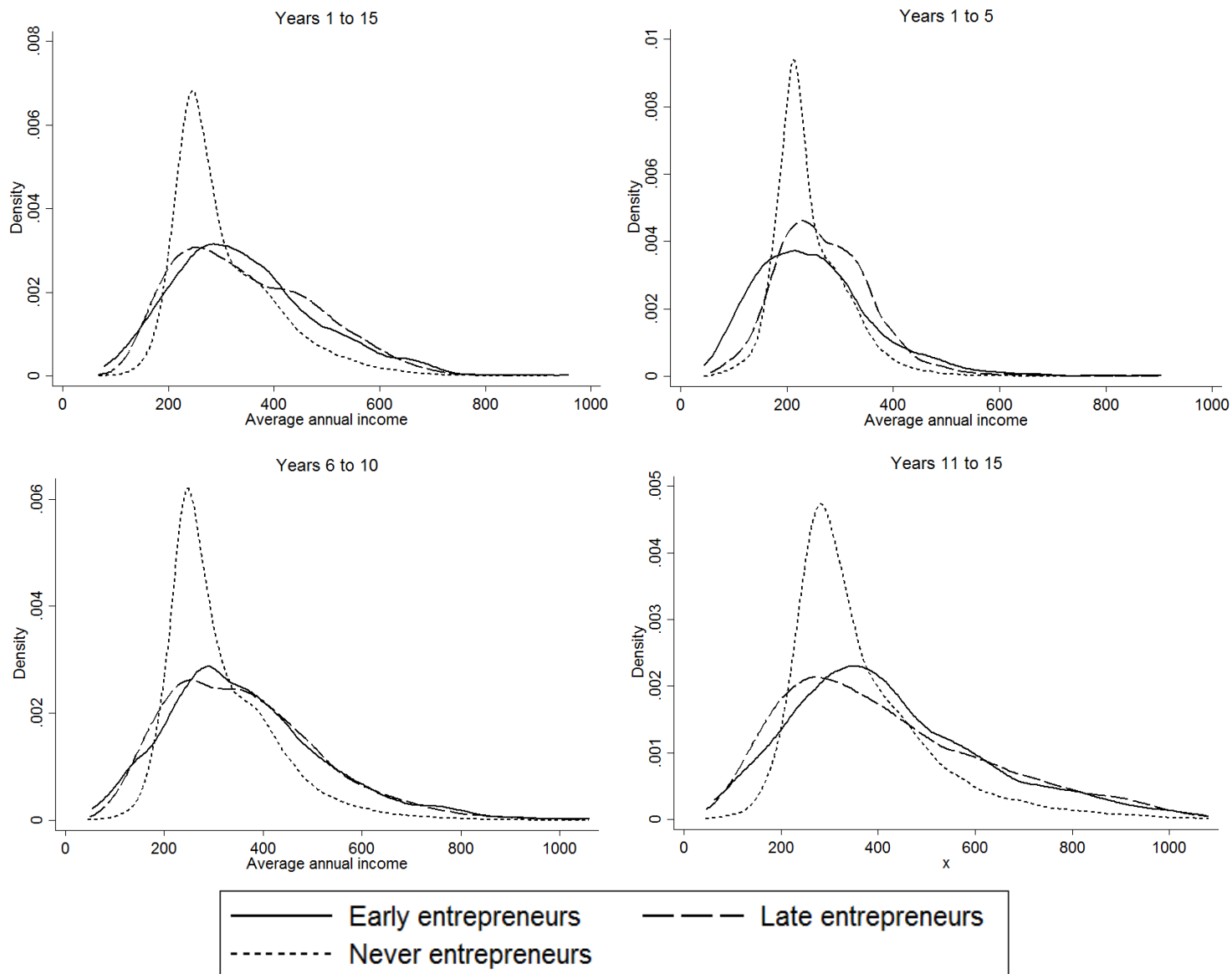
**Table A7**  
**Balance of covariates: Early and never entrepreneurs (year dummies omitted for simplicity).**

	Mean			Variance			Skewness		
	Early SE	Never SE		Early SE	Never SE		Early SE	Never SE	
		Pre matching	Post match- ing		Pre matching	Post match- ing		Pre matching	Post match- ing
Age of graduation	26.47	25.81	26.46	5.614	5.076	5.613	0.033	0.527	0.039
Female	0.302	0.655	0.302	0.211	0.226	0.211	0.864	-0.652	0.863
Post-bachelor degree	0.417	0.265	0.417	0.243	0.195	0.243	0.337	1.064	0.337
Business/STEM vs other fields	0.614	0.378	0.614	0.237	0.236	0.237	-0.467	0.467	-0.467
Experience upon graduation	2.856	3.647	2.856	16.98	15.73	16.98	2.86	2.788	2.861
Greater Copenhagen area	0.587	0.443	0.587	0.243	0.247	0.243	-0.353	0.232	-0.353
Single	0.862	0.877	0.862	0.119	0.108	0.119	-2.10	-2.289	-2.098
High school GPA 2 <sup>nd</sup> quintile	0.197	0.21	0.197	0.158	0.166	0.158	1.526	1.427	1.525
High school GPA 3 <sup>rd</sup> quintile	0.225	0.222	0.225	0.175	0.173	0.174	1.318	1.336	1.316
High school GPA 4 <sup>th</sup> quintile	0.216	0.21	0.216	0.169	0.166	0.169	1.384	1.423	1.382
High school GPA 5 <sup>th</sup> quintile	0.205	0.181	0.205	0.163	0.148	0.163	1.465	1.658	1.464
Parental income	293.2	243.2	293.2	219,896	40,055	219,851	13	21	13
Parental tertiary education	0.514	0.434	0.514	0.25	0.245	0.25	-0.057	0.264	-0.057
Parental entrepreneurship	0.528	0.393	0.528	0.249	0.239	0.249	-0.113	0.438	-0.113
Manufacturing industry, at entry	0.073	0.122	0.073	0.068	0.107	0.068	3.286	2.315	3.285
Construction industry, at entry	0.014	0.015	0.014	0.014	0.014	0.014	8.24	8.133	8.239
Service industry, at entry	0.198	0.117	0.198	0.159	0.103	0.159	1.514	2.383	1.512
Knowledge-based industry, at entry	0.458	0.165	0.458	0.248	0.138	0.248	0.170	1.808	0.170
Other industries, at entry	0.110	0.578	0.110	0.098	0.244	0.098	2.498	-0.314	2.495
Wealth, year before entry	14.11	4.91	14.11	8,051	386	8,050	18.94	39.52	18.95
Ever unemployed (first 15 years)	0.216	0.165	0.217	0.170	0.138	0.170	1.378	1.805	1.377
Ever inactive (first 15 years)	0.199	0.118	0.199	0.160	0.104	0.160	1.507	2.367	1.506
Additional jobs Y/N (first 15 years)	0.322	0.266	0.322	0.219	0.195	0.219	0.761	1.06	0.760
Additional salaries (first 15 years)	2.836	2.394	2.835	73.92	37.09	73.91	6.537	4.798	6.538
# Job changes (first 15 years)	4.527	4.262	4.526	5.939	4.776	5.938	0.207	0.387	0.208
# Industry changes (first 15 years)	2.164	1.006	2.163	3.075	1.889	3.075	0.888	1.473	0.888

**Table A8**  
**Balance of covariates: Early and late entrepreneurs (year dummies omitted for simplicity).**

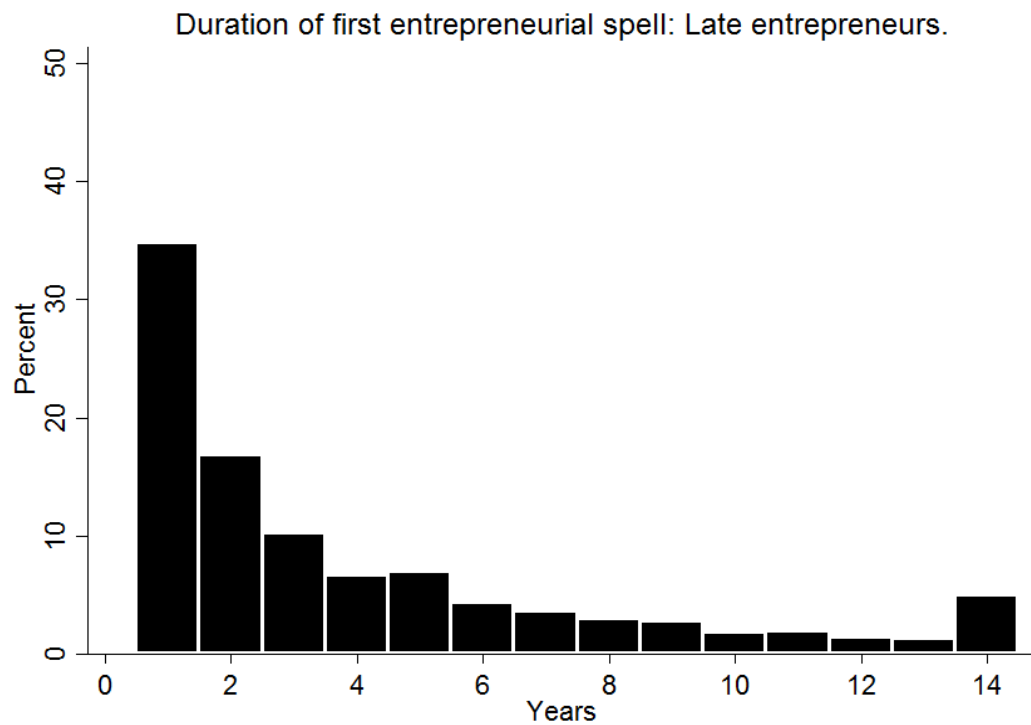
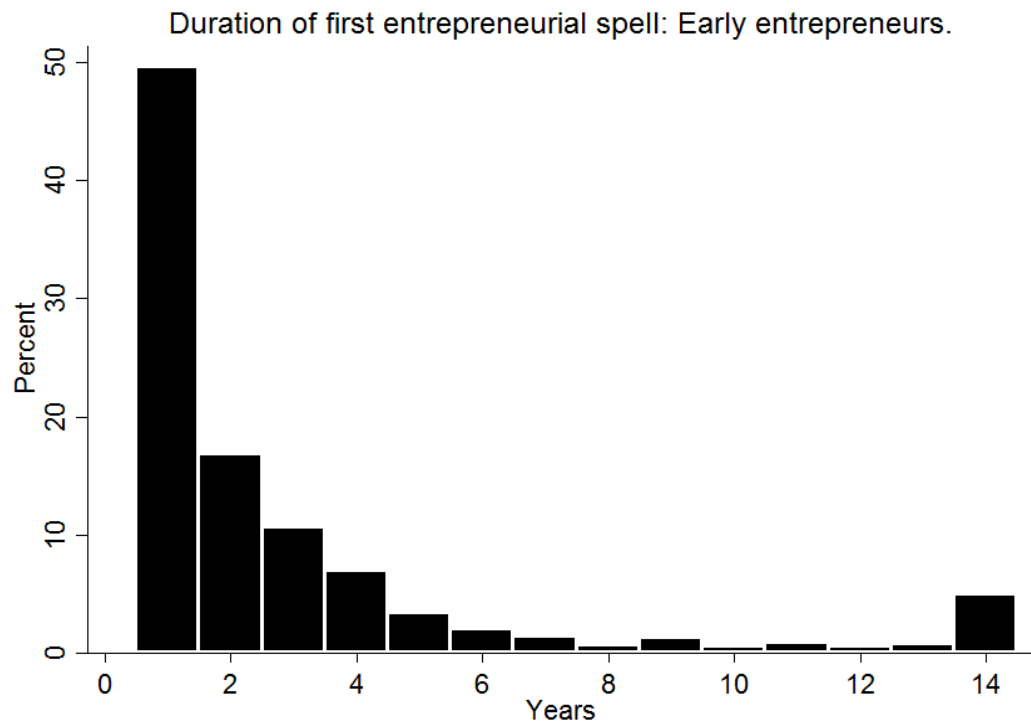
	Mean			Variance			Skewness		
	Early SE	Late SE		Early SE	Late SE		Early SE	Late SE	
		Pre matching	Post match- ing		Pre matching	Post match- ing		Pre matching	Post match- ing
Age of graduation	26.47	26.45	26.46	5.614	5.295	5.613	0.033	0.191	0.038
Female	0.302	0.486	0.302	0.211	0.25	0.211	0.864	0.057	0.863
Post-bachelor degree	0.417	0.46	0.417	0.243	0.248	0.243	0.337	0.161	0.337
Business/STEM vs other fields	0.614	0.483	0.614	0.237	0.25	0.237	-0.467	0.068	-0.466
Experience upon graduation	2.856	3.57	2.856	16.98	16.48	16.98	2.86	2.819	2.863
Greater Copenhagen area	0.587	0.524	0.587	0.243	0.249	0.243	-0.353	-0.095	-0.353
Single	0.862	0.853	0.862	0.119	0.125	0.119	-2.10	-1.155	-2.099
High school GPA 2 <sup>nd</sup> quintile	0.197	0.161	0.197	0.158	0.135	0.158	1.526	1.845	1.525
High school GPA 3 <sup>rd</sup> quintile	0.225	0.186	0.225	0.175	0.151	0.174	1.318	1.616	1.317
High school GPA 4 <sup>th</sup> quintile	0.216	0.233	0.216	0.169	0.179	0.169	1.384	1.266	1.383
High school GPA 5 <sup>th</sup> quintile	0.205	0.291	0.205	0.163	0.206	0.163	1.465	0.923	1.464
Parental income	293.2	284.8	293.1	219,896	180,581	220,195	13	33.55	13.05
Parental tertiary education	0.514	0.518	0.514	0.25	0.25	0.25	-0.057	-0.072	-0.057
Parental entrepreneurship	0.528	0.482	0.528	0.249	0.25	0.249	-0.113	0.072	-0.113
Manufacturing industry, at entry	0.073	0.108	0.073	0.068	0.097	0.068	3.286	2.519	3.285
Construction industry, at entry	0.014	0.014	0.014	0.014	0.014	0.014	8.24	8.32	8.239
Service industry, at entry	0.198	0.138	0.198	0.159	0.119	0.159	1.514	2.096	1.512
Knowledge-based industry, at entry	0.458	0.253	0.458	0.248	0.189	0.248	0.170	1.134	0.170
Other industries, at entry	0.110	0.481	0.110	0.098	0.25	0.098	2.498	0.077	2.496
Wealth, year before entry	14.11	7.078	14.11	8,051	1,451	8,050	18.94	25.12	18.95
Ever unemployed (first 15 years)	0.216	0.258	0.216	0.170	0.192	0.170	1.378	1.104	1.377
Ever inactive (first 15 years)	0.199	0.219	0.199	0.160	0.171	0.160	1.507	1.362	1.506
Additional jobs (yes/no)	0.322	0.373	0.322	0.219	0.234	0.218	0.761	0.524	0.761
Additional salaries	2.836	3.459	2.835	73.92	77.91	73.91	6.537	7.312	6.538
# Job changes (first 15 years)	4.527	5.303	4.526	5.939	5.15	5.938	0.207	0.328	0.208
# Industry changes (first 15 years)	2.164	1.967	2.163	3.075	3.074	3.075	0.888	0.818	0.888





**Figure A1**

**Distributions of average annual income by type of individuals at different time horizons.**



**Figure A2**  
**Duration of the first entrepreneurial spell of early and late entrepreneurs.**