Job Creation by the Solo Self-Employed During the First Years of Business

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Abstract: Among a cohort of solo self-employed in the Netherlands starting their business in 2008, we investigate how many of them employed at least one employee three years later, i.e., in 2011. We also investigate the determinants of the transition from solo self-employed to an employer. We find that, among surviving businesses, only 6.2% of solo self-employed turn into an employer within the first three years of running business. We also find that the amount of time invested in the business at the time of start-up significantly increases the probability of turning into employer whereas the age of the entrepreneur is negatively related to job creation. We did not find evidence for various human capital factors to influence the probability of turning into employer.

Keywords: own-account worker, employer, graduation, self-employment, hiring, job creation, entrepreneurship, solo self-employed, start-up

1. Introduction

According to the 2013 World Development Report on jobs, 600 million extra jobs are needed worldwide over the next 15 years to keep employment rates at their current level (World Bank, 2012). New-firm start-ups have the ability to create jobs for others. Governments and non-governmental organisations (NGOs) have acknowledged this. Policies in developing and developed economies are established to create an environment necessary for entrepreneurs to start a firm and become successful.

Entrepreneurial success can be measured by the amount of profit for the owner, realisation of the need for autonomy (Van Stel & De Vries, 2015), and enabling entrepreneurship for others (Burke, 2011), but it can also be measured

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by the number of jobs created. As stated by Bosma et al. (2000, p. 17): "Where the profit measure is mainly an individual success measure, total employment created can especially be seen as success for society". Public policy has looked at entrepreneurship to spawn economic growth and foster new jobs. Cities, regions, states and entire countries have turned to entrepreneurship to generate economic development (Audretsch, et al., 2007). Due to this job generating effect, it is no surprise that many (regional) authorities are trying to stimulate new-firm start-ups; however, the question is, what is the empirical evidence to support the claim that the creation of new firms leads to job creation and how many starting (solo) entrepreneurs actually become employers?

In the early nineties Mead and Liedholm (1998) systematically collected information in developing economies on job creation and the 'graduation' of firms to a new class of employment size. The authors found that graduation from survival (no employees) to micro-sized companies to small-sized and then to medium-sized companies, hardly exists. In other studies on the subject similar results are shown, both in developed and developing countries (Gomez, 2008). Survival or necessity-driven entrepreneurs are qualitatively distinct from growth-oriented or opportunity-driven entrepreneurs, and graduation thus should be expected to be the exception that confirms the rule (Berner, et al., 2012). But it is precisely this capacity for job creation that makes microenterprises worth supporting, even if it is only a characteristic that few of them exhibit. However, there is no recent research on graduation. Berner et al (2012, p. 388) state: "Surprisingly, few solid empirical studies on graduation exist".

In the context of the developed economies, research on the economic importance of small businesses started when Birch (1979) claimed that small enterprises generate a disproportionate share of new jobs (Henrekson & Johansson, 2010). Policies of governments and NGOs, and even political rhetoric in developed and developing economies, are based on this claim (Shane, 2009). Birch's findings have been criticized by several authors causing a lively academic debate about job creation.

In developed economies turning to entrepreneurship can be a choice out of necessity, i.e., the inability to find a paid job (Van Stel & De Vries, 2015), but it can also be a choice of lifestyle (Henderson, 2002). Lifestyle entrepreneurs start a business not for economic rewards but mainly for a different kind of pay-off, the opportunity for a better life (Markantoni, et al., 2014). The number of solo self-employed, broadly defined as those conducting business activity without employees, was growing among the economically active population in the last decades. Between 1991 and 2009, the number of self-employed people in Germany increased by 40 percent from 3 to 4.2 million (Fritsch, et al., 2012). In The Netherlands in 2013, 11% of the labour force was registered as solo self-employed (Centraal Planbureau, 2015) which accounts for 69.9% of all registered enterprises (Centraal Bureau voor de Statistiek, 2015). More and more members of the working population choose to become solo self-employed.

Though the context of developed and developing economies is totally different, job creation by entrepreneurs is important in both contexts (World Bank, 2012). Concerning solo entrepreneurs, even if just a moderate share of them would hire an employee, this would already contribute to bringing down unemployment (Millán, et al., 2015a). There is a relevant distinction between entrepreneurs that start as employers, those that become employers, and those who never become an employer. Regarding the last two categories, the question arises how many of the solo self-employed actually turn into employer and (directly) create jobs and what are the characteristics of these job creating entrepreneurs?

This paper aims to determine the transition rate of the solo self-employed to employer. Furthermore it assesses the determinants of this transition, by comparing the entrepreneurs who created additional jobs with those who did not realize employment during the first years of running their business. Longitudinal data on 581 solo self-employed start-ups in The Netherlands, that survived the first three years of operations, were studied for this purpose. The paper is structured as follows. In section 2 we present the literature and derive hypotheses. Section 3 describes the dataset and the methods used to carry out the research. In section 4 we present the results of the descriptive and multivariate analysis. In section 5 we discuss our main findings and in section 6 we draw conclusions and suggest future directions for research.

2. Theoretical background

2.1. Perspectives on Transition by the Solo Self-employed to Employer

In developed economies it is often assumed that small businesses create most private sector jobs (Haltiwanger, et al., 2013). It was Birch (1981) who concluded that small enterprises create more jobs than large enterprises. Partly because of such studies, both government and non-governmental organizations encourage entrepreneurship. This is done in two ways: increasing the absolute number of independent entrepreneurs (Keeble & Wever, 1986) or increasing the chances of survival of the new enterprises (Schutjens & Wever, 2000). Policies are established to create an environment necessary for entrepreneurs to start, become successful, and create new jobs in the process.

More recent research suggests that new enterprises, rather than small ones, contribute the most in creating jobs within the private sector. There is no systematic relationship between firm size and growth when controlled for firm age (Haltiwanger, et al., 2013). Young enterprises have both high rates of job creation and job destruction; though, young enterprises that survive show more rapid growth than existing enterprises. For example, enterprises that are over 10

years old with more than 500 workers account for 45% of all jobs in the U.S. private sector and 40% of both job creation and destruction, while new enterprises account for only 3% of total employment but almost 20% of gross job creation (Haltiwanger, et al., 2013).

Graduation is the process of firm job growth that transitions the firm in a subsequent size class (Liedholm & Mead, 1995). The literature presents several operationalisations by different authors. Liedholm & Mead (1995) suggest in their report that graduated enterprises started with 1-4 employees and transitioned to at least 10. However, Farbman & Lessik (1989) define graduation as a transition between classes. Here, enterprises are categorised in three groups: survival activities of the poorest (no employees), microenterprises (up to 10 employees), and small-scale enterprises (10-50 employees). These thresholds are defined in this way because "…each of the three categories of enterprise activity suggests its own particular approach for intervention" (Farbman & Lessik, 1989, p. 10). In other research this threshold was also used to show that a multi-person substantial firm was created (Stam, et al., 2008) (Baron, et al., 1996).

Growth patterns of micro enterprises are strikingly different from the growth patterns of small, medium-sized and larger enterprises (Coad & Hölzl, 2009) and it is therefore important to study them separately. Most entrepreneurs start small and never become employers (Davis, et al., 2007). Perhaps the most interesting group to study, due to their big numbers, is the group that starts as solo self-employed and make the transition to become an employer. In literature about graduation there is no focus on this transition. It can be argued however that the transition to become an employer is the first threshold to pass that can be defined as graduation. Désiage et al. (2011) call this transition passing the one-employee threshold for firms with no employees. "Once an entrepreneur has experience with running a business with personnel (e.g. experience with financial planning to pay a salary every month, experience with administrative burdens associated with employing personnel, etc.), the step to employing more personnel may well be smaller" (Millán, et al., 2015a, p. 322). Désiage et al. (2011) conclude that the longer a firm without any employee survives, the lower the probability that it hires at least one employee. Hence, when studying the transition from solo self-employed to employer, particularly the first years of running business are of importance.

Policy makers seem to focus on small enterprises and self-employment as the driving force of economic growth and job creation. Even though this popular belief has often been discussed in literature, the empirical evidence is ambiguous (Davis, et al., 2007). However important this transition to become employer is, there is not much literature on job creation by the self-employed in general (Burke, et al., 2002). In this paper we will assess the relative prevalence of solo entrepreneurs who graduate into becoming an employer.

2.2. Perspectives on Determinants of Job Creation by New Firms

Shane (2009) argues that only a limited number of start-ups generate jobs and enhance economic growth. He finds that, for example, in 2004 new enterprises accounted for 7% of the total number of jobs created that year in the United States. However, after its first year of operations these enterprises have a net job destruction because a lot of enterprises closed down in their second, third, and fourth year and so on. Also, jobs that are created by new enterprises are more often part-time jobs than those in existing enterprises. Shane states that in order to grow, the new company would need to be more productive than existing ones. He encourages policy makers to only stimulate the creation of high-quality, high-growth companies (Shane, 2009). But how can these high-quality, high-growth companies be identified?

New-firm start-ups are not alike. This dissimilarity of new enterprises affects their success. There have been numerous empirical studies analyzing factors determining employment growth in new enterprises. Researchers tried to find determinants that could predict future success. According to Cooper et al. (1994, p. 375) the strengths and weaknesses of the starters are the strengths and weaknesses of the firms.

If policymakers wish to encourage entrepreneurship as a means of encouraging economic growth, the focus should be on studies that examine the determinants of performance metrics (Sørensen & Chang, 2006). Many determinants have been found and examined in relation to entrepreneurial success. In a comprehensive, systematic review several empirical papers that analyse multiple factors associated with employment growth in new firms were studied (Stam, et al., 2008). From these studies we recognise 11 determinants that were studied in both developed and developing economies. In this paper we divide those in three subsets.

The first subset contains the fixed determinants which are given for any entrepreneur. Second there are human capital determinants based on experience and education level. Third, we identify four determinants that are based on decisions made by the entrepreneur when starting the company. These studies are summarised in Table 2-1. This table does not give an exhaustive overview of all factors that have been used in these studies.

For each determinant we have formulated a hypothesis. Although the focus of the empirical studies mentioned is on employment growth of new-firm start-ups irrespective of the initial size of these new firms, in our article we focus specifically on determinants of job creation by new solo self-employed. We thereby implicitly assume the determinants of job creation are similar between solo self-employed and firms in general.

Table 2-1: Empirical studies on employment growth of new enterprises in several studies

Categories	Determinants/ factors associated with new firm growth	(Liedholm & Mead, 1995)	(Cooper, et al., 1994)*	(Brüderl, et al., 1996)	(Schutjens & Wever, 2000)	(Bosma, et al., 2004)	(Stam, et al., 2008)	Specific research on this determinant		
				Results				Research by	Result	Hypothesis
Fixed determinants	Gender (male)	+	+	+		+	0	(Klapper & Parker, 2011)	+	H_1	+
	Age of entrepreneur			0	0		+	(Kautonen, et al., 2014), (Henley, 2005)	Inverse U-shape	H_2	Inverse U-shape
Human capital determinants	Education	+	+	0	0	0	0	(Van der Sluis, et al., 2008)	+	H_3	+
	Entrepreneurial background		0				0	(Sørensen, 2007)	0	H_4	0
	(Prior) employment	+						No specific research found		H_5	+
	Experience as an entrepreneur	+		0		0	0	(Stuart & Abetti, 1990)	+	H_6	0
	Industry Experience		+			+	0	(Stuart & Abetti, 1990)	0	H_7	+
Decision-based determinants	Time investment start	+				+				H_8	+
	Hybridity (sideline activities)	-								H_9	-
	Start capital (amount)		+	+	0		0			H_{10}	+
	Business partner		+	0	+		0			H_{11}	+

* Results confirmed in (Dahlqvist, et al., 2000)

2.2.1. Fixed Determinants

The first subset contains gender, and age of the entrepreneur. With regards to gender several studies have been conducted as is shown in Table 2-1. Consensus is found in the studies regarding gender. In most studies, males have a positive relation with firm growth. In our study we expect similar results and therefore we expect solo self-employed start-ups led by male entrepreneurs to realise significantly more job growth than those led by female entrepreneurs (H_1). This however does not imply that women are less capable entrepreneurs but that they tend to make different choices. Differences in quantitative indicators of business performance can, in part, be explained by a number of business environment factors that disproportionately affect women's decisions to operate a business in the formal sector (Klapper & Parker, 2011).

  Another fixed determinant is the entrepreneur's age. In literature on job growth, two studies found no relationship between age and job growth while three more recent studies found a relationship in favour of middle aged entrepreneurs.

In 27 European countries an inverse U-shaped age effect applies to those entrepreneurs who aspire to hire workers (Kautonen, et al., 2014). "Ceteris paribus the most successful job creators appear to be in middle-age" (Henley, 2005, p. 25). However, age of the entrepreneur may affect entrepreneurship indirectly through its relationship with other determinants (De Kok, et al., 2010). We expect, based on these outcomes, that the group of entrepreneurs between 35 and 49 years old will realise significantly more job growth than those older or younger (H_2).

2.2.2. Human Capital Determinants

Economists champion a human capital model which examines variables such as acquired experience and education and their effects on various career outcomes (Becker, 1975). This category contains the determinants about prior employment, entrepreneurial background and experience, industry experience and education.

In 2008, a comprehensive meta-analysis was conducted of 94 studies that covered estimates of the relationship between schooling and entrepreneurial performance. In these studies, it was found that schooling, irrespective of how it is measured, significantly and positively affects entrepreneurial performance (Van der Sluis, et al., 2008). We therefore expect entrepreneurs with some education (regardless of level of education) to realise significantly more job growth than those without (H_3).

On entrepreneurial background, having at least one entrepreneurial parent increases the probability of becoming an entrepreneur by 60% (Lindquist, et al., 2015). Studies however show no relation between the entrepreneurial background and better performance as an entrepreneur (Sørensen, 2007) which is also the expectation for our study (H_4).

Besides the studies conducted by Liedholm & Mead, no studies were found on the job creation success of the enterprises created by the formerly unemployed. Empirical evidence on the characteristics of previously unemployed business founders and their direct job creation rates is rare (Caliendo & Kritikos, 2010). Based on Liedholm & Mead we can expect a relation between prior employment and job creation (H_5). Research on previous experience as an entrepreneur and industry experience show ambiguous results. A small majority of studies show no relationship concerning previous experience (H_6), while a small majority does show a relationship between industry experience and job creation rates (H_7). See Table 2-1 for an overview of empirical studies and the resulting hypotheses.

2.2.3. Decision-Based Determinants

The third subset contains determinants that are related to decisions made by the entrepreneur while starting the company. Entrepreneurs can decide to fully commit their attention to the new enterprise and work full time in the enterprise. On the other hand, so-called hybrid entrepreneurs, choose to be more cautious and maintain other activities next to their enterprise and usually spend fewer working hours in the company (Folta, et al., 2010).

The existent literature shows almost no research on the effect of direct time investment and the actual success of entrepreneurs on creating jobs, as shown in Table 2-1. Based on the literature that is available we expect for both determinants a relation with the creation of jobs (H_8, H_9).

Start-ups are faced with the decision to make choices concerning their starting capital. Relatively large start-ups should have more resources enabling them to grow more rapidly than small start-ups. Contrasting evidence has been found on the relationship between the amount of starting capital and subsequent firm growth. One of the studies that shows a relationship between the two however was replicated with similar results (see Table 2-1). Therefore our hypothesis is that there is a positive relationship between the amount of starting capital and the creation of jobs (H_{10}).

Finally, a decision is made is whether to start alone or with one or more business partners. Here we also find contrasting evidence. However, more evidence points towards a relationship between this determinant and job growth which is therefore the expectation for our study (H_{11}).

3. Method

3.1. The Data Set

The data set used is Panteia/EIM's so-called Starterspanel; it contains information on a cohort of entrepreneurs in the Netherlands that started in 2008. In 2008, a cohort of 1010 entrepreneurs that started their enterprise entered the panel and they were surveyed annually by telephone by means of a questionnaire. Personal characteristics, firm characteristics, and business strategy are topics covered (Ichou, 2010).

After three years, 62.3% of the initial entrepreneurs remained in the panel (see Table 3-1). The other enterprises stopped participating, terminated their enterprise or were untraceable for unknown reasons. These enterprises were excluded from the analysis in this research. Our study may therefore suffer from survival bias as only the surviving enterprises were included in our research sample.

Table 3-1: Observations per year

Year	Observations	Percentage
2008	1010	100.0%
2009	721	71.4%
2010	672	66.5%
2011	629	62.3%

The entrepreneurs that had already employees at the start were excluded from the sample. The annual results of 2008 and 2011 have been merged into one data set containing the annual observations of 581 entrepreneurs. These entrepreneurs were solo self-employed in 2008, and were still in business (either with or without employees) in 2011.

3.2. Sample Characteristics

The entrepreneurs included in our sample are most often male (50.1%). In 15% of the cases the gender is unknown. We excluded these cases from the regression test on determinants. The age ranges from 19 to 72. The distribution of the enterprises across industries is shown in Table 3-2.

Table 3-2: Distribution of solo self-employed across industries

Industry	Observations	Percentage
Car industry	10	1.7%
Construction industry	72	12.4%
Retail	70	12.0%
Financial services	4	0.7%
Wholesale	30	5.2%
Hospitality industry	14	2.4%
Industry	37	6.4%
Agriculture	15	2.6%
Transport/Communications	13	2.2%
Business services	229	39.4%
Other services	87	15.0%
Total	581	100.0%

3.3. Variables

The independent variables were measured in the primary survey, which was conducted in 2008. The dependent variable, i.e., the transition from solo self-employed to employer, was measured over the period 2008 – 2011. In Table 3-3 the variables used in the analyses are described. Industry experience was excluded from the analysis because of a low number of observations.

Table 3-3: Description of variables used in the analysis

Variable	Description	Encoding
Solo self-employed	Enterprises with 0 employees	Dummy variable
Employer	Enterprises with at least 1 employee	Dummy variable
Transition to employer	Enterprises that had 0 employees in 2008 and at least 1 employee in 2011	Dummy variable
Determinants		
Gender	What is the gender of the entrepreneur?	(1) Male, (0) Female.
Experience as an entrepreneur	Has the entrepreneur tried to start a firm prior to the current one?	(1) Yes, (0) No.
Education	What is the educational level of the entrepreneur?	Original categories: (1) basisonderwijs, (2) HAVO/VWO/HBS, (3) HBO, (4) MBO, (5) universiteit, (6) VMBO/MAVO/LBO, (7) weet niet/w.n.z.
		Dummy for educational categories: (1) Primary education (containing original category 1), (2) Secondary education (containing original categories 2 and 6), (3) Higher education (containing original categories 3, 4, and 5)
Start-up capital (amount)	How much start-up capital was brought into the firm?	(1) No start-up capital, (2) < €2.500, (3) €2.500-€5.000, (4) €5.000-€10.000, (5) €10.000-€25.000, (6) €25.000-€50.000, (7) €50.000-€75.000, (8) €75.000-€100.000, (9) > €100.000.
Age	What is your age?	Age was measured as an ordinal scale ranging from 19 to 72.
Hybridity (side-line activities)	Does the entrepreneur execute other activities, next to the firm?	(1) Yes, (0) No.
Business partner	Does the entrepreneur lead the firm on his own or with a business partner?	(0) On his own, (1) With a business partner.
Prior employment	Was the entrepreneur employed prior to starting the firm?	(1) Yes, (0) No.
Entrepreneurial background	Was the entrepreneur, prior to starting the firm, familiar with entrepreneurship, for example via parents or partner?	(1) Yes, (0) No.
Time investment at start	How many hours were spent on the firm at the start of the enterprise?	Time investment was measured as an ordinal scale with 7 time categories of 10 hours each.
Industry experience	Did the entrepreneur work in the same industry as his enterprise prior to start?	(1) Yes, (0) No.

4. Results

4.1. Transition Rate

Table 4-1 shows that, out of 581 observations, 36 entrepreneurs hired one or more employees and made the transition to become an employer. Hence, the transition rate observed between 2008 and 2011 was 6.2%. As a robustness check on the trends in job creation we also looked at data from an earlier panel (2000-2003) and found similar results.

Table 4-1: Transition rate between 2008 and 2011

Status in 2011	Observations	Percent of entrepreneurs
Solo self-employed	545	93.8%
Employer	36	6.2%
Total	581	100%

4.2. The Influence of Determinants on Transition

Table 4-2 shows the results of a logit analysis where the dependent variable is the transition from solo self-employed to employer. The Nagelkerke R-square has a value of 0.214, implying that the model accounts for 21.4% of the variability in the dependent variable. We tested for the presence of multicollinearity by means of variance inflation factors (VIFs). No sign of multicollinearity was found as all VIF values were below 1.5.

Table 4-2: Analysis of determinants of job creation by solo self-employed (N=456)[2]

Categories	Determinants	Coefficient	Standard error	P-value
Fixed determinants	Gender (male)	0.537	0.488	0.271
	Age	-0.072*	0.025	0.004
Human capital determinants	Education (low)[a]	0.580	0.487	0.234
	Education (medium)	-0.628	0.487	0.197
	Entrepreneurial background	0.236	0.412	0.566
	(Prior) employment	-0.132	0.507	0.794
	Experience as an entrepreneur	0.630	0.480	0.190
Decision-based determinants	Time investment at start	0.407*	0.130	0.002
	Hybridity (side-line activities)	0.182	0.473	0.700
	Start-up capital	0.090	0.056	0.110
	Business partner	0.435	0.495	0.379
	Constant	-2.507	1.326	0.059

[a] Reference category for education level is high education.
* Significant at 1% level.

For the fixed determinants a negative relation was found between entrepreneur's age and job creation.[3] This means that an increase in age decreases the probability to make the transition to employer. With regards to gender, no relation was found. Also, no relation can be detected regarding human capital determinants. For the decision-based determinants the time investment at the start is positively correlated with job creation. This implies that entrepreneurs who spend more time when starting their firm have a higher probability of becoming an employer.

5. Discussion of Findings

5.1. Discussion on Job Creation

Our data clearly show that job creation by solo self-employed hardly exists in The Netherlands. The rate of becoming an employer is 6.2%. In more stable economic periods (2000 – 2003) this percentage is only slightly higher (9.6%).[4] Shane

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2.   The number of observations (456) in the logit regression is lower than 581 (see Table 4-1) due to missing values for some of the independent variables.
3.   We also ran a variant with age squared included but we did not find evidence for an (inverse) U-shaped relation.

(2009, p. 146) stated that: "Policy makers need to recognize that only a select few entrepreneurs will create the business that will create jobs". Our data confirms this. This also confirms the conclusions previously drawn by Davis et al. (2007) who stated that most entrepreneurs never become employers. This can partly be explained by the rise of the life-style entrepreneurs in the developed economies. In some cases these entrepreneurs sacrifice growth for lifestyle choices (Henderson, 2002). While promoting entrepreneurship to encourage employment generation as legitimization, governments should be aware of the fact that the vast majority of the entrepreneurs do not grow as shown in our results.

5.2. Discussion on determinants

For policy implications, governments need to know who actually becomes employer, i.e., who passes the one-employee threshold (Désiage, et al., 2011). Not many solo self-employed entrepreneurs hire employees. Our aim was to determine the characteristics of those that were able to create jobs.

Table 5-1: Analysis of determinants on job growth

Categories	Determinants/factors associated with new firm growth	Hypothesis		Our research on transition
Fixed determinants	Gender (male)	H_1	+	0
	Entrepreneur's age	H_2	Inverse U	-
Human capital determinants	Education	H_3	+	0
	Entrepreneurial background	H_4	0	0
	(Prior) employment	H_5	+	0
	Experience as an entrepreneur	H_6	0	0
	Industry Experience	H_7	+	n.a.
Decision-based determinants	Time investment start	H_8	+	+
	Hybridity (side-line activities at start)	H_9	-	0
	Start-up capital	H_{10}	+	0/+
	Business partner	H_{11}	+	0

5.2.1. Fixed Determinants

In our study we did not find a confirmation of the presumed relationship between gender and job creation as stated in H_1. Our research does find a negative relation between age and job creation (H_2). Mixed results could be found in the literature. In the studied dataset we see more job growth in the group of younger

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4. As was found in the data from an earlier panel (2000 – 2003).

entrepreneurs while other research suggests a U-shaped distribution among age groups.

5.2.2. Human Capital Determinants

No statistically significant relations were found between the human capital determinants and job creation. For education and prior employment this contradicts the findings in other studies (H_3, H_5). Also in other studies on the solo self-employed, education is shown to affect job creation positively (Millán, et al., 2015b). We were unable to confirm or reject findings on industry experience since this variable was excluded due to a low number of observations (H_7). In other studies this was found to be relevant (Millán, et al., 2015b). Our expectation on the absence of a statistically significant relation between entrepreneurial experience, having an entrepreneurial background and job creation was confirmed (H_4, H_6). In general, the capabilities do not seem to influence job creation; however, they might affect the choices entrepreneurs make. We would advise assessing this in the future with qualitative research.

5.2.3. Decision-Based Determinants

We expected a positive relation between all decision-based determinants and job growth. Our study however only shows a significant relation between the amount of time invested in the company (H_8) and the transition. The more time an entrepreneur spends on his or her start-up, the higher the probability that he or she becomes an employer. For start-up capital a p-value slightly above 0.10 was found, providing weak evidence that to some extent, liquidity constraints may be at play as well. Again, additional research is advised.

5.3. Limitations

Because only surviving enterprises were analysed in the survey, survivor bias is a potential risk. There are no data available about the start-ups that did not survive or were unwilling to participate in the panel. It is, for example, possible that enterprises that stopped participating in the panel were very successful, but their disappearance could also be caused by bankruptcy. In research based on older data sets of the same panel, an 'exit-survey' was performed, although this survey was only performed among a minority of all the exits (Stam, et al., 2008). Nevertheless, the enterprises that were not included in the sample were checked for differences in the initial conditions, and it was found that the variables had the

same values in both samples, suggesting that survivor bias did not play a big role in the analysis.

Another limitation of this study is the classic selectivity problem (Heckman, 1976). Because our population contains only individuals who started a new enterprise, we have a non-random sub-sample of the population as a whole. This means that the observed distribution is also non-random and this may lead to bias in the estimated effects of the determinants. Consequently, we should be careful generalizing the results of the present study to the population of non-entrepreneurs.

To interpret the low number of employers, the typical Dutch context must be taken into account. Grimm and Paffhausen (2014) systematically reviewed employment creation by entrepreneurs in firms. They state that findings from certain countries cannot always be generalized and applied to other regions (Grimm & Paffhausen, 2014). Especially the specific Dutch fiscal stimulation policies could have had an influence in the growth of the number of solo self-employed (Centraal Planbureau, 2015).

6. Conclusion

Our aim was to determine the transition rate of solo self-employed entrepreneurs to employers in the Netherlands and to establish the determinants that influenced this transition. We found that only a limited proportion of solo entrepreneurs (6.2%) becomes an employer during the first three years of operating the business, confirming similar trends found in the literature (Davis, et al., 2007) (Désiage, et al., 2011). We also found that the amount of time solo entrepreneurs spend in their new enterprise and their age seems to influence whether they become an employer.

The low percentage of transition to employership can partly be explained by recent trends such as lifestyle entrepreneurship and necessity entrepreneurship. The positive relation between the amount of time and job creation seems to confirm this trend. Another possible explanation relates to entrepreneurs that replace workers in companies, partially stimulated by fiscal reasons.

The amount of time solo entrepreneurs spend in their new enterprise seems to influence whether they decide to become an employer. Therefore, in order to stimulate job creation by solo self-employed, policy makers may consider promoting full-time entrepreneurship rather than part-time.

The division between solo entrepreneurs that become employers and those who stay a non-employer is an important distinction and needs additional research. Contrary to other studies, we did not find evidence for human capital factors to influence job creation. The motivation for entrepreneurship might be a relevant factor which can be examined in further research. We would advise to conduct research to determine what the considerations are that entrepreneurs take

into account when passing the one-employee threshold. Such research could have a strong qualitative component. This research could discover a yet unobserved factor and lead to a basis to create effective policy instruments. Since research comparable to this paper is scarce, future research should also focus on replication of the current study for other countries and time periods.

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