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Being your own boss: the many faces of self-employment

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ABSTRACT

The number of individuals registered as self-employed in the UK has grown considerably over the past two decades. Much of the economic literature considers the self-employed as a homogeneous group of individuals, whereas in reality, the term now encompasses a variety of very different entrepreneurs, such as businesses or partnerships, sole traders, freelance workers and sub-contractors. This paper estimates a dynamic multinomial model of four employment states; examining the probability of moving between states attempting to identify whether it is state dependence, personal or work place characteristics hold greater sway in the self-employment decision. Findings indicate that state dependence plays a major role in remaining self-employed but that it is possible to start as a freelance worker and progress to a business with employees.

JEL CODES: J20, J21, J24, L26

KEYWORDS: Self-employment, Dynamic multinomial choice, Initial conditions.

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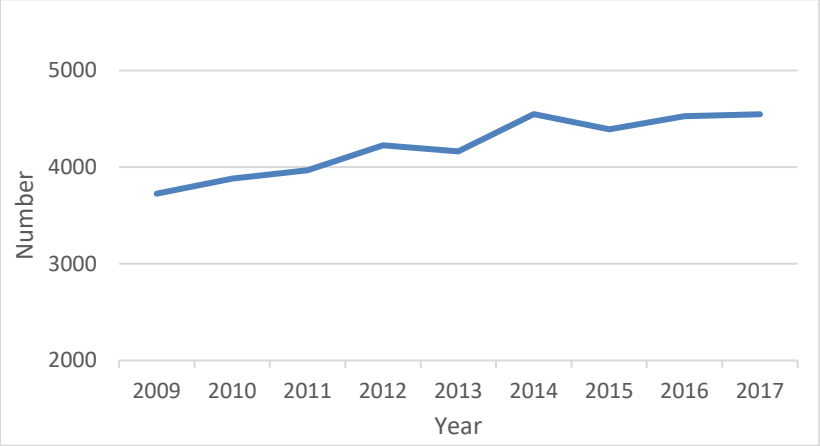
1. *Introduction*

The number of self-employed individuals in the UK increased significantly from the beginning of the new millennium, and notably did not decline even during the period of the global economic crisis. In 2015 self-employment accounted for approximately one-third of the growth in employment since 2010 (Bank of England, 2015). In 2017 it was estimated that around 15.1% of workers in the UK were self-employed an increase of over three percentage points since 2001 (Office for National Statistics, 2018). Not only have we witnessed the growth in the number of individuals classed as in self-employment, we have also witnessed a 36% increase in freelance workers over a decade (Kitching, 2016). Figure 1 below, shows the number of individuals registered as self-employed in the UK across the years considered in this paper, which is recorded as a single figure, not as separate types of self-employment. This paper examines possible reasons behind this exceptional growth of self-employment, with a focus on the different types of self-employment. The focus here is on the fact that 'the self-employment sector' is an aggregation of very different types of enterprise (e.g. incorporated businesses, partnerships, sole traders, freelance workers[2] and sub-contractors) with possibly very different dynamics and very different drivers[3]. We shall attempt to define the drivers of these different types of self-employment and the implications of heterogeneity for the behaviour of the sector.

Figure 1. UK Self-Employment 2009-2017 in thousands



Source data Office for National Statistics (2019) Self-employment (thousands) seasonally adjusted figures

[2] The number of freelance workers increased from 1.4 million in 2008 to over 1.91 million in 2015, a rise of 36 percent (Kitching 2016). This rise in freelance workers has been assisted by rise of the 'gig economy' whereby individuals are able to advertise their services or find clients over the internet; the most recognised of this type of platform in the UK being Uber.

[3] For example, the self-employed sole trader or business owner will run their business and serve their own clients whereas a sub-contractor usually has one client who in turn has their own clients; in essence, the sub-contractor acts as 'a middle-man' and services his client's clients.

The decision to become self-employed may be due to a multiplicity of reasons that include both push and pull factors. The pull factors include, for instance, the desire to be enterprising or the desire to be one's own boss and enjoy the autonomy and work-life balance that derives from this, or recognising a niche market. The push factors would include redundancy, insecurity (and the fear of redundancy), or, if previously in paid employment, because the nature of the job the employee has always done has changed and now they are face with either unemployment or the chance of carrying on in the same job, but as a self-employed subcontractor. Additionally, the labour supply of individuals' is known to demonstrate much persistence (Booth, Jenkins, and Serrano 1999; Francesconi 2002; Prowse 2012). In this paper, the focus is mainly on the pull factors as possible drivers for an individual entering a specific type of self-employment whilst also accounting for state dependence, which leads an individual to choose an employment type in any period that is strongly dependent on their employment status in the previous period and hence to persistence in that employment. The modelling in this paper also controls for unobserved heterogeneity in the employment choice. Using panel data for the UK over a period of eight years, both the personal characteristics of individuals, the characteristics of their job and their employment status over the eight-year period are taken into consideration in a dynamic model of choice of employment status.

The contribution of this paper, then, is to attempt to address the state dependence, unobserved heterogeneity, and pull factors within the self-employed sector by investigating the probability that an individual selects a particular type of self-employment. More specifically, using UK panel data that allows a comparison between different classifications of self-employment, dynamic multinomial models are estimated which control for state dependence and initial conditions. This paper examines personal characteristics, job characteristics and state dependence to ascertain which plays a larger role in the decision to be self-employed in any given year. The following section presents a review of the existing self-employment literature. Section 3 presents the data and methodology followed by the results in section 4 and finally the conclusion in section 5 where there is discussion of the implications of the findings.

2. Literature

There is a wealth of literature examining the motivations of individuals to become self-employed. However, as mentioned in the introduction, much of this literature considers the self-employed as a homogenous group. From an econometric point of view, this may have been necessary because of the small proportions of individuals found in self-employment in many datasets in the past, before the emergence and growth of the 'new self-employed classifications'. For example, in the UK study by Taylor (1996), which examines whether the push factor of unemployment or pull factors of perceived greater

earnings from self-employment and independence hold most sway in the self-employment choice for males, there were just 466 self-employed observations in the first wave of the British Household Panel Survey.

Of the studies of self-employment that disaggregate by gender, it has been largely found that men are more likely to be self-employed than women (Parker, 2004; Henley 2017), and that the assumed growth in female self-employment in the early twenty-first century was incorrect (Ajayi-Obe and Parker, 2005). However, since the turn of the century a large literature has emerged that considers whether women enter self-employment because they then may be able to juggle earning income with family commitments (Carter 2006; Wellington 2006; Dawson et al 2009). Carter (2006) finds that more women than men use their home as a base for their business, although females find it more difficult than males to raise venture capital. Additionally, it is argued that females are more likely to run a business from home where they have a spouse who is in employment. This claim is supported by Dawson et al, (2009), who use the UK Quarterly Labour Force Survey from 1999 to 2001, and find that women are concerned more with lifestyle factors in their job choice and less with financial gain. Craig et al (2012), in their examination of gender differences in employment status in Australia find that new mothers are more likely to enter self-employment because they can work from home with their children. However, Wellington (2006) examined the number of women entering self-employment in the United States across the 1970s to the 1990s, and found no evidence that they enter self-employment in response to family demands. Therefore, whilst the evidence on gender is mixed, there is no disaggregation by classification types of self-employment, which may explain opposing findings.

Burke et al. (2009) using the National Childhood Development Survey, which is a panel survey, find that in the south of the UK there are more self-employed than in other regions but that they create fewer jobs, which is indicative of those individuals on average being sole traders or freelance workers rather than large business entrepreneurs. It is also questioned whether more highly educated individuals are required for entrepreneurial activities (Lazear 2005; Burke 2009; Hartog et al. 2010). The evidence appears to be that general ability and skills are more important than a specialised qualification for successful entrepreneurs. In the UK, Burke et al (2009) find that in the south those who have post-compulsory education are less likely to enter self-employment because they have more job opportunities. Lazear (2005) in his study of Stanford graduates finds that all round ability and more work experience is essential for successful entrepreneurship, and this also predicts an increased likelihood of these graduates entering self-employment compared to graduates who studied just one subject and who focused only on one role at work. Hartog et al. (2010) using the National Longitudinal Survey of Youth for the U.S. agrees with the conclusions of Lazear (2005). In their study, they examine the role of formal qualifications and general abilities, such as, social skills.

Their random effects and difference-in-difference estimations reveal a robust finding that conclude that mathematical, social and technical abilities are valuable for entrepreneurs. One paper that does examine the difference in the returns to education between employees, entrepreneurs and what they term as 'necessity entrepreneurs'[4] is that of Fossen and Buttner (2013), who use the German Socio-Economic Panel Survey and find that the return to education for necessity entrepreneurs is around 3% less than for employees.

Turning to non-pecuniary aspects of self-employment as a reason for choosing to be self-employed, Taylor (1996), using the British Household Panel Survey, examined aspects of the job and found that the self-employed stated their enjoyment of their job was much more important to them than either the pecuniary benefits or job security. Dawson et al (2014) using UK Quarterly Labour Force Data 1999 to 2001, find that individuals who entered self-employment in Ireland did so to be independent and for better working conditions. The newly self-employed are willing to accept lower earnings in exchange for psychic benefits by the way of autonomy in their working (Croson and Minniti, 2012), and it is claimed that the self-employed entrepreneur prefers to make their own decisions without restrictions from others and so have a strong need for autonomy (Rauch and Frese, 2007). Autonomy in one's work, such as being able to make one's own decisions is found to be an important factor for new entrepreneurs, which sometimes leads to overconfidence in the ability to succeed and a reason why small businesses are seen to have a high early failure rate (Koellinger et al. 2007). Autonomy in work then, has mainly been viewed as relating to entrepreneurs but this may be applicable to other forms of self-employment where the worker seeks independence. As van Gelderen and Jansen (2006) find in their sample of self-employed, there exists more than one type of autonomy, the strongest of which is the need to run ones-own business rather than working for a boss. Amongst other types of autonomy is the freedom that it gives to set ones-own goals or challenges, although it is argued by (Sutherland et al. 2020) that for freelance workers this autonomy comes at the expense of precarity. Gelderen and Jansen (2006) acknowledge that the need for autonomy could be influenced by personality characteristics. Personality traits such as, openness to experiences and extraversion are found to play a major role on the decision to enter self-employment (Caliendo et al. 2014). In addition to the big five personality types, the propensity of individuals to take risks on their likelihood of entering self-employment or their level of risk aversion in their decision not to enter self-employment has been examined (Ekelund et al. 2005; Fairlie and Holleran, 2012; Brown et al., 2011; Skriabikova et al. 2014). Fairlie and Holleran (2012), using project GATE, a program administered by US Department of Labor in seven states, examine the role of autonomy by creating an index of autonomy from related questions,

[4] Entrepreneurs are defined as individuals who see an opportunity in the market and an expectation of material gain whereas necessity entrepreneurs are reacting to a lack of employment opportunities.

such as “I enjoy working independently” and “I have innovative ideas”. The estimates from their probit models of the likelihood of entering self-employment some 6, 18 and 30 months after training show that individuals who have a preference for autonomy benefit from entrepreneurship training and are more likely to start up their own business. Two of the attractions of self-employment are the flexibility associated with hours worked and the independence entailed (Rees and Shah 1986). Rees and Shah (1986) use the General Household Survey for 1978, to estimate a probit model of self-employment. After estimation of wage differentials between the self-employed and employees they include this in their model and find that more education increases the probability of entering self-employment; they conclude that more education increases the productivity of the self-employed individual and that this reduces the variance in self-employment earnings.

Henley (2017), using the UK Understanding Society Survey, finds that pull factors, such as low regional unemployment and high wages where demand for goods and services are strong explain a large part of the decision to enter self-employment. However, Darcy and Gardiner (2014) find no significant growth in self-employment where there are strengthening labour markets. Urwin (2011 p33), acknowledges that the proportion of firms without employees has grown since 2000 and states that the category of self-employed without employees is likely to contain ‘labour only subcontractors, possibly working for just one customer’. Vorley and Rodgers (2014) have examined the motivations for the start-up of small businesses by interviewing ‘home-based businesses’ in Sheffield. Their case studies show that the motivations for the start-up of these businesses are complex, comprising both personal and work-related factors.

Thus, the existing literature, where it differentiates at all between categories of the self-employed, differentiates principally by gender and by level of education, and apart from the aforementioned paper by Fossen and Buttner (2013), that considers types of entrepreneur, does not examine the differences between different classifications of self-employed business, which is the main-focus of this paper. The growth in self-employment in the UK in recent years has highlighted the change in the very nature of self-employment with different characteristics across self-employment type and the heterogeneous characteristics of the individuals found in each category. This paper builds considerably on the previous literature by estimating a dynamic model that takes into account state dependency and initial conditions, along with individual and job characteristics on the self-employment decision.

3. Data and Methodology

This paper uses an unbalanced panel taken from the *Understanding Society* dataset, waves 1 through 8, which encompasses years 2009 through to 2017. The data is a

representative random sample of households in the UK, collected by the Institute for Social and Economic Research, at the University of Essex. Data collection began in 2009 with each wave of the survey covering a period of two years and each new wave overlapping the second year of the first. Only individuals who responded that they are working, as either an employee or self-employed are included in the analysis[5]. For our modelling strategy, a dynamic multinomial logit, we lose the first wave due to including a lag structure. We include initial conditions and after deleting individuals with missing observations, we have an unbalanced panel of 103,922 observations of 23,230 individuals for our analysis of the determinants of self-employment choice. The average length an individual is seen in the data is 4 periods. Understanding society contains information on household composition, demographic information in addition to educational and work details. Highly relevant to the purpose of this paper, the data contains information on the occupation of individuals, whether or not they are self-employed. Specifically, the question put to individuals who define themselves as self-employed is:

Which of these best describes your employment situation?

Running a business or professional practice

Partner in a business or professional practice

Working for myself

A sub-contractor

Doing freelance work

Self-employed in some other way

This list is by no means an official classification because there is no official definition of self-employment and no straightforward legal definition of what it means to be employed or self-employed, but it does acknowledge that there are diverse types of self-employment and enables an examination of the determinants of entry into these groups. Over the years the law courts have looked at the question of self-employment status many times, and they have identified some situations in which individuals are definitely employed and others when they are definitely self-employed. (Low incomes Tax Reform Group, 2020).

All respondents, both employees and self-employed are asked about their amount of autonomy within their job. Measures of job autonomy are created from these direct

[5] Unemployed individuals do not provide information on job characteristics required for the analysis.

questions, which ask the respondent their level of autonomy, i.e. whether they have a lot, some or no control over:

Job tasks;

The pace of work;

Work manner- how you do your work;

Order of tasks;

Work hours.

Similarly, we include standardised values of the 'big five' personality characteristics for each individual, which have been shown to influence attitudes to risk taking which is argued to influence the decision to become self-employed (Fairlie and Holleran 2012; Caliendo et al. 2014). The big five personality variables of agreeableness, extroversion, openness, conscientiousness and neuroticism, are available in wave 3 and due to their known stability in adults (Semykina and Linz, 2007; Almlund et al, 2011), the responses are applicable to the same subjects across waves. In addition to the autonomy variables, the survey asks the respondents about their place of work, for example whether they work from home, at their own business premises, at clients' premises or whether the work requires travelling. Carter (2006) has, as noted earlier, found that women are more likely than men to work from home. Therefore, the inclusion of this variable may shed more light on this finding i.e. whether this is true for all classifications of self-employment. The descriptive statistics are shown in Table 1 below.

We see that approximately eleven percent of our sample classify themselves as self-employed, with around 5% stating they are a sole trader and just below two percent freelance or sub-contracted. Around one-third of our sample holds a degree qualification and around further fourteen percent hold another form of higher education qualification, which is typically vocation-related. Our workplace-specific variables reveal that three-quarters of our sample work from a business premises and just six percent working from home. Our autonomy variables reveal that the greatest level of autonomy is found in the answer to how one's work is done and the least autonomy over work hours.

Table 1: Descriptive Statistics

N = 103,922	mean	Std dev
Employee	0.891	0.312
Self-employed Business or Partnership	0.045	0.208
Self-employed Sole Trader	0.048	0.211
Self-employed Freelance/Sub-contract	0.017	0.130
Male	0.490	0.500

Lag 1 Employee	0.894	0.308
Lag 1 Self-employed Business or Partnership	0.045	0.206
Lag 1 Self-employed Sole Trader	0.045	0.207
Lag 1 Self-employed Freelance/Sub-contract	0.017	0.129
Initial condition Employee	0.900	0.305
Initial condition Self-employed Business or Partnership	0.043	0.203
Initial condition Self-employed Sole Trader	0.043	0.204
Initial condition Self-employed Freelance/Sub-contract	0.017	0.129
Married	0.408	0.491
Widowed/separated/divorced	0.099	0.298
Age	43.801	10.792
Degree	0.326	0.469
Other higher	0.139	0.346
A'Levels	0.220	0.415
GCSE	0.205	0.403
No qualification	0.110	0.313
Non-white	0.119	0.324
Occupation		
Manager/ professional	0.166	0.372
Assistant Professional	0.147	0.354
Technical	0.175	0.380
Administrative	0.115	0.320
Craft and related	0.092	0.288
Personal/ protective services	0.094	0.292
Wholesale and retail sales	0.056	0.231
Machine operatives	0.071	0.256
Other unskilled manual	0.084	0.277
Logged household income	8.284	0.628
Hours	40.675	10.930
Regional Job density	0.790	0.098
Workplace specific variables		
Work from home	0.063	0.243
Work at company premises	0.751	0.432
Work at client premises	0.090	0.286
Work travelling/other	0.096	0.295
Autonomy over job tasks – a lot	0.432	0.495
Autonomy over job tasks – some	0.286	0.452
Autonomy over job tasks - none	0.282	0.450
Autonomy over pace of work – a lot	0.467	0.499
Autonomy over pace of work – some	0.266	0.442
Autonomy over pace of work – none	0.267	0.442
Autonomy over how do work - a lot	0.564	0.496
Autonomy over how do work -some	0.246	0.431
Autonomy over how do work - none	0.190	0.392
Autonomy over task order – a lot	0.556	0.497
Autonomy over task order - some	0.243	0.429
Autonomy over task order - none	0.201	0.401
Autonomy over work hours – a lot	0.281	0.450
Autonomy over work hours - some	0.207	0.405
Autonomy over work hours - none	0.511	0.500
Big-5 Personality traits - standardised		
Agreeableness	-0.105	1.015
Openness	0.079	0.925
Extroversion	0.038	0.975
Conscientiousness	0.107	0.888
Neuroticism	-0.050	0.930

Table 2 shows the transition matrix across employment type. As our panel is unbalanced not all observations are seen to transition, that is not all observations seen in one wave are present in the next and hence the matrix contains a total of fewer transitions than we have observations. The data has been normalised for missing periods in this table and so the table contains estimates from a Markov chain. The matrix is read across rows. It is clear that employees are most likely to be employees in the subsequent periods. However, over thirty percent of those classified as self-employed in a business or a partnership transition to another employment type. Similarly, whilst sole traders and freelance workers are most likely to remain in their employment state, a good percentage of each change their employment status over the eight-year period. Thus the self-employed who move out of their employment status may actually remain self-employed but in another type of work classification. For example, a self-employed freelance or sub-contract worker in the first period has around a twenty percent probability of being in paid employment in the final period.

Table 2: Transitions across employment type

	Employee		S.E. Business /Partner		S.E. Sole Trader		Freelance /subcontract		TOTAL	
	%	N	%	N	%	N	%	N	%	N
Employee	**98.10**	**70749**	0.66	477	0.81	587	0.42	303	100	72116
S.E. Business /Partner	10.44	379	**67.32**	**2445**	19.27	700	2.97	108	100	3632
S.E. Sole Trader	11.85	432	18.24	665	**60.72**	**2214**	9.19	335	100	3646
S.E.Freelance/ Subcontract	20.03	260	9.09	118	24.58	319	**46.30**	**601**	100	1298
TOTAL	89.01	71820	4.59	3705	4.73	3820	1.67	1347	100	80692

The econometric modelling strategy used incorporates employment dynamics, state dependence and controls for unobserved heterogeneity. The method follows that of Wooldridge (2005), where the unobserved heterogeneity is assumed to follow a normal distribution. The economic model is a dynamic multinomial logit with the base category of being in paid employment. The estimating equation is[6]:

[6] All models fitted using the gsem command for dynamic multinomial logit estimation in Stata 16.

$$y_{it} = \alpha_i + \phi y_{it-1} + \boldsymbol{x}'_{it}\boldsymbol{\beta} + \epsilon_{it} \quad (1)$$

$$\alpha_i = \alpha_0 + \alpha_1 y_{i0} + \bar{\boldsymbol{x}}'_i\boldsymbol{\pi} + \omega_i \quad (2)$$

Where y_{it} is the probability of finding an individual is one of four states; as an employee or in one of the 3 self-employment statuses. Equation (1) is estimated as a random effects dynamic multinomial model, where the correlation between the fixed effect, α_i, and the lagged dependent variable, y_{it-1}, yields an endogeneity problem which will result in inconsistent estimates. We follow Wooldridge (2005) and specify the fixed effect in equation (1) conditional upon the initial state, y_{i0}, i.e. labour market state when first observed in the panel, and the group means of individual level time varying covariates, $\bar{\boldsymbol{x}}_i$, as shown in equation (2). Substitution of equation (2) into (1) yields an augmented correlated random effects model where the parameters approximate those of a fixed effects estimator. The vector $\boldsymbol{x}'_{it}$contains the explanatory variables which include the usual personal and demographic characteristics, for example, gender, marital status and children. The presence of young children in the family has been shown to increase the probability of self-employment, especially for women (Carter 2006), therefore the presence of children is entered within four grouped ages to test this. Work-related characteristics include occupation, industrial classification, the place of work and work task autonomy variables. The variable job density is a measure of the employment in each region and is included to capture any relationship between the demand for employees and the probability of choosing self-employment. We may expect that some self-employed prefer the convenience of working from home to suit their lifestyles, especially where young children are present in the household. Regional dummy variables are included to capture differences across regions, and a variable captures tenure in the current job. Finally, dummy variables that indicate whether an individual assesses themselves as having a lot, or some level of autonomy in different aspects of their job are included. The error term, ε_{it}, is assumed to follow a normal distribution. As required in this estimation strategy, all continuous explanatory variables have their mean value included.

The model is built-up in stages in order to test the sensitivity of the estimates. The first specification, along with the initial conditions and one-period lag, contains personal characteristics only, such as, gender, age, children and education. The second specification adds job specific characteristics, such as occupation, hours, equivalised household income, job density and workplace. Specification 3 adds the reported work autonomy responses to specification 2, whilst specification 4 adds the standardised big 5 personality responses only to specification 2. Finally, specification 5 contains all explanatory variables.

4. Results

The average marginal effects for the dynamic multinomial logits, specifications 1 to 5, are shown in tables 3 to 7. All the marginal effects are interpreted as compared to being in paid employment. For all the specifications, the marginal effects show that initial conditions have the greatest influence on an individual's decision to remain in the same employment status. The marginal effects of initial conditions for all self-employment types are largest in specification 1 (table 3), where there are no job related characteristics included, and indicate that the probability to remain in the same status as initially seen ranges from around twenty percent to thirty five percent. The effect is greatest for business partnerships, then sole trader, with only a slightly smaller marginal effect, then freelance or subcontract worker. This ordering is consistent across all specifications although the magnitudes vary slightly, dependent on which covariates are included in the specification. The initial conditions marginal effects are positive for all self-employment categories, which also indicates that initially being in one form of self-employment increases the probability of that individual remaining in self-employment rather than returning to paid employment. The marginal effects of state dependence, in the form of the lagged employment status show a similar pattern to the initial conditions, although their magnitudes are smaller. However, they are positive across all self-employment types, indicating an increased probability of moving across self-employment categories, although the marginal effect of the lag is highest for the same category of self-employment, and the size of the marginal effects are remarkably similar across all the specifications. Together, the initial conditions and lagged employment status would suggest that once an individual is self-employed they are more likely to remain there and so it is to the other factors within each specification that attention is now turned in order to identify factors that may explain the propensity to remain self-employed.

In specification 1 (table 3), it appears that being male increases the probability of being in one of the self-employed categories, a result that is statistically significant at the one percent level. However, when the workplace or personality variables are added in all further specifications (specifications 2-5, tables 4-7), only the marginal effect on freelance or sub-contractor remains significant and small in all specifications at around 0.3 percent. The marginal effect from age is also consistent across all specifications and shows a small but statistically significant positive effect on the probability of being in a business partnership and a negative effect on being freelance or subcontractor. Marital status only has a very small statistically negative effect on the probability of being in freelance or sub-contract self-employment, which becomes insignificant when the work autonomy variables are added in specifications. No evidence is found here that for women, marriage increases the probability of being self-employed because their spouse's employment acts as a 'fall-back' if the business fails (Carter, 2006). The presence of children of any age does not appear to influence the self-employment decision as the marginal effects on

each of the child age categories are mainly insignificant. These results then show no support in the data for the suggestion that women choose self-employment in order to stay at home with their young children (Carter, 2006). Finally, in specification 1, it appears that educational qualifications have the largest effect on the probability of being in self-employment. Having a degree reduces the probability of being a sole trader but has a small statistically positive effect on the probability of owning a business or in a business partnership and of being freelance or a sub-contractor. This pattern is repeated throughout all specifications, however, whilst in specification 1 it has the largest effect on business partnership, when additional workplace and personality variables are included in later specifications this larger effect wanes until in specification 5 we find a slightly larger and still significant effect on freelance and sub-contractor. The marginal effects on having an educational qualification at A'level or Diploma level (not a degree) show a small and statistically positive effect on the probability of being in a business partnership and a negative effect on the probability of being a sole trader. There are no significant effects on the probability of being self-employed as a freelance or sub-contract worker. However, as further explanatory variables are included in the later specifications only the negative effect on the probability of being a sole trader remain significant. Therefore, it is clear that both the business entrepreneur or business partner and the freelance self-employed are more likely to be highly educated than a paid employee.

Table 3. Determinants of employability type – marginal effects from specification 1.

Dynamic Multinomial Logit N = 103,922 Log Likelihood = -20259.108	Self-employed: Business or Partnership		Self-employed: Sole Trader		Self-employed: Freelance/ Sub-contract	
Lag 1 Self-employed Business or Partnership	0.072***	(0.006)	0.051***	(0.005)	0.018***	(0.004)
Lag 1 Self-employed Sole Trader	0.049***	(0.005)	0.067***	(0.006)	0.026***	(0.004)
Lag 1 Self- employed Freelance	0.034***	(0.005)	0.044***	(0.005)	0.027***	(0.004)
Initial condition SE Business or partnership	0.346***	(0.018)	0.132***	(0.010)	0.016***	(0.004)
Initial condition SE Sole Trader	0.111***	(0.009)	0.328***	(0.016)	0.063***	(0.007)
Initial condition SE Freelance/ sub-contract	0.044***	(0.007)	0.148***	(0.014)	0.215***	(0.018)
Male	0.004***	(0.001)	0.005***	(0.001)	0.007***	(0.001)
Age	0.004***	(0.001)	0.001	(0.001)	-0.002***	(0.001)
Age square	-0.000***	(0.000)	-0.000	(0.000)	0.000***	(0.000)
Married	-0.001	(0.001)	-0.001	(0.001)	-0.002**	(0.001)
Widow/separated/divorced	-0.004*	(0.002)	-0.001	(0.002)	-0.000	(0.002)
Number of children 0-2 years old	0.004***	(0.001)	0.002	(0.002)	0.000	(0.001)
Number of children 3-4 years old	-0.001	(0.002)	0.004**	(0.002)	-0.001	(0.001)
Number of children 5-11 years old	0.001	(0.001)	0.001	(0.001)	0.000	(0.001)
Number of children 12-15 years old	0.001	(0.001)	0.001	(0.001	-0.002*	(0.001)
Degree	0.011***	(0.002)	-0.017***	(0.002)	0.008***	(0.002)
Other higher	0.007***	(0.002)	-0.011***	(0.003)	0.001	(0.002)
A level	0.005**	(0.002)	-0.008***	(0.003)	0.001	(0.001)
GCSE	0.002	(0.002)	-0.006**	(0.003)	-0.000	(0.001)
Non-white	-0.001	(0.001)	0.009***	(0.002)	-0.001**	(0.001)

NOTES: Standard errors are in brackets. ***;**,* denote significance at the 1%, 5% 10%, respectively.

The economic literature with respect to education has typically assumed that the self-employed do not need to signal their productivity level to an employer and have less need to gain a degree as a signal; it appears that sole traders fit this description. However, business entrepreneurs and partners and freelance or sub-contracted workers may need to have degree level qualifications in order to gain contracts i.e. signal that they possess the skills to successfully complete the required work in the tender.

Table 4. Determinants of employability type – marginal effects from specification 2.

Dynamic Multinomial Logit N= 103,922 Log Likelihood = -18463.041	Self-employed: Business or Partnership		Self-employed: Sole Trader		Self-employed: Freelance/ Sub-contract	
Lag 1 Self-employed Business or Partnership	0.082***	(0.007)	0.043***	(0.005)	0.016***	(0.003)
Lag 1 Self-employed Sole Trader	0.057***	(0.005)	0.056***	(0.005)	0.022***	(0.003)
Lag 1 Self- employed Freelance	0.041***	(0.006)	0.036***	(0.005)	0.024***	(0.003)
Initial condition SE Business or partnership	0.216***	(0.015)	0.083***	(0.008)	0.005**	(0.003)
Initial condition SE Sole Trader	0.078***	(0.008)	0.146***	(0.010)	0.028***	(0.004)
Initial condition SE Freelance/ sub-contract	0.025***	(0.006)	0.064***	(0.008)	0.099***	(0.011)
Male	-0.002	(0.001)	0.002	(0.002)	0.004***	(0.001)
Age	0.003***	(0.001)	0.002	(0.001)	-0.002***	(0.000)
Age square	-0.000**	(0.000)	-0.000	(0.000)	0.000***	(0.000)
Married	-0.000	(0.001)	-0.001	(0.001)	-0.002**	(0.001)
Widow/separated/divorced	-0.003	(0.002)	-0.004*	(0.002)	-0.000	(0.001)
Number of children 0-2 years old	0.004***	(0.001)	0.000	(0.002)	-0.000	(0.001)
Number of children 3-4 years old	-0.001	(0.002)	0.001	(0.002)	-0.001	(0.001)
Number of children 5-11 years old	0.001	(0.001)	-0.001	(0.001)	0.000	(0.001)
Number of children 12-15 years old	0.001	(0.001)	-0.000	(0.001)	-0.002**	(0.001)
Degree	0.004**	(0.002)	-0.005**	(0.002)	0.006***	(0.002)
Other higher	0.003	(0.002)	-0.004*	(0.003)	0.000	(0.002)
A level	0.003	(0.002)	-0.005**	(0.002)	0.001	(0.001)
GCSE	0.001	(0.002)	-0.003	(0.002)	-0.000	(0.001)
Non-white	-0.000	(0.002)	0.009***	(0.002)	-0.000	(0.001)
Manager/ professional	0.021***	(0.003)	-0.012***	(0.003)	-0.002	(0.002)
Assistant Professional	0.016***	(0.003)	-0.010***	(0.003)	0.003	(0.002)
Technical	0.011***	(0.002)	-0.008***	(0.003)	0.006***	(0.002)
Administrative	0.000	(0.003)	-0.019***	(0.003)	0.002	(0.003)
Craft and related	0.016***	(0.003)	0.018***	(0.003)	0.003*	(0.002)
Personal/ protective services	0.003	(0.003)	0.009***	(0.003)	-0.006***	(0.002)
Wholesale and retail sales	0.002	(0.004)	-0.003	(0.004)	-0.001	(0.003)
Machine operatives	-0.007***	(0.003)	0.007**	(0.003)	-0.001	(0.002)
Logged household income - equivalised	-0.003***	(0.001)	-0.002***	(0.001)	-0.001**	(0.001)
Hours	0.000***	(0.000)	0.000*	(0.000)	-0.000	(0.000)
Regional Job density	-0.007*	(0.004)	0.002	(0.005)	0.006*	(0.003)
Work at company premises	-0.032***	(0.003)	-0.070***	(0.004)	-0.025***	(0.002)
Work at client premises	-0.042***	(0.003)	-0.034***	(0.003)	-0.004*	(0.002)
Work travelling/other	-0.032***	(0.003)	-0.033***	(0.004)	-0.005*	(0.003)

Standard errors shown in brackets

In specification 2, (estimates presented in table 4), the addition of occupational dummy variables reveals that being in the a professional, managerial, technical and craft occupation increases the probability of running a business or in a business partnership, whilst apart from crafts, the top occupations in the occupation grouping mean that an individual is less likely to be a sole trader. Being in a technical occupation increases the probability of being a freelance or sub-contract worker, although the effect is small. This finding is consistent across all specifications that contain the occupational dummy variables. In all estimations the hours of work appear to have no statistical significance on the employment type, whilst household equivalised income always has a statistically significant yet small negative influence on the probability of being in any form of self-employment. In contrast to the finding of Darcy and Gardiner (2014), regional job density is found to have a significant, albeit small, effect on the probability of being self-employed as a freelance or sub-contract worker, which may reflect the demand for their services in the economy. Finally, in specification 2, all the marginal effects on workplace are negative, which indicates that compared to paid employees, all types of self-employed individuals are more likely to work from home. This result is consistent throughout all estimations.

In specification 3, (estimates presented in table 5), the autonomy variables are included to specification 2. It is typically assumed that self-employment implies more control over one's work compared to being a paid employee with direct work instructions from the company. However, the marginal effects reveal some differences across self-employment classifications. Whilst the marginal effects for autonomy over job tasks show that business and business partnerships, along with sole-traders are more likely to enjoy this autonomy compared to employed workers, for freelance and sub-contract workers the reverse is true. This may be because freelance or sub-contract workers are obliged to carry out the job requirements given by the buyers of their services. However, freelance workers have autonomy over the way in which they carry out their work. In respect of autonomy over hours worked, the marginal effects show an increased probability of being a business or partnership or a sole-trader but a decrease in the probability of being a freelance worker or sub-contractor. Once again, this result is consistent when all covariates are included in specification 5 (table 7).

Table 5. Determinants of employability type – marginal effects from specification 3.

Dynamic Multinomial Logit N = 103,922: Log Likelihood = -18012.92	Self-employed: Business or Partnership		Self-employed: Sole Trader		Self-employed: Freelance/ Sub-contract	
Lag 1 Self-employed Business or Partnership	0.070***	(0.006)	0.036***	(0.004)	0.017***	(0.003)
Lag 1 Self-employed Sole trader	0.049***	(0.005)	0.048***	(0.005)	0.023***	(0.003)
Lag 1 Self- employed Freelance	0.037***	(0.006)	0.032***	(0.004)	0.024***	(0.003)
Initial condition SE Business or partnership	0.179***	(0.013)	0.068***	(0.007)	0.007***	(0.003)
Initial condition SE Sole Trader	0.061***	(0.007)	0.123***	(0.009)	0.030***	(0.004)
Initial condition SE Freelance/ sub-contract	0.022***	(0.005)	0.060***	(0.007)	0.096***	(0.010)
Male	-0.002	(0.001)	0.001	(0.002)	0.003***	(0.001)
Age	0.003**	(0.001)	0.001	(0.001)	-0.002**	(0.001)
Age square	-0.000*	(0.000)	-0.000	(0.000)	0.000***	(0.000)
Married	-0.002	(0.001)	-0.003*	(0.001)	-0.001	(0.001)
Widow/separated/divorced	-0.004*	(0.002)	-0.004*	(0.002)	0.000	(0.002)
Number of children 0-2 years old	0.004***	(0.001)	-0.001	(0.002)	0.000	(0.001)
Number of children 3-4 years old	-0.001	(0.002)	0.001	(0.002)	-0.001	(0.001)
Number of children 5-11 years old	0.001	(0.001)	-0.001	(0.001)	0.000	(0.001)
Number of children 12-15 years old	0.000	(0.001)	-0.001	(0.001)	-0.002**	(0.001)
Degree	0.005**	(0.002)	-0.005**	(0.002)	0.005***	(0.002)
Other higher	0.004	(0.002)	0.003	(0.003)	0.000	(0.002)
A level	0.003*	(0.002)	-0.004**	(0.002)	0.000	(0.001)
GCSE	0.002	(0.002)	-0.002	(0.002)	-0.001	(0.001)
Non-white	0.000	(0.002)	0.009***	(0.002)	-0.000	(0.001)
Manager/ professional	0.015***	(0.003)	-0.017***	(0.003)	-0.001	(0.002)
Assistant Professional	0.014***	(0.003)	-0.013***	(0.003)	0.004**	(0.002)
Technical	0.008***	(0.003)	-0.010***	(0.003)	0.007***	(0.002)
Administrative	-0.001	(0.003)	-0.022***	(0.004)	0.003	(0.003)
Craft and related	0.014***	(0.003)	0.016***	(0.003)	0.004**	(0.002)
Personal/ protective services	0.002	(0.003)	0.009***	(0.004)	-0.006***	(0.002)
Wholesale and retail sales	0.001	(0.004)	-0.004	(0.004)	-0.000	(0.003)
Machine operatives	-0.008***	(0.003)	0.007**	(0.003)	-0.001	(0.002)
Logged household income - equivalised	-0.002***	(0.001)	-0.002***	(0.001)	-0.001***	(0.000)
Hours	0.000***	(0.000)	0.000	(0.000)	-0.000	(0.000)
Regional Job density	-0.006	(0.004)	-0.002	(0.005)	0.006**	(0.003)
Work at company premises	-0.021***	(0.002)	-0.056***	(0.003)	-0.025***	(0.002)
Work at client premises	-0.034***	(0.002)	-0.023***	(0.003)	-0.004**	(0.002)
Work travelling/other	-0.024***	(0.003)	-0.021***	(0.003)	-0.005**	(0.003)
Autonomy over job tasks – a lot	0.014***	(0.002)	0.009***	(0.002)	-0.006***	(0.002)
Autonomy over job tasks – some	0.003	(0.002)	0.002	(0.002)	-0.003*	(0.002)
Autonomy over pace of work – a lot	0.002	(0.003)	-0.002	(0.003)	0.002	(0.001)
Autonomy over pace of work – some	-0.002	(0.003)	-0.004	(0.003)	0.001	(0.001)
Autonomy over how do work – a lot	-0.004	(0.004)	-0.007**	(0.004)	0.005***	(0.002)
Autonomy over how do work – some	-0.005	(0.004)	-0.012***	(0.003)	0.003**	(0.001)
Autonomy over task order – a lot	-0.003	(0.003)	-0.004	(0.003)	-0.004**	(0.002)
Autonomy over task order – some	-0.003	(0.003)	-0.005	(0.003)	-0.001	(0.002)
Autonomy over work hours – a lot	0.014***	(0.002)	0.020***	(0.002)	-0.004***	(0.001)
Autonomy over work hours – some	0.009***	(0.002)	0.010***	(0.002)	-0.003**	(0.001)

In specification 4, (estimates presented in table 6), the big-five personality traits are included to specification 2. The results reveal that once all the other personal characteristics and job characteristics are accounted for, the personality traits appear to have little significance and in the few traits that have statistical significance, the effect is small. Openness has a positive effect on the probability of running a business or being in a business partnership and being a freelance worker or sub-contractor, but it is insignificant on the probability of being a sole-trader. Conscientiousness marginal effects show a small positive effect on business or business partnerships but a small negative effect on the probability of being in the freelance or sub-contract category. This is an interesting finding as previous results for the effect of conscientiousness on self-employment, as a single group, have found that it has no significance (Caliendo et al. 2014). The findings here highlight the heterogeneity within self-employment.

Table 6. Determinants of employability type – marginal effects from specification 4.

Dynamic Multinomial Logit N = 103,922 Log Likelihood = -19079.006	Self-employed: Business or Partnership		Self-employed: Sole Trader		Self-employed: Freelance/ Sub-contract	
Lag 1 Self-employed Business or Partnership	0.082***	(0.010)	0.042***	(0.005)	0.015***	(0.003)
Lag 1 Self-employed Sole trader	0.056***	(0.005)	0.056***	(0.005)	0.021***	(0.003)
Lag 1 Self- employed Freelance	0.041***	(0.006)	0.035***	(0.004)	0.023***	(0.003)
Initial condition SE Business or partnership	0.210***	(0.014)	0.081***	(0.008)	0.005**	(0.002)
Initial condition SE Sole Trader	0.076***	(0.008)	0.143***	(0.010)	0.027***	(0.004)
Initial condition SE Freelance/ sub-contract	0.023***	(0.005)	0.062***	(0.008)	0.095***	(0.010)
Male	-0.002	(0.002)	0.002	(0.002)	0.003***	(0.001)
Age	0.003***	(0.001)	0.001	(0.001)	-0.002***	(0.001)
Age square	-0.000**	(0.000)	-0.000	(0.000)	0.000***	(0.000)
Married	-0.000	(0.001)	-0.001	(0.001)	-0.002**	(0.001)
Widow/separated/divorced	-0.003	(0.002)	-0.004*	(0.002)	-0.000	(0.002)
Number of children 0-2 years old	0.004***	(0.001)	0.000	(0.002)	0.000	(0.001)
Number of children 3-4 years old	-0.001	(0.002)	0.001	(0.002)	-0.001	(0.001)
Number of children 5-11 years old	0.001	(0.001)	-0.001	(0.001)	0.000	(0.001)
Number of children 12-15 years old	0.001	(0.001)	-0.000	(0.001)	-0.002**	(0.001)
Degree	0.004*	(0.002)	-0.006**	(0.002)	0.005***	(0.002)
Other higher	0.003	(0.002)	-0.005*	(0.003)	-0.000	(0.002)
A level	0.002	(0.002)	-0.005**	(0.002)	-0.002	(0.002)
GCSE	0.001	(0.002)	-0.004	(0.002)	-0.001	(0.002)
Non-white	0.000	(0.002)	0.009***	(0.002)	-0.001	(0.001)
Manager/ professional	0.020***	(0.003)	-0.013***	(0.003)	-0.003	(0.002)
Assistant Professional	0.016***	(0.003)	-0.011***	(0.003)	0.003	(0.002)
Technical	0.010***	(0.003)	-0.008***	(0.003)	0.005**	(0.002)
Administrative	0.000	(0.003)	-0.020***	(0.003)	0.001	(0.003)
Craft and related	0.016***	(0.002)	0.018***	(0.003)	0.003*	(0.002)
Personal/ protective services	0.002	(0.003)	0.008**	(0.003)	-0.007***	(0.002)
Wholesale and retail sales	0.001	(0.004)	-0.004	(0.004)	-0.001	(0.003)
Machine operatives	-0.007***	(0.003)	0.007**	(0.003)	-0.001	(0.002)

Logged household income - equivalised	-0.003***	(0.001)	-0.002***	(0.001)	-0.001**	(0.001)
Hours	0.000***	(0.000)	0.000*	(0.000)	-0.000	(0.000)
Regional Job density	-0.008*	(0.004)	0.001	(0.005)	0.006*	(0.003)
Work at company premises	-0.031***	(0.002)	-0.070***	(0.004)	-0.025***	(0.002)
Work at client premises	-0.042***	(0.003)	-0.034***	(0.004)	-0.003	(0.002)
Work travelling/other	-0.032***	(0.003)	-0.032***	(0.004)	-0.004*	(0.003)
Agreeableness	-0.002**	(0.001)	0.000	(0.001)	-0.000	(0.000)
Openness	0.002***	(0.001)	0.001	(0.001)	0.002***	(0.000)
Extroversion	0.002**	(0.001)	0.001	(0.001)	0.000	(0.000)
Conscientiousness	0.002***	(0.001)	0.000	(0.001)	-0.001**	(0.000)
Neuroticism	-0.000	(0.001)	-0.001	(0.001)	-0.001	(0.001)

Standard errors shown in brackets

In specification 5, (estimates presented in table 7), where all the explanatory variables are included, the lagged employability state variables again highlight the strong state dependence and also that the self-employed have a positive probability of moving into another category of self-employment. The same is true for the initial conditions. The results found here reveal that self-employed females are not more likely than males to work from home in the freelance, sub-contracted category of self-employment. This is in contrast to a previous study that shows that females are more likely than males to work from home (Carter 2006). The positive and statistically significant coefficients on degree level education for the business or partnership and the freelance worker categories show that these individuals are similar in this characteristic. A major difference between these two groups appear to be in the autonomy estimates where the former have autonomy over job tasks and their working hours, whereas freelance worker do not but they have autonomy over how they do their work. The estimates of the big-five personality traits are identical to those in specification 4 for all self-employment types.

Table 7. Determinants of employability type – marginal effects from specification 5.

Dynamic Multinomial Logit N = 103,922: Log Likelihood = -17970.604	Self-employed: Business or Partnership		Self-employed: Sole Trader		Self-employed: Freelance/ Sub-contract	
Lag 1 Self-employed Business or Partnership	0.069***	(0.006)	0.035***	(0.004)	0.017***	(0.003)
Lag 1 Self-employed Sole trader	0.048***	(0.005)	0.048***	(0.005)	0.022***	(0.003)
Lag 1 Self- employed Freelance	0.037***	(0.005)	0.032***	(0.004)	0.023***	(0.003)
Initial condition SE Business or partnership	0.177***	(0.012)	0.067***	(0.007)	0.006**	(0.003)
Initial condition SE Sole Trader	0.061***	(0.006)	0.121***	(0.009)	0.028***	(0.004)
Initial condition SE Freelance/ sub-contract	0.021***	(0.005)	0.058***	(0.007)	0.092***	(0.010)
Male	-0.002*	(0.001)	0.001	(0.001)	0.003***	(0.001)
Age	0.003**	(0.001)	0.001	(0.001)	-0.001**	(0.001)
Age square	-0.000*	(0.000)	-0.000	(0.000)	0.000***	(0.000)
Married	-0.002	(0.001)	-0.003*	(0.001)	-0.001	(0.001)
Widow/separated/divorced	-0.004*	(0.002)	-0.004*	(0.002)	-0.000	(0.002)

Number of children 0-2 years old	0.004***	(0.001)	-0.001	(0.002)	0.000	(0.001)
Number of children 3-4 years old	-0.001	(0.002)	0.001	(0.002)	-0.001	(0.001)
Number of children 5-11 years old	0.001	(0.001)	-0.001	(0.001)	0.000	(0.001)
Number of children 12-15 years old	0.000	(0.001)	-0.001	(0.001)	-0.002**	(0.001)
Degree	0.004**	(0.002)	-0.005**	(0.002)	0.005***	(0.002)
Other higher	0.003	(0.002)	-0.004	(0.002)	-0.001	(0.002)
A level	0.003	(0.002)	-0.004**	(0.002)	-0.000	(0.001)
GCSE	0.002	(0.002)	-0.003	(0.002)	-0.001	(0.002)
Non-white	0.001	(0.002)	0.009***	(0.002)	-0.001	(0.001)
Manager/ professional	0.014***	(0.003)	-0.017***	(0.003)	-0.002	(0.002)
Assistant Professional	0.014***	(0.003)	-0.013***	(0.003)	0.003	(0.002)
Technical	0.008***	(0.003)	-0.010***	(0.003)	0.006***	(0.002)
Administrative	-0.001	(0.004)	-0.022***	(0.004)	0.002	(0.003)
Craft and related	0.014***	(0.003)	0.016***	(0.003)	0.004**	(0.002)
Personal/ protective services	0.002	(0.003)	0.009**	(0.004)	-0.007***	(0.002)
Wholesale and retail sales	0.001	(0.004)	-0.005	(0.004)	-0.001	(0.003)
Machine operatives	-0.008***	(0.003)	0.007**	(0.003)	-0.001	(0.002)
Logged household income - equivalised	-0.002***	(0.001)	-0.002***	(0.001)	-0.001	(0.001)
Hours	0.000***	(0.000)	0.000	(0.000)	-0.000	(0.000)
Regional Job density	-0.006	(0.004)	0.002	(0.005)	0.006*	(0.003)
Work at company premises	-0.021***	(0.002)	-0.056***	(0.003)	-0.025***	(0.002)
Work at client premises	-0.034***	(0.002)	-0.023***	(0.003)	-0.004*	(0.002)
Work travelling/other	-0.024***	(0.003)	-0.021***	(0.003)	-0.005**	(0.003)
Autonomy over job tasks – a lot	0.014***	(0.002)	0.010***	(0.002)	-0.006***	(0.002)
Autonomy over job tasks – some	0.003	(0.002)	0.002	(0.003)	-0.003*	(0.002)
Autonomy over pace of work – a lot	0.002	(0.003)	-0.002	(0.002)	0.002	(0.001)
Autonomy over pace of work – some	-0.002	(0.003)	-0.004*	(0.003)	0.001	(0.001)
Autonomy over how do work – a lot	-0.004	(0.004)	-0.008**	(0.004)	0.005***	(0.002)
Autonomy over how do work – some	-0.005	(0.004)	-0.012***	(0.003)	0.003**	(0.001)
Autonomy over task order – a lot	-0.003	(0.003)	-0.004	(0.003)	-0.004**	(0.002)
Autonomy over task order – some	-0.003	(0.003)	-0.005	(0.003)	-0.001	(0.002)
Autonomy over work hours – a lot	0.014***	(0.002)	0.020***	(0.002)	-0.004***	(0.001)
Autonomy over work hours – some	0.009***	(0.002)	0.010***	(0.002)	-0.003**	(0.001)
Agreeableness	-0.002**	(0.001)	0.001	(0.001)	0.000	(0.000)
Openness	0.002***	(0.001)	0.000	(0.001)	0.002***	(0.000)
Extroversion	0.001*	(0.001)	0.001	(0.001)	0.000	(0.000)
Conscientiousness	0.002***	(0.001)	0.000	(0.001)	-0.001*	(0.000)
Neuroticism	-0.000	(0.001)	-0.000	(0.001)	-0.000	(0.000)

Standard errors shown in brackets

5. Conclusion

Evidence of substantial growth in the number of workers classed as self-employed in the UK over the past decade, has prompted an examination of the causes that underlie this phenomenon, that appears to have occurred only in the UK. Previous studies of the determinants of self-employment have assumed that these individuals are homogenous

in nature. This paper has revisited the topic of the determinants of self-employment using a dynamic multinomial framework, differentiating, for the first time, between the separate classifications of self-employment, namely, those running a business or in a partnership, sole traders and free-lance or subcontracted workers. Using UK panel data from 2009 through to 2017 this paper has found that state dependency plays a large part in explaining whether an individual in self-employment in one year is in the same self-employment category in the subsequent year. Several specifications are estimated that vary by personal characteristics, workplace characteristics and autonomy. The results show remarkably stable estimates across specifications. Interestingly, individuals classified as freelance or sub-contracted in one period are slightly more likely to be seen in as a sole trader in the subsequent period, a stable result across all specifications. This suggests that some individuals wishing to be their own boss may enter self-employment as a sub-contractor or free-lance worker in order to reduce some of the risk associated with starting up a business. Freelance workers, unlike sole traders, who often have to lay out their own money on materials for their services, may provide a service that does not require a large initial financial commitment and therefore the risks associated with self-employment, whilst not eliminated, are not as great for the freelance worker. If this is the case and the risk associated with entry into freelance or sub-contract work is lower than other types of self-employment, it would make sense to encourage individuals who may otherwise be unemployed to consider this option.

The growth of freelance and sub-contracted workers has been witnessed by the growth in the ‘gig economy’, whereby the self-employed can more easily reach their target market through the internet. The growth in platforms such as ‘Uber’ has caused an increase in self-employment, although the increase in self-employment does not necessarily lead to large economic growth because a large proportion of these new self-employed workers have no employees. However, as has been shown here it is possible for highly educated individuals to start as freelance workers and then to progress into a business that employs others. Thus, policies that facilitate this scenario should be a priority in alleviating unemployment in the long term. It is suggested that the risks associated with the different classifications of self-employment is an area for further research. The research here has clearly demonstrated that once an individual is self-employed they are most likely to remain their own boss.

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