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Transitioning from Solo Self-Employed to Microbusiness Employer: Local Economic Environment or Owner Characteristics?

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ABSTRACT

Transitioning from Solo Self-Employed to Microbusiness Employer: Local Economic Environment or Owner Characteristics?*

Only a minority of micro-businesses create jobs for others. This paper addresses whether personal characteristics and resources of the microbusiness owner or the local external economic environment are drivers of job creation. In the UK context of significant growth in self-employment but a declining proportion who create jobs, an investigation using longitudinal data is provided. Individual demographic and resource characteristics are found to be more important, but place effects are relatively weak. Entrepreneurship policy needs to target particular groups, including women and less experienced business owners in their localities.

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1. Introduction

Many choosing business start-up remain as solo self-employed and choose not to transition through the hurdle of becoming an employer (van Stel and Storey, 2004). However, job creation is regarded as an important indicator of entrepreneurial success (Davidsson and Wiklund, 2000; Delmar and Wiklund, 2008; Carter, 2011). Local entrepreneurship policy is often motivated by job creation. Although, rates of self-employed business ownership vary over time and place, they are often interpreted as an indicator of entrepreneurial activity or potential.[1] Where self-employment has grown fast, as in the UK, this may reflect growth of micro-business activity or the attractiveness of working independently, or it may indicate informalized 'gig-economy' activity. the success of these self-employer owned business ventures. The question of whether these growing numbers of self-employed are achieving job creation for others is topical and important.

There is no *a priori* reason for uniformity; growth may depend on the local economic environment.[2] However, in economically vibrant places business expansion can be more difficult, because of higher local employment costs. Nevertheless, self-employed job creation may depend more on individual ability and skill to navigate these issues. This leads to central focus of this paper, conceptualized as the important, but unexplored question of whether it is the person (the characteristics of the individual entrepreneur) or the place (the external strategic environment in which the business has been ventured) that is more important in determining the ease with self-employed business owners create jobs for others.

The UK context is significant. A growing level of self-employed business ownership has been a feature of the UK over the past 35 years. The UK self-employment rate has risen from under 8% in 1980 to around 15% in 2018, with growth particularly marked since the 2008 global financial crisis. Longitudinal data from a nationally representative household

survey for the period 2009 to 2015 are investigated. These data are linked to official data on local economic indicators, including local wage rates, unemployment rates and house prices. This allows investigation of the drivers of job creation for self-employed business owners in the survey, in particular of the critical transition from sole-trader to employer.

The main finding is that the personal resources and characteristics of the individual business owner matter for job creation. There is limited evidence that place alone is important. In the context of skepticism about entrepreneurial start-up support strategies (Shane, 2009; Vivarelli, 2013; Arshed et al., 2014), this finding is important. It speaks to the importance of a policy logic which targets SME growth support not on start-ups in general, or to stimulate demand or improve labour supply in a locality, but on the particular characteristics and skills gaps of the small business owner-manager. The findings also highlight the apparent hurdle in making the transition from sole-trader to employing the first worker, and the challenge in designing policy to overcome the inherent disadvantage arising from lack of sufficient business experience.

2. Background

a) perspectives on small business growth

The decision to employ others reflects the outcome of small business growth, and it is therefore important to locate any discussion in this context. The literature identifies various perspectives on small business growth, placing different emphases on particular theoretical underpinning and emergent constructs (Davidsson and Wiklund, 2000; Wiklund et al., 2009; Coad, 2009). A full meta-analysis of the findings contained across this literature is beyond the present scope. Perspectives include the degree of munificence in the external market environment, including the local (Hoogstra and van Dijk, 2004).

The extent to which the business owner can absorb intellectual, human and social capital and translate these opportunities into outcomes for the performance of the business venture is critical (Shane and Venkataraman, 2000). Figure 1 provides a conceptual overview of this. The absorptive capacity of the microbusiness is theorized as ability to use effectively different aspects of capital – entrepreneurial, financial, and human. Entrepreneurial capital encapsulates the background and characteristics of the business owner, but also reflects hurdles to employment expansion. Financial capital reflects availability of personal financial resources, along with any constraints on leveraging finance from external providers. The absorptive capacity of the firm will also be influenced by the degree of munificence in the local economic and entrepreneurial environment, to be explored in further detail shortly.

The selection of research questions of interest, derived from the particular underlying perspective on growth choice, depends on the unit of analysis. Administrative enterprise-level data may provide descriptive insight into business demography, as well as analysis of job creation and destruction by small firms (van Praag and Versloot, 2007; Coad, 2009; Carree et al., 2015; Kuhn et al., 2016). However, such data can be problematic (Davidsson and Wiklund, 2000), and may offer less revealing insight into underlying causal factors, such as managerial skill, organizational culture or strategic capacity to absorb innovation and knowledge.

On the other hand, data on individual business owners (typically the self-employed) tend not to include detailed information on the business venture. Bespoke surveys might allow clearer identification of constructs linked to the characteristics and orientation of the entrepreneur, but typically lack a longitudinal perspective important for understanding growth as a dynamic process (Davidsson and Wiklund, 2000).

b) job creation by the self-employed

There is a significant body of quantitative evidence on the importance of the education and experience of the individual entrepreneur is determining venture success (Burke et al., 2008; Fairlie and Robb, 2007). While occasionally researchers may gain access to datasets which link information about the enterprise to those within it (for example Kuhn et al., 2016), the balance between theoretical depth and data availability inevitably involves compromise. The literature on self-employment choice is extensive, providing insight on business start-up as free choice or act of necessity, reflecting individual career decisions within a utility-maximizing framework (Douglas and Shepherd, 2002; Simoes et al., 2016). However, less work has been undertaken on subsequent indicators of success of those self-employment decisions. Job creation by the self-employed is an obvious candidate success measure, resonating with wider social and spatial impacts of micro-business as a driver of local economic activity. The decision to hire a first employee as the initial step towards building an employing business organization may be a substantial hurdle. This reflects the fixed costs of becoming an employer - managing payroll, establishing appropriate employment policies and ensuring payments of social insurance (Mathur, 2010; Millán et al., 2013) – as well as the costs of acquiring business leadership and delegation skills (Kempster and Cope, 2010).

Quantitative studies focusing on job creation by the self-employed are relatively few compared to those examining self-employment earnings or enterprise-level growth. Parker (2009, p. 295-6) provides a meta-analysis. An economic-theoretic approach tends to underpin these. Labour demand by the business owner is derived from product or service demand (Henley, 2005), the technological and capital resource configuration of the business, and the supply conditions faced in the labour market. Recent studies have also addressed resource

constraints, such as financial illiquidity (Millán et al., 2015), or the impact of mandated employee social protection (Mathur, 2010; Millán et al., 2013). All use multivariate regression analysis on general purpose survey data, providing evidence for a number of different countries: UK (Burke et al., 2002; Cowling et al., 2004; Henley, 2005), Netherlands (van Praag and Cramer, 2001), USA (Fairlie and Robb, 2007) or a cross-national panel for 15 European countries (Millán et al., 2014).

Outcomes might be binary indicators of self-employed as employer, or transition from sole-trader to employer, or a grouped indicator of the scale of employment. Econometrically, if not conceptually, studies address the discrete hurdle from sole-trader to employer. Selection of control factors depends on choices made by survey coordinators. General purpose surveys may include items on personality traits, but rarely if ever items to measure specific constructs such as entrepreneurial orientation. Common findings from these studies are that the job creation is negatively associated with being female or having minority ethnicity, positively associated with age, educational attainment, accumulated experience in self-employment, and in some studies financial inheritance, windfalls or saving activity as well as family background in entrepreneurship. The analysis in this paper follows these leads in the literature. In the light of this and the framework set out in Figure 1, the following three hypotheses are proposed:

H1: the likelihood of creating jobs is positively influenced by the level of human capital of the self-employed business owner;

H2: the likelihood of creating jobs is positively influenced by the entrepreneurial background and experience of the self-employed business owner;

H3: the likelihood of creating jobs is positively influenced by the ease with which the self-employed business owner can deploy financial resources.

c) local influences on entrepreneurship

Business growth does not occur in isolation from local circumstances. However, only three previous studies of job creation link macro level indicators of local, regional or national economic vibrancy (Henley, 2005; Mathur, 2010; Millán et al., 2014). The latter exploits a longitudinal survey design but only links national, rather than local, economic indicators. Dominant conceptual approaches, as summarized earlier, typically do not give consideration to locality (Hoogstra and van Dijk, 2004), implicitly characterizing the entrepreneurial venture in undifferentiated economic landscape. A broad typology of spatially differentiated factors (Carlsson and Dahlberg, 2003) here largely mirrors the range of growth influences (Mason, 1991), as well as reflecting geographical variation in other factors.

Specific studies concerned with the regional perspective have highlighted spatial variation in cultural support for enterprise (Fritsch and Storey, 2014; Kibler et al., 2014; Audretsch et al., 2017), as well as other contextual munificence factors such as variation in financial and innovation systems (Audretsch et al., 2006; Stam and Bosma, 2015), and general levels of human capital in the region (Millán et al., 2014). These drivers may exert both positive and negative influences. Supportive institutions and social norms may encourage small business growth and job creation; on the other hand, local attitudes to business failure may contribute to entrepreneurial risk aversion. Institutional arrangements and policy support may operate at regional levels, and may extend across a wide range of promoting factors such as local support for digital and physical infrastructure, in access to finance and venture capital, for skills and human capital formation, and for formation of entrepreneurial social capital and the wider eco-system (Westlund and Bolton, 2003). Equally, local factors, intended and unintended, may impede growth. Finally, historical legacy can be important, such that differences in regional outcomes can be highly persistent

(De Groot et al., 2001; Fritsch and Wyrwich, 2014), despite the assertion that macro influences are of far greater significance than spatial disparities within modern industrial economies (Hoogstra and van Dijk, 2004). Quantitative measurement of these institutional and cultural factors is problematic.

More easily measured economic factors may also vary locally (Mason, 1991): different contexts in which knowledge and information is acquired and spills over through social capital formation apparent in clustering and networking, differences in the availability of resources and transactions costs in acquiring them, and local or regional variation in market opportunity and demand. Economic agglomeration may also be important, reflecting the importance of local agglomeration and spillovers, as conceptualized in knowledge spillover theory (Audretsch and Lehmann, 2005; Acs et al., 2013; Knoben et al., 2011).

The relationship between entrepreneurial performance and indicators of local demand is potentially ambiguous. Growth in self-employment may reflect "necessity" motives and governments may pursue activist policies that support business venturing to alleviate unemployment (Caliendo and Kunn, 2014). Higher local unemployment raises labour supply for a self-employed business owner, but reduces local spending power and therefore opportunities for business expansion. This balance between prosperity-pull and recession-push is a common theme in the literature, and evidence, while tending to fall on the side of the former, has not fully resolved the ambiguity (Thurik et al., 2008; Vivarelli, 2013; Audretsch et al., 2015; Henley, 2017), leaving open the following hypothesis:

> H4: Given local variation in the characteristics and background resources of self-employed business owners, an improved local economic environment increases the likelihood that self-employed business owners will create jobs for others.

In the following analysis quantitative data are analyzed to examine this place or person question, to draw conclusions about the extent to which wider macro or regional policy instruments and intervention might support micro-business job creation.

3. Methods and data

a) data source

General purpose data sources provide large, population representative samples, but constrain analysis to questionnaire items and definitions which are predetermined in advance, in the case of longitudinal surveys some years in the past. Nevertheless, levels of detail about respondent background, and, for longitudinal data, detail about transitioning behavior and changes in circumstance can be high. The following analysis consists of an investigation of data on the level of and growth in job creation by the self-employed drawn from the UK's leading household longitudinal survey, Understanding Society (USoc) (University of Essex et al., 2017).

USoc was initiated in 2009, and is funded by the UK Economic and Social Research Council.[3] The initial sample target was 40,000 households, and individuals therein, drawn from a stratified, clustered sample of UK addresses. The survey design includes the incorporation of households from an earlier survey begun in 1991 and over-sampling of households in certain ethnic minority groups, but provides cross-sectional weights to allow generalization to the wider population. The achieved sample, in the first wave, collected over the two-year period 2009-2010 was 39,802 households, comprising 101,086 individuals across all ages of whom 27,103 were in employment or self-employment. Households are re-surveyed annually, although the two-year survey period for each wave entails overlapping fieldwork for wave t and wave $t+1$. So, sample waves are collected on an annual frequency

across two year overlapping periods. Six waves up to 2014-15 were available at the time of the analysis. In following a household design, the achieved Wave 1 sample has properties that are very similar to official UK government labor force surveys, and is thus highly population representative.

In common with other household longitudinal samples, there is some sample attrition between waves, particularly between waves 1 and 2, due to loss of contact or refusal (Buck and McFall, 2012). The wave 2 re-interview rate was 72.4%. Beyond wave 2, attrition rates are comparable to longitudinal surveys conducted elsewhere. Annual re-interview rates between Waves 2 and 6 are between 79% and 85%. The inclusion of additional sample members offsets attrition, recruited if they join households through partnership formation. Table 1 summarizes the extent of self-employment amongst the economically active in each wave of the sample. The (population weighted) rate fluctuates from 13.3% in wave 1 to 14.4% in wave 6. This growth over the period of observation is statistically significant (t=-4.85, z<0.000 in a two-sample t-test for Wave 1 against Wave 6).

Insert Table 1 Here

b) outcome constructs

Four indicators of the ability of the self-employed to create jobs are derived. The first is a binary indicator of whether a self-employed is an employer (BOSS). The second is obtained, if BOSS=1, from banded responses about the level of employment (SCALE). Because of low levels of response in the highest bands these are reduced to 7 bands for analysis (plus a zero band for sole-traders). The third is an indicator of whether an individual transitioned across the threshold from being a sole-trading self-employed in one wave to becoming BOSS=1 in the next (TBOSS). The fourth indicator compares responses to this banded data and is constructed as a binary (0/1) indicator for whether a particular self-

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employed has moved up a job creation size band from one wave to the next (GROWN). This may not capture all those who have been able to grow their levels of job creation if job creation is not sufficient to move the business from one size band to the next. It may also lose any who incorporate their businesses from one wave to the next and therefore cease to be self-employed.[4] For multivariate regression analysis an ordered (choice) logit model is used to model SCALE, and a binary logit model is used to model BOSS and GROWN. For TBOSS a multivariate discrete time duration model is used to model time taken to become an employer, using the method described in Jenkins (1995).[5]

Table 2 shows that the majority of the self-employed operate as sole traders. In Wave 1 the proportion who employ others is only 26%. Of these, almost 80% employ less than 10 people. Over the short span of time between Waves 1 and 6 the proportion who employ others falls, statistically significant in a two-sample t-test (t=3.43 z=0.001). This is striking and contrasts with the upward trend in the self-employment rate. The drop in the number of employers is across the size distribution, but most pronounced amongst micro-businesses with less than 10 employees.

Table 3 provides more information on the extent to which businesses grow. Here data from all six available waves are pooled to show the distribution of year-to-year movements in SCALE. The majority show no change in size band from one wave to the next (and of these 6170 are year-to-year observations on those who remain sole traders). Of those who show growth, the majority are transitions from sole-trader to employers of 1-2 people. Similarly, for those who contract, the majority are employers in the 1-2 employee group who revert to being sole-traders. High growth activity is a very unusual phenomenon in these data. In total only 6.5% of wave-to-wave transitions represent instances where GROWN equals 1.

c) local economic activity

Three indicators are proposed to capture local economic vibrancy to address hypothesis H4 (designated group A). The first, which has been used in some previous work (Parker, 2009; Fritsch and Storey, 2014), is local unemployment. Higher local unemployment may indicate weaker local demand or increased availability of local labor supply or both. It is therefore not possible to indicate *a priori* the likely direction of this association. A negative association indicates that the local demand influence is dominant over the local resource supply influence. Higher local unemployment may indicate that a greater proportion of self-employed entered business ownership from unemployment, for which there is evidence of slower growth (Hinz and Jungbauer-Gans, 1999; Caliendo and Kunn, 2014). The second is local earnings. Higher local earnings might indicate improved local spending power, but might also reduce the affordability of hired labour. So again no *a priori* indication is possible, but here a positive association would indicate local demand as the dominant driving factor. The third indicator is local house prices. Higher local house prices may provide further information about the vibrancy of local demand. They may also indicate that home-owning self-employed have higher levels of collateral for financing expansion. Therefore, a positive association is expected. This might be offset if higher house prices also correlate with higher local wage levels and indicate that employees require more pay to afford local housing.

Data for these variables are obtained from the UK Office for National Statistics (ONS) on-line database, disaggregated to the level of 380 local authority districts. Data linkage to the USoc micro-data files is via a household local authority district of residence identifier code.[6] Earnings and house prices are measures at the median in each locality, in order to reduce the impact of distributional skewness or small numbers of high earners or expensive houses in the underlying survey data.

d) individual characteristics

The choice of individual characteristics is informed by previous quantitative research on self-employment (Parker, 2009; Simoes et al., 2016), as well as previous studies on self-employment performance. One group of controls (designated group B) comprise the usual demographic indicators of gender, age (including, in the regression analysis, age-squared to allow for a non-linear association with the outcome variables) and ethnicity categories.

Indicators of individual resources are in group C, and divided into three sub-groups, as set out conceptually in Figure 1 and in hypotheses H1 to H3. Group C1 capture human capital. It includes highest education attainment indicators – school qualifications at age 16 or 18, college level vocational qualifications (in teaching or health-care) or university degree-level qualifications. A substantial minority, usually older individuals, report no formal academic qualifications, and are treated as a separate category. Indicators of involvement in (incidence of) training activity and the number of training activities (intensity) in the past year are also included. The second group (C2), captures entrepreneurial capital. A measure of elapsed experience is included, drawn from work history schedules included in the USoc survey instrument, to reflect previous findings of a significant association between self-employment performance and experience (Burke et al., 2008). Indicators of whether the survey respondent, when aged 14, had parents who were business owners or employers are included. These reflect previous self-employment research which has shown the importance of parental experience (Niittykangas and Tervo, 2005; Fairlie and Robb, 2007; Colombier and Masclet, 2008; Blumberg and Ffann, 2016).

Finally, a third sub-group of controls captures financial capital and resources (C3), to reflect earlier findings (Hurst and Lusardi, 2004; Disney and Gathergood, 2009; Fairlie, 2013). The USoc survey includes housing tenure status and, for home-owners, information to

calculate housing equity in the previous year. For those who tenant their home, this is set at zero. A proxy indicator of financial wealth measuring annual investment income in the previous year is included. The majority report very modest levels of investment income. So confounding factors, such as liquidity and portfolio preferences, may not be too significant. Further descriptive information and a correlation matrix for all variables are available on request.

e) estimation method

Bivariate and multivariate analysis is used for each of the four outcome measures in turn: BOSS, SCALE, TBOSS and GROWN. For the multivariate analysis, for BOSS and GROWN where the outcome is a binary (0/1) variable, estimation is by logit regression to model the probability, denoted L_{it}, that for individual i at time t BOSS or GROWN equals 1. This is conditional on two sets of covariates as described above. These are individual covariates, x, which vary by individual and in some cases over time, and economic activity covariates in the individual's local area, y, which vary by local area and over time. All are measured in the previous year (t-1) to minimize concerns about endogeneity. The econometric model therefore takes the following form:

$$\Pr\left(L_{i,t} \neq 0 \middle| x_{i,t-1}, y_{i,t-1}\right) = \Phi(x_{i,t-1}\boldsymbol{\beta} + y_{i,t-1}\boldsymbol{\gamma} + v_{it}) \quad (1)$$

where $\boldsymbol{\beta}$ and $\boldsymbol{\gamma}$ are parameter vectors and the error term has the following formulation: $v_{it} = \alpha_i + u_{it}$. This random effects error formulation incorporates an individual, time-invariant error component, α_i representing heterogeneity in latent ability to employ others arising from other unobserved influences. The explanatory power of the random effects form versus the conventional logit form is measured by ρ, the proportion of the total error variance

contributed by the panel level error variance σ_α^2, defined as $\rho = \frac{\sigma_\alpha^2}{\sigma_\alpha^2 + 1}$, since $\sigma_v^2 = 1$ by construction.

For TBOSS the model function is a complementary log-log, being the discrete-time counterpart to a proportional hazard model (JENKINS, 1995). Once a transition to employer has occurred for a particular self-employed (TBOSS=1) any subsequent observations for that individual are dropped. For self-employed who never become employers (i.e. TBOSS==0 through Waves 2 to 6) the sequence is treated as censored. Random effects are also included to control for individual heterogeneity.

For SCALE the outcome variable is an ordinal scale (0, 1, 2 etc…) where the relationship between the scale and the underlying employment size band categories is not linear. So an ordered choice logit regression model is used. The underlying unobserved level of employment is denoted as L^* and is associated with the set of covariates x. Again a random effects formulation is used. Because responses are banded, the categorical variable L is observed instead of L^* where L_{it} takes a value j in the range $j = 0…J$, so that in equation (1):

$$
\begin{aligned}
L_{it} &= 0 \quad \text{if } L_{it}^* \le 0 \\
&= 1 \quad \text{if } 0 < L_{it}^* \le \mu_1 \\
&= 2 \quad \text{if } \mu_1 < L_{it}^* \le \mu_2 \quad (2) \\
&\;\vdots \\
&= J \quad \text{if } \mu_{J-1} \le L_{it}^*
\end{aligned}
$$

Model estimation entails the additional estimation of J-1 threshold parameters, μ_j.

4. Findings

a) bivariate analysis

Table 4 reports bivariate correlations between each outcome and individual characteristics (H1 to H3), and between these and local economic indicators (H4). BOSS, TBOSS and SCALE all have negative, significant correlations with the local unemployment rate supporting H4, and indicating higher job creation where local economic opportunity is stronger. This is reinforced by the small positive correlation between TBOSS and house prices. High inter-correlations (unemployment and house prices: -0.34; house prices and earnings: 0.77) suggest that these reflect common features about the strength of the local economy. For GROWN there are positive, significant correlations with earnings and house prices. Higher local income and wealth levels appear to support business growth. No correlation is, however, found between earnings and other outcomes.

Turning to other findings, being female is associated with less job creation. On the other hand, older self-employed have bigger businesses (BOSS, SCALE), but are less likely to grow further (TBOSS, GROWN). There are some significant associations with ethnicity. White British self-employed are less likely to employ and to achieve employment growth. Afro-Caribbean self-employed are also less likely to employ. Patterns of association with educational attainment are complex but offer some support for H3. College graduates are more likely to employ, and to employ higher numbers. However, those with no qualifications are also more likely to create jobs. This U-shaped relationship may reflect business heterogeneity across those based on formal professional skills and successful "trade-based" activity using experience in place of qualifications. Business owners who acquire training have larger businesses, although not necessarily faster growing ones. Those with more self-employment experience are also more likely to employ others, supporting H1, but there is no

association with parental experience. Housing equity and investment income are correlated with the BOSS and SCALE indicators, investment income also with TBOSS. Self-employed businesses are larger if the owner has higher personal wealth capital, consistent with improved access to own finance or to collateral for borrowing. This provides support for H2. Again significant inter-correlations (not reported) point to the importance of a multivariate modelling approach.

b) regression analysis

Table 5 reports regression analysis findings. Columns 1, 3 and 4 report estimated marginal effects for each covariate, and interpreted as the estimated impact on the outcome probability of a one unit change in the covariate. In the case of binary covariates this is a discrete change (e.g. male to female). In column 2 estimated coefficients are reported, because in this model marginal effects exist for each choice threshold.[7] Column 2 includes the choice threshold parameters, showing increases in the hurdle as a self-employed business owner moves up in size. Around half of this hurdle is in the initial transition from sole-trader. Multivariate findings are not as conclusive as the bivariate results. The results in columns 3 and 4, focusing on growth transitions, particularly show that fewer covariates are statistically significant. The numbers of sample instances of increases in size class are small (Table 3), amounting to only 6 per cent of observed wave-to-wave transitions, possibly explaining why a full multivariate analysis struggles to confirm the significant bivariate data associations.[8]

The statistical significance of ρ shows that the random effects model formulation is preferred in all cases over the simpler alternative. This finding points to the importance of unobserved heterogeneity in the likelihood of job creation, reflecting variations in unmeasured cognitive skills, orientation and personality. Results which do not include random effects (available on request) finds no evidence that the statistical significance of

coefficients on modelled characteristics has been eliminated by the inclusion of individual random effects. All models include region of residence, occupation and time period controls. (These coefficients are available on request.) There is no evidence that ability to create jobs has changed over time, or for regional differences attributable to variation in regional culture, policies or innovation system effectiveness. There is evidence that the self-employed in higher-level managerial or professional or administrative groups have a higher likelihood of employing others.[9]

Insert Table 5 Here

Turning now to the 'place' indicators, house prices are statistically significant in the models for BOSS and SCALE. Unemployment has a significant negative association in the model for TBOSS. A one percentage point fall in local unemployment is associated with a 0.6 percentage point increase in the probability of transitioning from sole-trader to employer. With no association between employment and local median earnings, these findings only offer limited support for H4.

Individual demographic characteristics are significant. The analysis here therefore supports previous findings on job creation and gender, age and self-employment experience (Burke et al. 2002; Cowling et al., 2004; Fairlie and Robb, 2007; Millán et al., 2014). Female business owners are, other things equal, 4 percentage points less likely to employ others. They are also 1.7 percentage points less likely to become employers (TBOSS) and 1.5 percentage points less likely to increase employment across a size class (GROWN). Older business owners are more likely to employ, although at a declining rate. In column 1 the estimated coefficients suggest that the probability of being an employer peaks at 45 years of age. There is limited evidence of disadvantage for certain minority ethnic groups (being

Afro-Caribbean for BOSS and SCALE or Chinese for SCALE), although statistical significance levels are now borderline.

Formal education, especially to degree level, is associated with job creation (SCALE), providing some support for H3. However educational variables are not significant in the other columns. Length of self-employment experience is associated with a significantly higher probability of creating jobs in three of the models. The marginal effect for one additional year of experience is small - one extra year raises the probability of being an employer by 0.2 percentage points - but will cumulate over a longer period. These findings support H1, in that business experience appears to support the creation of entrepreneurial capital. But no role is found for parental background, supporting earlier findings from a similar British data source (Cowling et al. 2004). Finally, in support of H2, there is evidence in three of the equations that increased financial saving is associated with job creation. Difficulties in obtained finance after the 2008 financial crisis may have acted as a constraint on the scale of small business. However, the importance of financial resource may change as service-sector businesses switch reliance to IT technologies for communications and marketing activity which require less capital outlay.

5. Discussion and conclusion

The context here is recent research on the importance of a range of location-specific influences, innovation systems, culture and policy, on entrepreneurial activity (Audretsch and Lehmann, 2005; Fritsch and Storey, 2014; Stam and Bosma, 2015). While *ex ante* conceptual arguments might be strong, these findings suggest only limited 'place' effects, as proxied by local variation in labor markets, earnings and house prices. Bivariate associations are stronger but tend to weaken once account is taken for potentially variation in the characteristics of

business owners. There is some evidence in the findings that local demand-pull influences (lower unemployment, higher wealth) may be associated with job creation. However, associations are not consistent across the various outcomes and are not quantitatively strong. Bivariate associations between local economic environment and job creation by self-employed business owners may be an artifact of local variation in the resources, experience and characteristics of those business owners. In this sense people may matter more than place. Place may have second order effects in strengthening the level of local fit between the resources of a small business owner and wider macroeconomic conditions.[10] Because these findings contrast with other evidence on the influence of local economic conditions on the self-employment choice decision (Audretsch et al., 2015; Henley, 2017), the factors which influence initial entrepreneurial choice do not necessarily translate into drivers of business growth. The key observable factors associated with an increased probability of being a job creator, rather than solo self-employed, are found to be gender, age, accumulated business experience, and personal financial circumstance.

The efficacy of business start-up support has been the subject of recent adverse commentary (Shane, 2009; Arshed et al., 2014). In particular, strategies which aim to promote more business start-up activity with little attempt to differentiate on the basis of business type, location or characteristics of the founder may prove inefficient instruments if the overall intention is to raise levels of economic prosperity. The findings here show that the majority of start-ups are unlikely to grow beyond solo self-employed status. This may reflect the limited aspirations of microbusiness founders, many of whom do not set out to create jobs. But importantly, where jobs are created, the resources and other characteristics of the business founder appear more important than the local economic environment. Smart entrepreneurship policy directed towards business growth needs to focus on business owners with particular attributes and characteristics, and not towards all microbusinesses in a

locality. Such policies may be targeted to where microbusiness growth is less vigorous. But, importantly, policy intervention needs to focus on improving the capacity of particular business owners, rather than blanket measures to raise local business demand or improve labor supply.

Although the period of analysis has seen strong growth in UK self-employment, this has not been accompanied by an increase in self-employed job creators. Two pertinent features stand out. One is the gradual convergence in self-employment rates for men and women, suggesting that some of the factors hindering female entrepreneurship are ameliorating. However female business founders are less likely to create jobs. Another is that there are inevitably a larger proportion of less experienced self-employed business owners. They are also less likely to create jobs. Policy initiative at the local and regional level in the UK might therefore focus attention specifically on these two groups.

Footnotes

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[1] Self-employment trends vary considerably, see OECD Self-employment rate (indicator). DOI: 10.1787/fb58715e-en (2017) (Accessed on March 6, 2017)

[2] By contrast Fairlie (2013) argues from US evidence for the counter-argument that higher local unemployment encourages more entrepreneurship.

[3] Full details of the survey are at www.understandingsociety.ac.uk. Buck and McFall (2012) provide technical details of the survey design.

[4] Numbers of transitions from self-employed to company director status are very few.

[5] For further details, see also Jenkins (1995). The modelling approach used also accounts for unobserved heterogeneity (random effects) as described by Meyer (1990).

[6] UK Data Service and University of Essex are thanked for granting access to district of residence coding for these data linkages. The ONS data relate to Great Britain only. Northern Ireland is excluded from the analysis because its data are collected on a different basis.

[7] These are available on request, and show that the major movements are in moving from sole-trader status to employer.

[8] Reducing the range of covariates to address potential multicollinearity revealed no material change in key findings.

[9] An issue concerning data definition ought to be noted here. A self-employed business owner who has created jobs, particularly if within a formal organizational hierarchy, might then more likely be classified in a managerial occupation.

[10] The inclusion of interaction variables between self-employment experience and the local economic vibrancy variables was investigated but not found to attract significant coefficient estimates.

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Table 1: Sample information and self-employment rates, waves 1 to 6 of USoc

	Wave 1 2009-10	Wave 2 2010-11	Wave 3 2011-12	Wave 4 2012-13	Wave 5 2013-14	Wave 6 2014-15
Total economically active	27,154	28,691	26,231	25,178	24,343	24,823
Self-employed	3,612	3,755	3,611	3,507	3,445	3,669
% self-employed*	13.3%	13.2%	13.9%	13.9%	14.1%	14.4%

Source: author's computations from Understanding Society, Waves 1-6
Note: * estimates weighted using USoc cross-sectional population weights

Table 2: Employment of others by the self-employed, waves 1 to 6 of USoc

		Wave 1 2009-10	Wave 2 2010-11	Wave 3 2011-12	Wave 4 2012-13	Wave 5 2013-14	Wave 6 2014-15
Sole trader		2,044	2,191	2,099	2,100	2,128	2,125
Employer	1-2	300	309	280	264	226	256
	3-9	256	257	254	199	202	208
	10-24	87	82	84	78	68	67
	25-49	31	27	27	28	27	32
	50-99	16	10	12	9	9	7
	100-199	5	7	4	4	3	2
	200+	7	10	13	13	11	14
% job creators*		25.6	23.5	23.3	21.3	19.6	21.2

Notes: see Table 1.

Table 3: Numbers of wave-to-wave employment size group transitions, waves 2 to 6 of USoc

Size group transition	*Number of self-employed employer transitions*	*% of total*
Decline: 4 or more size bands	23	0.3
3 size bands	20	0.2
2 size bands	84	1.0
1 size band	410	4.7
No change	7634	87.4
Growth: 1 size band	445	5.1
2 size bands	80	0.9
3 size bands	20	0.2
4 or more size bands	23	0.3
% of self-employed whose employment size band increased:		
Waves 1 to 2	5.9%	
Waves 2 to 3	7.7%	
Waves 3 to 4	5.2%	
Waves 4 to 5	5.9%	
Waves 5 to 6	7.9%	

Source: author's computations from Understanding Society, Waves 1-6
Note: numbers pooled across 4 available wave-to-wave transitions

Table 4: Bivariate correlation analysis

	(1)	(2)	(3)	(4)
	BOSS	*SCALE*	*TBOSS*	*GROWN*
A) Local economic activity				
local unemployment rate (previous year)	-0.033**	-0.042**	-0.022*	-0.015
local median earnings (previous year, £'00s)	-0.015	0.013	0.015	0.023**
local median house price (previous year, £'00000s)	-0.0003	0.131	0.030**	0.028**
B) Individual demographics				
gender (female=1)	-0.064**	-0.048**	-0.034**	-0.028**
age (years)	0.035**	0.030**	-0.029**	-0.025**
ethnicity:				
white, British	-0.048**	-0.044**	-0.033**	-0.029**
white, non-British	-0.011	0.007	-0.007	-0.003
African-Caribbean	-0.035**	-0.030**	0.001	-0.006
Asian	0.017*	0.007	0.019	0.014
Chinese and other	0.010	-0.009	-0.010	-0.006
C) Individual resources				
C1) educational attainment				
university or college first degree or higher	0.035**	0.071**	0.004	0.008
vocational qualifications	0.001	0.0003	-0.011	-0.0005
A-levels or equivalent aged 18	0.006	0.006	0.009	0.017
O-levels/GCSEs or equivalent aged 16	-0.032**	-0.067**	-0.0002	-0.009
no qualifications at age 16 or above	0.001	0.0003	-0.011	-0.001
Training in past year	0.012	0.062**	-0.015	-0.006
No. of training activities in past year	0.049**	0.113**	-0.019	0.005
C2) experience and background				
elapsed duration in self-employment (years)	0.133**	0.114**	0.003	0.008
father was business owner/employer	0.013	0.001	0.004	0.011
mother was business owner/employer	0.008	-0.003	0.008	0.005
C3) financial resources				
Housing equity (self-reported value – outstanding mortgage) £'00000s, previous year	0.043**	0.071**	-0.001	0.007
Annual investment income £'000s , previous year	0.063**	0.103**	0.039**	0.017
N	4783	4783	2616	3431
NT	11490	11490	6072	8611

Source: author's computations from Understanding Society, Waves 1-6, pooled observations
Note: * denotes statistical significance at <10%, ** at < 5%.

Table 5: Multivariate regression analysis

	(1)	(2)	(3)	(4)
	BOSS	*SCALE*	*TBOSS*	*GROWN*
Regression estimation method:	Logit	Ordered choice logit	CLogLog (Duration)	Logit
	Marginal effect	Coefficient	Marginal effect	Marginal effect
A) Local economic activity				
local unemployment rate (previous year)	-0.002	-0.033	-0.006**	-0.001
local median earnings (previous year, £'00s)	-0.0001	-0.002	-0.0001	0.00005
local median house price (previous year, £'00000s)	0.015**	0.360**	0.006	0.004
B) Individual demographics				
gender (female=1)	-0.037**	-0.991**	-0.017**	-0.015**
age (years)	0.009**	0.224**	0.00003	0.0004
age squared	-0.0001**	-0.002**	-0.00001	-0.00001
Ethnicity (reference: white British):				
white, non-British	-0.027	-0.636	-0.014	-0.007
African-Caribbean	-0.046*	-1.505**	-0.004	-0.015
Asian	0.012	0.391	0.019	0.005
Chinese and other	0.004	-0.881*	-0.045	-0.025
C) Individual resources				
C1) educational attainment				
university or college first degree or higher	0.013	0.544**	-0.006	0.002
vocational qualifications	0.029	0.796	-0.009	0.013
A-levels or equivalent aged 18	0.014	0.427	-0.002	0.009
O-levels/GCSEs or equivalent aged 16	-0.016	-0.531**	-0.014	-0.005
Training in past year	-0.007	-0.147	0.014	-0.007
No. of training activities in past year	0.002	0.054	-0.013*	0.002
C2) experience and background				
elapsed duration in self-employment (years)	0.002**	0.052**	0.0006*	0.0004
father was business owner/employer	0.010	0.290	-0.004	0.006
mother was business owner/employer	-0.003	-0.155	0.026	0.005
C3) financial resources				
Housing equity £'00000s, previous year	-0.0005	0.005	-0.005	0.0001
Annual investment income £'000s, previous year	0.026**	0.203**	0.017**	0.004
1-digit occupation sector controls	Yes	Yes		Yes
NUTS 1 regional controls	Yes	Yes		No
Time period controls	Yes	Yes		No
NT	11490	11490	6072	8611
N	4783	4783	2616	3431
Log likelihood	-3932.0	-6559.6	-1178.7	-2016.4
Likelihood ratio test, random effects (Chi-sqrd (1))	3408.0**	4633.5**	93.1**	16.8**

Source: author's computations from Understanding Society, Waves 1-6

Note: * denotes statistical significance at <10%, ** at < 5%. Model in column 2 also includes seven choice threshold coefficients (not reported).

Figure 1: Conceptual framework