The Post Crisis Growth in the Self-Employed: Volunteers or Reluctant Recruits?

Andrew Henley*

REGIONAL STUDIES

Abstract

In the context of recent growth in UK self-employment, the relationship between self-employment choices and local economic and labour market conditions is investigated to address whether self-employment is associated with local "push" or "pull". Empirical analysis is conducted using UK longitudinal data linked to local area unemployment and earnings data. Analysis shows that pull factors are more significant in driving transitions into self-employment. Self-employed business ownership appears not to function as a significant alternative to unemployment where paid employment demand is weak. Entrepreneurial activity prospers where local wages are higher and unemployment lower.

*Cardiff Business School, Cardiff University

Corresponding author: Professor Andrew Henley, Cardiff Business School, Cardiff University, Aberconway Building, Colum Drive, Cardiff, CF10 3EU, UK; email: HenleyA@cardiff.ac.uk

1. Introduction

By late 2014 there were almost three quarters of a million more self-employed in the UK workforce than at the start of the global financial crisis in early 2008. This represents a high proportion of the total net growth in jobs over this period. This has attracted commentary from independent policy analysts as well as from trades unions (D'ARCY AND GARDINER, 2014; HATFIELD, 2015; CENTRE FOR CITIES, 2015), and focused attention on whether the growth has been structural, cyclical, or spatial, reflecting geographical variation in supply- and demand-side influences. Self-employment has risen across almost all UK regions/nations. In some, notably in London and the south east of England self-employment growth has been matched by growth in employee jobs; in others it has not. This recent experience may sit uneasily with the recent change in research focus towards viewing entrepreneurial choice as driven by innovation and knowledge spillovers. Are those choosing self-employment doing so reluctantly in places where the alternatives are not very attractive, or making active choices in places where business start-up opportunities look more attractive?

The debate concerning self-employment as opportunity-driven or necessity-driven is not new, and has attracted past attention (for example GILAD AND LEVINE, 1986; AMIT, 1994; HESSELS et al., 2008; THURIK et al., 2008; DAWSON et al., 2014). Research has pointed towards the dominance of opportunity factors. The majority of the self-employed report opportunity-related or personal independence-related motives, suggesting some coincidence between self-employment trends and entrepreneurial activity, broadly defined. However recent research also suggests that those forming self-employed business ventures

from prior unemployment may not achieve the same levels of growth or business longevity as others.

It is therefore important to understand the extent to which local labour market conditions and local demand are associated with individual transition into self-employment. What does this imply for the framing of local policies to support entrepreneurship, and implications for how local and regional entrepreneurial culture may also support entrepreneurship? This paper investigates microdata from the first four waves of Understanding Society, the UK's principal household longitudinal survey, and undertakes data linkage to Office for National Statistics information on earnings and unemployment for 380 local authority districts. It analyses the extent to which self-employment status and transitions into self-employment are associated with variation in prior local economic conditions captured by unemployment rates and levels of earnings.

The paper concludes that there is little evidence for any net "push" effect into self-employment from weak local labour market conditions. The data are consistent with a net "pull" effect in which improved local labour market conditions indicate better local business opportunities and spending power. "Pull" effects appear to be stronger for women and stronger still for those considering a transition into self-employment from inactivity.

2. Regional drivers of self-employment

Self-employment accounts for over 15% of those in work in the UK, 4.5 million of a workforce of almost 31 million. Table 1 describes job creation between 2008 and 2014, showing the significant contribution of self-employment. Of 920,000 net new jobs created

between quarter 1 of 2008 and quarter 2 of 2014, 693,000 were in self-employment, although more recently the rate of inflow has started to fall. The net figure represents a balance of inflows and outflows. Inflows account for over 36% of the total in self-employment five years previously; outflows are only 23% of those in self-employment five years previously. This amounts to significant growth in either small-scale business venturing or freelancing/own-account self-employment or both.[1] These trends suggest various possibilities including significant growth in non-business ownership self-employment, or the transitioning into full-time self-employment of individuals into already registered businesses (D'ARCY AND GARDINER, 2014). UK Labour Force Survey estimates suggest that growth in female self-employment accounted for almost half of the total growth, even though men still accounted for 68% of all self-employed in 2014. Self-employment has grown significantly in all regions and devolved territories with the exception of Northern Ireland.[2] The growth appears strongest around the metropolitan areas of London, Birmingham and Manchester, but in particular regions may reflect a complex balance of economic demand and labour market pressures, and, to the extent that devolved territories are free to adopt different instruments, variation in policy activism.

Ex ante the theoretical relationship between entrepreneurial activity and unemployment is ambiguous. Ideas of rational entrepreneurial choice predict that higher unemployment will induce more to switch into self-employment because increasing unemployment raises the differential between the expected return from using human capital in business ownership and from deploying that human capital in the paid labour market (PARKER, 2009). However, a regional economics perspective proposes that entrepreneurial opportunities are fewer where unemployment is higher because higher unemployment correlates with lower economic demand (STOREY, 1991; REYNOLDS et al., 1994). The

balance of "prosperity-pull" and "recession-push" dominates extant research on this topic, and figures significantly in discussion on the spatial variation in self-employment and new firm formation (see AUDRETSCH et al, 2014). The absence of a clear-cut relationship has been noted, reflecting the theoretical ambiguity (ARMINGTON and ACS, 2002; THURIK et al., 2008; PARKER, 2009; VIVARELLI, 2013; AUDRETSCH et al., 2014).

Self-employment growth may reflect "necessity" motives and governments may pursue activist policies that support business venturing to alleviate unemployment (FRISCH, 1993; BAUMGARTNER and CALIENDO, 2008; CALIENDO and KUNN, 2014). New business owners may find it easier to hire others when unemployment is higher, reinforcing the higher unemployment-higher entrepreneurial activity argument (HENLEY, 2005). On the other hand self-employment growth may reflect improvements in economic demand at particular times and locations. Redundancy compensation may also encourage transition into self-employment because windfall payments may provide a ready source of business capital (LINDH and OHLLSON, 1996; TAYLOR, 2001; HURST and LUSARDI, 2004; GEORGELLIS et al., 2005).

Behind the balance between "prosperity-pull" and "recession-push" lies a raft of other potential influences on regional variation in rates of entrepreneurship. Different localities and regions may enjoy differing degrees of cultural support for entrepreneurship (HAYTON et al., 2002; FRITSCH and STOREY, 2014; KIBLER et al. 2014). These may encompass positive as well as negative drivers, such as positive social norms, and institutions that support their creation, as well as local attitudes to entrepreneurial failure. Institutional arrangements may operate at the national and regional level – in the present context active labour market policies may operate at a devolved regional level (as in the UK since 2000),

and may directly and indirectly both encourage and discourage self-employment as an occupational choice. Regional differences may be very deep-seated and persistent (FRITSCH and WYRWICH, 2014). A range of other contextual factors may also influence regional patterns of entrepreneurship, including the nature and localization of industrial structure, urban agglomeration patterns, the complex pattern of knowledge and innovation spillovers between and within industries and regions, and regional variation in access to and collateral for finance (AUDRETSCH et al., 2006; STERNBERG, 2011; STAM and BOSMA, 2015).

Older cross section evidence tends to support a negative association ("prosperity-pull") between unemployment and self-employment (PARKER, 2009). However recent research questions that conclusion (see PARKER, 2009, Table 4.1, p. 108 for a meta-analysis). Instead it squares with the observation that a higher proportion of the unemployed, when compared to the already employed, appear to transition into self-employment (EVANS and LEIGHTON, 1990). Research on the strength of the association between unemployment and new firm formation confirms this ambiguity, although with clear evidence of a positive association between business venturing and local economic prosperity (FRISCH and STOREY, 2014). "Prosperity-pull" effects may be stronger for women (SARIDAKIS et al., 2014). At least one recent micro-econometric analysis finds that the unemployed are more likely to enter self-employment (BIEHL et al., 2014) and reinforces the important point that much previous research has focused on the relationship between unemployment and the size of the self-employed "stock", rather than transitions into self-employment influenced conditions immediately preceding the transition decision.

An investigation of transitions (flows) rather than self-employment status (stocks) normally requires longitudinal data (FRISCH and STOREY, 2014). However, even within

large longitudinal surveys, sample numbers transitioning into self-employment may be quite small, making identification of data associations difficult. Longitudinal data also allow investigation of the implications of entering self-employment from unemployment. Survival rates (spell lengths) in self-employment may be lower (MILLÁN et al., 2012). Businesses started by the unemployed may also not grow as quickly (HINZ and JUNGBAUER-GANS, 1999; CALIENDO and KUNN, 2014).

Two further ideas lie behind the "recession-push" hypothesis. Firstly higher unemployment in a locality may result in a greater likelihood that those entering self-employment do so from unemployment. Secondly higher local unemployment is associated with generally more difficult local labour market conditions. After the financial crisis anticipated nominal wage growth was low, and employers were able to negotiate nominal and real declines in earnings (GREGG et al., 2014). Perceived job security may have fallen, and, under pressure from employers to restore falling productivity levels, job satisfaction may also have fallen (McMANUS, 2012). These pressures may raise the relative attractiveness of self-employment. In reality, actual self-employment may turn out to be unrewarding, unsatisfying and insecure (D'ARCY and GARDINER, 2014; HATFIELD, 2015).

Local unemployment rates may mask heterogeneity in local conditions, in particular the extent to which local variation in the skills of the unemployed, as well as variation in their spell duration, reveals information about their ability to compete for available jobs, and therefore experience lower "push" towards self-employment (AUDRETSCH et al., 2014). Employee wage rates may exert a significant influence on self-employment choice (GHATAK et al., 2007). Low wage growth may have had impact in both tipping the balance between the attractiveness of self-employment versus paid employment, and on the level of

local demand for the products and services of new business ventures. Thus local unemployment rates may not convey full information about local economic factors.

To summarise, there is a need to revisit whether the likelihood of choosing (transitioning into) self-employment is higher or lower in a locality where unemployment is higher, and wages lower. By using a large-scale longitudinal microdata source, any analysis should control for variation in individual characteristics, including gender (DAWSON et al, 2014). In particular the analysis should focus on whether the likelihood of self-employment is also affected by previous unemployment or inactivity.

3. Data and methodology

Empirical investigation is undertaken using Understanding Society (USoc), the UK's household longitudinal survey. USoc was initiated in 2009 with a stratified, clustered sample design. [3] The achieved wave 1 sample, collected over a two-year period 2009-2010 comprised 39,802 households, covering 101,086 individuals of whom 27,103 were in employment or self-employment. Sample waves are collected on an annual frequency across two year overlapping periods, with Waves 1 to 4 analyzed here, i.e. 2009-10, 2010-11, 2011-12 and 2012-13. In following a household design, the achieved Wave 1 sample has characteristics that are very similar to the UK government Labour Force Survey.

There is some sample attrition due to loss of contact or refusal to remain a participant. Between Waves 1 and 2 approximately 20% of the sample is lost, however attrition rates in successive waves were much lower and internationally comparable to similar surveys. The

inclusion of additional "temporary sample members" offsets attrition; these are recruited if they join originally sampled households.

Table 2 summarises self-employment and transitions into self-employment in the sample. The rate of self-employment rose from 13.3% to 13.9% over the four available sample waves. Between Waves 1 and 4 this change is statistically significant (t=2.090, p value: 0.037). In line with other evidence self-employment is considerably higher amongst men than women. However the rate of increase is higher for women. Not all the self-employed are business owners – some register with the tax authorities as self-employed because they are sub-contractors, freelancing or in some other form of non-business ownership self-employment. Self-employed business owners (i.e. as sole owner or in partnership) comprise over three-quarters of the self-employed, in similar proportions for men and women, and show very similar rates of growth to overall self-employment (see Appendix).

The growth in the self-employment total is reflected in rising numbers of transitions between waves into self-employment, both from previous paid employment and from previous inactivity (from unemployment or from withdrawal from the labour force for other reasons). Around half of all transitions are from inactivity rather than paid employment (see Appendix). This suggests that significant numbers chose self-employment as an alternative to worklessness – reflecting either a "necessity" motive or an "encouraged worker" effect arising from improving local economic conditions, or both. The growth in transitions is stronger for women, and the proportion of women that transition from inactivity is higher. However it is important to qualify these observations by noting that absolute numbers of

transitions observed are relatively small, and therefore not necessarily fully reflecting patterns in the overall population.

Office for National Statistics (ONS) data on 380 local authority district unemployment rates and earnings levels are linked to the microdata files.[4] Earnings are measured at the lower quartile (25th percentile) level, in order to reflect the lower part of the distribution. This is chosen as an appropriate comparator for those who may transition into self-employment from inactivity.[5] Bivariate correlation analysis between self-employment status or transitions and these local economic indicators is then conducted. Self-employment status and transitions into self-employment are then modelled using binary dependent variable regression (probit) analysis. This controls for the impact of a typical range of demographic factors. Because the data are longitudinal, with multiple observations for each individual, it is possible to use conventional regression pooling available data from the different waves. It is also possible to use random effects modeling in which variation in time-invariant individual characteristics is incorporated within the regression error structure, though the assumption that the successive correlation of error terms for a particular sample individual is constant over time (GUILKEY and MURPHY, 1993; ARULAMPALAM, 1999).

The regression structure models the probability for individual i at time t of (transition into) self-employment, S_{it}, conditional of a set of covariates $\boldsymbol{x}$ including the local unemployment rate and local earnings in the previous year. It takes the following form:

$$\Pr(S_{it} \neq 0 | \boldsymbol{x}_{it}) = \Phi(\boldsymbol{x}_{it}\boldsymbol{\beta} + v_{it})$$

(1)

where $v_{it} = \alpha_i + u_{it}$ in the case of the random effects estimation method, and $v_{it} = u_{it}$ in the case of the pooled probit method. Reported estimates include standard errors which are corrected for clustering by multiple observations on each individual sample member. The explanatory power of the random effects form versus the conventional pooled form is captured 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. Model estimation was performed using Stata version 14. Because, in the case of the random effects model, the likelihood function is not defined analytically, the estimation method uses a Gauss-Hermite quadrature numerical approximation method.

Alongside indicators of local economic conditions (unemployment, earnings) the model includes a range of factors typical in other studies (DUNN and HOLTZ-EAKIN, 2000; TAYLOR, 2001; NIITTYKANGAS and TERVO, 2005; GEORGELLIS et al., 2005; COLOMBIER and MASCLET, 2008; PARKER 2009). These include gender, age, age squared (to allow for non-linearity), level of educational attainment, ethnicity, entrepreneurial parentage and rural/urban location, as well as high level (NUTS 1) regional indicators and time controls to capture any aggregate economic cycle.

4. Findings

a) Correlation analysis

Table 3 reports bivariate correlations for men and for women. Correlations are small; however in many cases associations are statistically significant. The first row shows that self-employment is statistically significantly lower in localities of higher unemployment. For

earnings the picture is more complex. Although across the full sample self-employment is higher in localities with higher earnings, for men there is a weak but statistically significant negative association. Levels of self-employment appear to be depressed in localities where the local labour market is weaker, and encouraged where local spending power (earnings) is higher. Weak negative, but significant correlations for men and women are consistent with lower levels of pay in the lower labour market segment raising the attractiveness of "going it alone".

The second row reports associations between transitions into self-employment and local unemployment and earnings. Higher local unemployment is associated with lower transitions; higher local earnings are associated with higher transitions. These associations, although statistically significant, are small in size. They suggest that the net impact is one of "prosperity-pull". Any "push" effect is absent in the data. This is further confirmed by separating transitions from paid employment and from inactivity. Again there is no indication of a strong push effect from inactivity. For men, the negative association with local unemployment disappears. For women, it is stronger. Women appear more likely to be attracted into self-employment if local conditions improve. Further results focusing on self-employed business owners are in the Appendix.

The survey also includes a question asked of 16 to 21 year olds about likelihood of being self-employed in the future.[6] For young men this was found to correlate positively and significantly with both local unemployment rates and local earnings, although only with earnings for young women (see Appendix). This suggests that higher local unemployment may encourage business start-up aspirations. But the size of the correlation coefficient is

much higher for earnings and is significant for young men and women, suggesting that any "recession-push" motive is more than offset by the "pull" effect created by a vibrant locality.

b) Multivariate regression analysis

The results in Table 3 are inconclusive and favour a multivariate investigation. Table 4 reports probit regression analysis for self-employed status, whilst Table 5 reports a similar analysis for transitions into self-employment.[7] In Table 4 three different model specifications are reported. Columns 1 and 2 report conventional probit models, with standard errors are adjusted to account for multiple observations for the same individual. Column 1 includes high level regional binary variables and binary variables for time period of observation, defined on six-monthly intervals. Column 2 excludes these. Column 3 reports the results of a random effects probit estimation, as described in equation (1). The high estimated value of ρ suggests that the random effects formulation is preferred.

In all three models there is a significant negative association between the local unemployment rate and the probability of self-employment. In the first model, where there are additional controls for time and high-level regions, the coefficient size is small, although statistically significant (the estimated marginal effect implies that a one point increase in the unemployment rate is associated with a reduced self-employment probability of 0.002). Suppression of time and regional controls doubles this size of this. These results point to a net local unemployment effect in which opportunity or "pull" effects are stronger than any "push" effect, even after controlling for variation in local earnings capacity. The association between self-employment and local earnings levels is not as consistent in the estimates. In the first column lower earnings are associated with higher self-employment, and the effect is

statistically significant. However suppression of time and regional controls cause the association to change sign and lose significance. In column 3 the association between self-employment and local earnings becomes strongly positive and statistically significant. This again is consistent with opportunity effects being stronger than any "push" effect.

In Table 5 seven different specifications are presented for year-on-year transitions into self-employment, investigating the robustness of method choice and of interactions of the local labour market variables with gender and an individual's prior economic status. Columns 1 to 3 duplicate those in Table 4. Once again there is a significant negative association with local unemployment. The individual probability of transition into self-employment falls if the local unemployment rate is higher. Marginal effects are small. A one-point increase in unemployment is associated with a drop in the probability of transition of between 0.0004 and 0.0005 (from its mean of 0.014). For local earnings, in columns 2 and 3 with no higher-level regional controls, the association with the probability of transition is positive and significant. Again, although the effect is statistically significant, the marginal effects are small (a probability increase of 0.002 for a £100 increase in lower quartile weekly earnings in column 3). The emerging picture is the same in both tables: evidence for small but significant opportunity effects from improving local economic vibrancy.

In columns 4 and 5 unemployment and earnings are interacted with gender. Opportunity or "pull" associations are seen to be stronger for women than for men. This appears to the case for both local unemployment rates and earnings levels. In the random effects model the female self-employment transition rate marginal effect is 0.0013 for each percentage point fall in unemployment. This is around three times as large as the combined gender estimate. For earnings the marginal effect is twice as large at 0.004.

Column 6 includes further interaction effects to investigate differences between the probabilities of transition from activity or inactivity. Unemployment and earnings gender interactions are interacted with a binary variable identifying those who were inactive in the previous year of the survey. The coefficients on these additional interactions can be interpreted as the additional impact of local labour market conditions for a previously inactive individual compared to one who was in paid employment. Two features stand out. Firstly, for local unemployment these interactions are negative and statistically significant, for both men and women. Secondly, controlling for prior inactivity increases the size and significance (to a level of 10%) of the positive association between the unemployment rate and the probability of transition for men. But the effect is offset by the negative interaction effect if the individual was inactive a year previously. This suggests that there may be a slight net "push" effect into self-employment for men who are only very recently unemployed, supporting other research (AUDRETSCH et al., 2014).

The opportunity-damaging effect of rising unemployment is stronger for those considering self-employment from inactivity compared to those switching from paid employment. The same effect is also found for local earnings. Lower earnings reduce transition probabilities further for those switching from inactivity compared to paid employment. The estimated values of ρ for the random effects models in Table 5 are around 0.1 in each case. Although lower than in Table 4, these estimates are roughly twice as large as estimated standard errors, still favouring the random effects formulation.

Finally column 7 includes interactions of the local unemployment rate with the individual's self-reported length of economic inactivity (in years), constructed from USoc

employment history questionnaire schedules.[8] In the case of those who are in employment rather than inactive this is set to zero. This is to investigate a recent observation that it is long-term unemployment rather than unemployment *per se* that has an adverse impact on new firm formation (AUDRETSCH et al., 2014). The results reported are for a pooled probit estimation as the error component correlation is not significantly different from zero.[9] The interaction with the length of time spent inactive attracts statistically significant coefficient estimates for both men and women. Computed marginal effects imply that an additional year of inactivity lowers the probability of transition by 0.014% (and by slightly more for men).

5. Discussion

The main finding to emerge from this analysis is that local economic and labour market conditions appear to exert a largely positive influence on the likelihood of choosing self-employment. In other words, improved local unemployment and earnings (in the lower part of the earnings distribution) are positively associated with the probability that an individual will choose self-employment (Table 4) or choose to transition into self-employment (Table 5). There is little or no suggestion of any net "recession-push" effect on self-employment, despite the agnostic position of the extant cross-sectional literature (PARKER 2009). However, even during the immediate aftermath of the 2007-8 global financial crisis, the results suggest stronger evidence for a local demand "pull" effect. If there is any "push" influence of rising unemployment or falling paid employment earnings into self-employment, for most individuals it is more than offset by the opportunity-damaging effects that rising local unemployment or falling wages have on the attractiveness of a locality as a place in which to do business. The associations are stronger for those who transition from economic inactivity, and suggests that entrepreneurial labour force

participation decisions are influenced by the expected returns from business venturing. Women, particularly, are encouraged to switch from inactivity into business venturing activity by improvements in the local economy, a finding that supports macro time-series analysis (SARIDAKIS et al., 2014).

The only evidence found for the "push" hypothesis in the analysis is for men, particularly those considering transitioning from (poorly) paid employment or from a relatively short period of inactivity, or unemployment. This evidence is statistically quite weak. However, the longer someone has been unemployed *and* the higher the local unemployment rate, then the less likely that person is to transition into self-employment.

In summary, it is difficult to conclude from this analysis that there is much evidence for a self-employment "push" effect. It cannot be ruled out that both "push" and "pull" effects exist but offset each other. A "push" effect may exist in the minds of those considering self-employment. However any such effect is very significantly offset by the negative "opportunity" effect. Higher local unemployment and lower local earnings levels signal that the potential gains from business venturing have worsened. Alternatively, falling unemployment and rising wages encourage business venturing, rather than encourage the self-employed to switch out into better paying and less risky waged employment.

Current UK policy focuses on the "new enterprise allowance" which provides up to 26 weeks of income support as well as access to some start-up loan capital, targeted in particular at the inactive and unemployed.[10] Whilst policies of this nature may support the unemployed to take advantage of entrepreneurial opportunities, the paradox here is that this may have more impact in leading regions rather than in lagging ones, where local

unemployment rates are lower and earnings at the lower end of the distribution are higher. The potentially regionally divisive, unintended consequences of policies of this form have been discussed in detail in earlier evaluations (STOREY and JOHNSON, 1987; WHITTINGTON, 1984; WESTHEAD and BIRLEY, 1995). More recently it has been suggested that enterprise policy is often "bad policy" (SHANE, 2009), or ineffective because the policy formulation process is flawed (ARSHED et al., 2014). In turn this may, at the margin, worsen rather than lessen regional inequalities. Local policy might better focus on improving the skills of the would-be self-employment to improve business quality and longevity rather than on income support. Simply focusing on increasing the numbers of self-employed or business start-ups is likely to be counter-productive to local and regional economic growth, since many start-ups are not innovative, do not show growth potential or employ others in significant numbers (SHANE, 2009; HENLEY, 2005). Furthermore start-up subsidy programmes may be counter-productive because they ignore national and regional complexity in institutional and labour market regulatory arrangements (ROMÁN et al., 2013).

Although these results fail to identify any net recession-push effect for self-employment transitions, a positive correlation between local unemployment and young men's reported likelihood of future self-employment was found. Local unemployment may stimulate interest in self-employment even if actual transitions do not occur, particularly for men. This is investigated further in a similar regression analysis reported in Table 6. These results do suggest a weakly significant positive association between the local unemployment rate and the likelihood that a 16 to 21 year old male attaches to their future self-employment. For young women any local labour market effect seems to focus more on opportunity, as indicated by the positive earnings coefficient. One potential implication of this finding, in the

context of the paper's main findings, is that attitudinal questions within surveys, such as the Global Entrepreneurship Monitor, may risk over-estimating the strength of entrepreneurial intention.

This study also highlights the value of large-scale longitudinal survey data for research on entrepreneurship and self-employment. The analysis focuses on transitions into self-employment, as much as self-employment status. This is important because the former are more likely to be influenced by recent movements in local economic conditions, whereas the latter may reflect individual decisions made initially at a time of very different economic circumstances and subsequently affected by inertia and accumulated experience. Nevertheless this analysis cannot address in a more nuanced manner the underlying causal processes that may lead an individual to reflect on local circumstances when assessing the range of opportunities and choices at a given point in time and place. One important influence that has not been addressed in this study, but would readily lend itself to further regional quantitative analysis concerns the role of personal wealth on entrepreneurial choice. Previous research has shown that this may an important influencing factor both directly and as a source of collateral, via housing wealth (BLACK et al., 1996; DISNEY and GATHERGOOD, 2009). However some research has concluded that the influence of wealth may be very non-linear and only significant for large-scale windfall gains (HURST and LUSARDI, 2004).

6. Conclusions

Structural growth in self-employment appears to account for a significant proportion of recent UK jobs growth. This growth has already invited comment on the important

question of whether this reflects entrepreneurial opportunity-seeking behavior or is indicative of "defensive", necessity-driven activity on the part of individuals facing a dearth of attractive alternatives. This paper has aimed to provide robust quantitative analysis of this question.

This question has been specifically framed in spatial terms, because the institutional and cultural conditions and innovation systems may vary greatly between regions in larger economies. Therefore the question was posed of how transition into self-employment in a particular locality is correlated with the vibrancy of the local economy and labour market. The evidence here points firmly to the conclusion that self-employment choices, observed since the onset of financial crisis in the UK, tend to be associated with opportunity drivers rather than necessity ones. The self-employed do not appear to be reluctant converts to entrepreneurship, "encouraged" into business start-up activity by the absence of (well paid) local jobs. Associations in the data, although modest in scale, tend to be statistically significant. Opportunity-pull effects appear to be stronger for women than for men.

This implies that pan-regional policies to promote enterprise, undifferentiated in the way they are designed and targeted between high-wage, low-unemployment areas and low-wage, high-unemployment areas, are likely to yield unintended effects. They will exacerbate spatial inequalities in self-employment, and therefore inequalities in both the scale and quality of entrepreneurship. In this respect these findings support other authors who have already expressed "entrepreneurship policy scepticism" (SHANE, 2009; VIVARELLI, 2013; ARSHED et al., 2014). Institutional and policy support, as well as activity to promote improved enterprise culture, need to be differentiated and tailored for the different circumstances of particular localities. There is also a case for careful assessment of the

differential impact of policy and support by gender. For areas, such as south-east England, where self-employment rates are already high and continue to rise, policy needs to focus on business quality and growth potential (FRITSCH and WYRWICH, 2014). For lagging regions it may be more appropriate to target policy towards raising enterprise culture and to providing institutional and policy support for better resourcing of new business venturing.

Footnotes

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[1] Official data reveals that the number of micro businesses (0-10 employees) grew by 292,000 over the same period. This includes those registered for VAT and, if employers, for making tax and national insurance payments on behalf of employees, as well as unregistered sole-traders.

[2] Based on Official for National Statistics data. Northern Ireland is somewhat different because levels of self-employment have been much higher due to greater significance of agriculture and related rural sectors.

[3] BUCK and MCFALL (2012) provide further technical details of the survey design.

[4] The author is grateful to the UK Data Service and the University of Essex for granting permission to access USoc individual local authority district of residence data. The ONS data are extracted using the NomisWeb service, and relate to Great Britain. Northern Ireland is excluded from the analysis because its data are collected on a different basis.

[5] There is little difference in the results if the local median level of earnings is used.

[6] The question (what is the probability, between 0 and 100%, that you will be self-employed in the future) was asked in Waves 2 and 3 only. Respondents were asked to provide an

estimate between zero to 100%. The mean probability was 34% from 8692 available responses.

[7] Preliminary analysis omitted the non-business owner self-employed from the analysis (just over 20% of all self-employed, see Table 2) and found very similar results to those reported, in line with the very similar correlations for the two measures reported in Table 3. Therefore the reported results in Tables 4 and 5 include both business owner and non-business self-employed status and transitions.

[8] The sample size drops because around 20% of individuals in the sample have item non-response in the USoc employment history schedules.

[9] Consequently the unreported random effects coefficient estimates are very close to those reported.

[10] See https://www.gov.uk/new-enterprise-allowance (accessed 15 June 2015) for further details.

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Table 1: UK Employment and Self-Employment Growth 2008-2014

	Total Employment '000s	Employees '000s (% of total)	Self-Employment '000s (% of total)
2008 quarter 1	29,510	25,428 (86.2%)	3,858 (13.8%)
2014 quarter 2	30,430	25,630 (84.2%)	4,551 (15.8%)
Change	+920	+202	+693
Inflow 2009-2014*			1,669 (36.5%)
Outflow 2009-2014*			886 (23.4%)

Source: UK Office for National Statistics

Notes: * inflow measured as percentage of 2014 total self-employed who had entered within last 5 years; outflow measured as percentage of 2009 total who had left self-employment compared to 5 years previously. [+] registered and unregistered (for VAT and PAYE), 0 to 10 employees.

Table 2: USoc Sample Self-employment Levels and Transition Rates

	Wave 1 2009-10	Wave 2 2010-11	Wave 3 2011-12	Wave 4 2012-13
Males and females:				
Self-employment (as % of all employment)	3758 (13.3%)	4046 (13.2%)	3857 (13.8%)	3729 (13.9%)
Transitions into self-employment	-	477	585	569
Males only:				
Self-employment (as % of all employment)	2580 (18.4%)	2802 (18.3%)	2605 (18.7%)	2513 (18.8%)
Transitions into self-employment	-	309	346	340
Females only:				
Self-employment (as % of all employment)	1178 (8.3%)	1244 (8.1%)	1252 (8.9%)	1216 (9.1%)
Transitions into self-employment	-	168	239	229

Source: author's computations from Understanding Society Waves 1 to 4
Note: fuller analysis in Appendix Table A1.

Table 3: Bivariate correlation analysis of self-employment transitions and local labour market conditions

Correlation (Two-sample t-test)	UR - all	Q25E- all	UR - males	Q25E - males	UR - females	Q25E - females
Self-employment status	-0.050 (*0.000*)	0.076 (*0.000*)	-0.047 (*0.000*)	-0.013 (*0.019*)	-0.059 (*0.000*)	0.009 (*0.091*)
Self-employment transition in previous year from any status	-0.009 (*0.003*)	0.035 (*0.000*)	0.002 (0.692)	0.015 (*0.001*)	-0.021 (*0.000*)	0.017 (*0.000*)
Self-employment transition in previous year from employment	-0.003 (0.519)	0.037 (*0.000*)	0.003 (0.605)	0.005 (0.423)	-0.012 (*0.046*)	0.018 (*0.002*)
Self-employment transition in previous year from inactivity	-0.014 (*0.001*)	0.031 (*0.000*)	-0.001 (0.846)	0.021 (*0.001*)	-0.025 (*0.000*)	0.018 (*0.002*)

Source: author's computations from Understanding Society Waves 1 to 4

Notes: UR – local authority district of residence unemployment rate 12 months previously; Q25E – local authority district 1st quartile weekly earnings in previous year; *italic* denotes p-value below 0.1, ***bold italic*** below 0.05. Full results in Appendix Table A2.

Table 4: Multivariate regression (probit) model estimates for self-employment status

Coefficient (p-value)	(1)	(2)	(3)
	Probit	Probit	Random Effects Probit
Local unemployment rate (lagged)	-0.012 (***0.035***)	-0.021 (***0.000***)	-0.053 (***0.001***)
Local 1st quartile earnings (lagged, gender specific £'00s) (median earnings in column 3)	-0.055 (***0.023***)	0.031 (0.122)	0.095 (0.134)
NUTS 1 regional controls	Yes	No	No
Time controls	Yes	No	Yes
N	31337	31337	31337
NT	66083	66083	66083
LogL	-24536.6	-24617.5	-14553.2
Pseudo R-sqrd	0.069	0.066	-
Proportion of error variance contributed by panel level error variance, ρ	-	-	0.992

Source: author's computations from Understanding Society Waves 1 to 4

Notes: Sample – all economically active. P-values (columns 1 and 2) are computed after adjustment of standard errors for clustering by individual. *Italic* denotes significance at 0.1 or higher, ***bold italic*** at 0.05 or higher. Median earnings are used in column to achieve model likelihood convergence. All columns include demographic and background controls – full results in Appendix Table A3.

Table 5: Multivariate regression (probit) model estimates for transitions to self-employment

Coefficient (p-value)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Probit	Probit	Random effects probit	Probit	Random effects probit	Random effects probit	Probit
Local unemployment rate (lagged)	-0.011 (*0.090*)	-0.014 (***0.009***)	-0.015 (***0.006***)				
Local unemployment × male				0.004 (0.532)	0.004 (0.562)	0.013 (*0.099*)	0.012 (0.135)
Local unemployment × female				-0.042 (***0.000***)	-0.044 (***0.000***)	-0.027 (***0.017***)	-0.026 (***0.010***)
Local unemployment × male × previously inactive						-0.037 (***0.012***)	
Local unemployment × female × previously inactive						-0.052 (***0.002***)	
Local unemployment × male × years duration of previous inactivity							-0.004 (***0.001***)
Local unemployment × female × years duration of previous inactivity							-0.004 (***0.000***)
Local 1st quartile earnings (lagged, gender specific £'00s)	-0.014 (0.580)	0.071 (***0.001***)	0.069 (***0.002***)				
Local 1st quartile earnings × male				0.047 (*0.057*)	0.046 (*0.085*)	0.014 (0.625)	0.013 (0.665)
Local 1st quartile earnings × female				0.130 (***0.000***)	0.129 (***0.000***)	0.044 (0.258)	0.096 (***0.030***)
Local 1st quartile earnings × male × previously inactive						0.133 (***0.000***)	0.101 (***0.000***)
Local 1st quartile earnings × female × previously inactive						0.175 (***0.000***)	(0.118) (***0.000***)
NUTS 1 regional controls	Yes	No	No	No	No	No	No
Time controls	Yes	No	Yes	No	Yes	No	No
N	49553	49553	49553	49553	49553	49553	39046

NT	106523	106523	106523	106523	106523	106523	86224
LogL	-7772.3	-7801.4	-7791.5	-7789.7	-7780.1	-7708.1	-5757.9
Pseudo R-sqrd	0.041	0.038	-	0.039	-	-	0.040
Proportion of error variance contributed by panel level error variance, ρ	-	-	0.085	-	0.083	0.117	-

Source: author's computations from Understanding Society Waves 1 to 4

Notes: Sample − all adults. P-values (columns 1,2 and 4) are computed after adjustment of standard errors for clustering by individual. *Italic* denotes significance at 0.1 or higher, ***bold italic*** at 0.05 or higher. All columns include demographic and background controls − full results in Appendix Table A4.

Table 6: Multivariate regression model estimates for future self-employment likelihood (16-21 year olds)

Coefficient (p-value)	
Local unemployment × male	0.005 (*0.078*)
Local unemployment × female	-0.004 (0.178)
Local 1ˢᵗ quartile earnings × male	0.019 (0.118)
Local 1ˢᵗ quartile earnings × female	0.027 (***0.038***)
NUTS 1 regional controls	No
Time controls	No
N	3670
NT	4939
R-sqrd	0.041

Source: author's computations from Understanding Society Waves 1 to 4

Notes: Ordinary least squares regression, dependent variable expressed as probability between 0 and 1. Sample – 16-21 year olds. P-values (columns 1 and 2) are computed after adjustment of standard errors for clustering by individual. *Italic* denotes significance at 0.1 or higher, ***bold italic*** at 0.05 or higher. Regression includes demographic and background controls – full results in Appendix Table A5.

Supplemental Material: Appendix

Table A1: Self-employment Levels and Transition Rates by Previous Status

	Wave 1 2009-10	Wave 2 2010-11	Wave 3 2011-12	Wave 4 2012-13
Males and females:				
Self-employment (as % of all employment)	3758 (13.3%)	4046 (13.2%)	3857 (13.8%)	3729 (13.9%)
Self-employed business ownership (as % of all employment)	2875 (10.2%)	3138 (10.2%)	2988 (10.7%)	2899 (10.8%)
All transitions into self-employment	-	477	585	569
All transitions into self-employed business ownership	-	320	379	395
Transitions from inactivity into self-employment	-	251	297	291
Transitions from inactivity into self-employed business ownership	-	164	188	194
Males only:				
Self-employment (as % of all employment)	2580 (18.4%)	2802 (18.3%)	2605 (18.7%)	2513 (18.8%)
Self-employed business ownership (as % of all employment)	1976 (14.1%)	2164 (14.1%)	2047 (14.7%)	1937 (14.5%)
All transitions into self-employment	-	309	346	340
All transitions into self-employed business ownership	-	207	225	225
Transitions from inactivity into self-employment	-	154	171	154
Transitions from inactivity into self-employed business ownership	-	98	111	96
Females only:				
Self-employment (as % of all employment)	1178 (8.3%)	1244 (8.1%)	1252 (8.9%)	1216 (9.1%)
Self-employed business ownership (as % of all employment)	899 (6.3%)	974 (6.3%)	941 (6.7%)	962 (7.2%)
All transitions into self-employment	-	168	239	229
All transitions into self-employed business ownership	-	133	154	170
Transitions from inactivity into self-employment	-	97	126	137
Transitions from inactivity into self-employed business ownership	-	66	77	98

Source: author's computations from Understanding Society Waves 1 to 4

Table A2: Bivariate correlation analysis of self-employment transitions and local labour market conditions – full analysis

Correlation (Two-sample t-test)	UR - all	Q25E- all	UR - males	Q25E - males	UR - females	Q25E - females
Self-employment status	-0.050 (***0.000***)	0.076 (***0.000***)	-0.047 (***0.000***)	-0.013 (***0.019***)	-0.059 (***0.000***)	0.009 (*0.091*)
Self-employment transition in previous year from any status	-0.009 (***0.003***)	0.035 (***0.000***)	0.002 (0.692)	0.015 (***0.001***)	-0.021 (***0.000***)	0.017 (***0.000***)
Self-employment transition in previous year from employment	-0.003 (0.519)	0.037 (***0.000***)	0.003 (0.605)	0.005 (0.423)	-0.012 (***0.046***)	0.018 (***0.002***)
Self-employment transition in previous year from inactivity	-0.014 (***0.001***)	0.031 (***0.000***)	-0.001 (0.846)	0.021 (***0.001***)	-0.025 (***0.000***)	0.018 (***0.002***)
Self-employed business ownership status	-0.049 (***0.000***)	0.048 (***0.000***)	-0.047 (***0.000***)	-0.032 (***0.000***)	-0.057 (***0.000***)	-0.014 (***0.009***)
Self-employed business ownership transition in previous year from any status	-0.011 (***0.001***)	0.022 (***0.000***)	0.001 (0.886)	0.008 (0.108)	-0.023 (***0.000***)	0.004 (0.319)
Self-employed business ownership transition in previous year from employment	-0.009 (***0.054***)	0.024 (***0.000***)	0.002 (0.755)	0.001 (0.869)	-0.023 (***0.000***)	0.004 (0.950)
Self-employed business ownership transition in previous year from inactivity	-0.017 (***0.000***)	0.026 (***0.000***)	-0.006 (0.438)	0.014 (0.052)	-0.026 (***0.000***)	0.006 (0.288)
Would like to be self-employed in the future (age 16-21)	0.022 (0.123)	0.114 (***0.000***)	0.053 (***0.011***)	0.061 (***0.003***)	-0.004 (0.827)	0.063 (***0.001***)

Source: author's computations from Understanding Society Waves 1 to 4
Notes: UR – local authority district of residence unemployment rate 12 months previously; Q25E – local authority district 1st quartile weekly earnings in previous year; *italic* denotes p-value below 0.1, ***bold italic*** below 0.05

Table A3: Probit estimates for self-employment status – full results

Coefficient (p-value)	(1)	(2)	(3)
	Probit	Probit	Random Effects Probit
Local unemployment rate (lagged)	-0.012 (***0.035***)	-0.021 (***0.000***)	-0.053 (***0.001***)
Local 1st quartile earnings (lagged, gender specific £'00s) (median earnings in column 3)	-0.055 (***0.023***)	0.031 (0.122)	0.095 (0.134)
Gender (female=1)	-0.477 (***0.000***)	-0.423 (***0.000***)	-1.095 (***0.000***)
Age (years)	0.025 (***0.000***)	0.024 (***0.000***)	0.012 (0.445)
Age squared/100	-0.005 (0.294)	-0.004 (0.402)	0.046 (***0.008***)
Ethnicity (reference: white British)			
White, non-British	0.241 (***0.000***)	0.270 (***0.000***)	0.701 (***0.000***)
African-Caribbean	-0.185 (***0.002***)	-0.108 (*0.055*)	-0.121 (0.505)
Asian	0.119 (***0.005***)	0.160 (***0.000***)	0.319 (***0.015***)
Chinese and other East Asian	0.102 (0.219)	0.156 (*0.055*)	0.551 (***0.029***)
Other	0.103 (0.203)	0.143 (*0.078*)	0.253 (0.368)
Highest educational attainment (reference: below age 16 school qualifications)			
University or college first degree or higher	0.012 (0.637)	0.029 (0.238)	0.037 (0.646)
Vocational qualification including HNDs	-0.252 (***0.000***)	-0.239 (***0.001***)	-0.559 (***0.007***)
A-levels or equivalent aged 18	-0.064 (*0.079*)	-0.052 (0.148)	-0.170 (0.144)
O-levels/GCSEs or equivalent aged 16	-0.037 (0.152)	-0.023 (0.363)	-0.075 (0.357)
Father was business owner/employer	0.125 (***0.008***)	0.128 (***0.006***)	0.288 (***0.044***)
Mother was business owner/employer	0.002 (0.969)	0.004 (0.950)	-0.028 (0.883)
Rural location	0.215 (***0.000***)	0.193 (***0.000***)	0.420 (***0.000***)
NUTS 1 regional controls	Yes	No	No
Time controls	Yes	No	Yes
N	31337	31337	31337
NT	66083	66083	66083
LogL	-24536.6	-24617.5	-14553.2
Pseudo R-sqrd	0.069	0.066	-
Proportion of error variance contributed by panel level error variance, ρ	-	-	0.992

Source: author's computations from Understanding Society Waves 1 to 4
Notes: Sample – all economically active. P-values (columns 1 and 2) are computed after adjustment of standard errors for clustering by individual. *Italic* denotes significance at 0.1 or higher, ***bold italic*** at 0.05 or higher. Median earnings are used in column to achieve model likelihood convergence.

Table A4: Probit model estimates for transitions to self-employment – full results

Coefficient (p-value)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Probit	Probit	Random effects probit	Probit	Random effects probit	Random effects probit	Probit
Local unemployment rate (lagged)	-0.011 (*0.090*)	-0.014 (***0.009***)	-0.015 (***0.006***)				
Local unemployment x male				0.004 (0.532)	0.004 (0.562)	0.013 (*0.099*)	0.012 (0.135)
Local unemployment x female				-0.042 (***0.000***)	-0.044 (***0.000***)	-0.027 (***0.017***)	-0.026 (***0.010***)
Local unemployment x male x previously inactive						-0.037 (***0.012***)	
Local unemployment x female x previously inactive						-0.052 (***0.002***)	
Local unemployment x male x years duration of previous inactivity							-0.004 (***0.001***)
Local unemployment x female x years duration of previous inactivity							-0.004 (***0.000***)
Local 1st quartile earnings (lagged, gender specific £'00s)	-0.014 (0.580)	0.071 (***0.001***)	0.069 (***0.002***)				
Local 1st quartile earnings x male				0.047 (*0.057*)	0.046 (*0.085*)	0.014 (0.625)	0.013 (0.665)
Local 1st quartile earnings x female				0.130 (***0.000***)	0.129 (***0.000***)	0.044 (0.258)	0.096 (***0.030***)
Local 1st quartile earnings x male x previously inactive						0.133 (***0.000***)	0.101 (***0.000***)
Local 1st quartile earnings x female x previously inactive						0.175 (***0.000***)	(0.118) (***0.000***)
Gender (female=1)	-0.271 (***0.000***)	-0.218 (***0.000***)	-0.232 (***0.000***)	-0.281 (***0.042***)	-0.284 (*0.065*)	-0.224 (0.154)	-0.362 (*0.045*)
Age (years)	0.040 (***0.000***)	0.039 (***0.000***)	0.041 (***0.000***)	0.039 (***0.000***)	0.041 (***0.000***)	0.061 (***0.000***)	0.031 (***0.000***)

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Age squared/100	-0.0005 (***0.000***)	-0.0005 (***0.000***)	-0.0005 (***0.000***)	-0.0005 (***0.000***)	-0.0005 (***0.000***)	-0.0008 (***0.000***)	-0.0004 (***0.000***)
Ethnicity (reference: white British)							
White, non-British	0.134 (***0.022***)	0.165 (***0.005***)	0.176 (***0.003***)	0.159 (***0.007***)	0.169 (***0.005***)	0.174 (***0.005***)	0.147 (***0.023***)
African-Caribbean	-0.054 (0.355)	0.013 (0.812)	0.015 (0.791)	0.013 (0.816)	0.015 (0.791)	-0.001 (0.990)	-0.053 (0.441)
Asian	-0.048 (0.280)	-0.006 (0.888)	-0.006 (0.890)	-0.009 (0.835)	-0.009 (0.836)	-0.047 (0.317)	-0.029 (0.592)
Chinese and other East Asian	0.072 (0.383)	0.121 (0.136)	0.132 (0.123)	0.117 (0.149)	0.128 (0.135)	0.090 (0.309)	0.116 (0.221)
Other	0.112 (0.133)	0.152 (***0.042***)	0.163 (***0.042***)	0.149 (***0.046***)	0.160 (***0.047***)	0.142 (*0.086*)	0.122 (0.167)
Highest educational attainment (reference: below age 16 school qualifications)							
University or college first degree or higher	0.120 (***0.000***)	0.139 (***0.000***)	0.142 (***0.000***)	0.138 (***0.000***)	0.142 (***0.000***)	0.186 (***0.000***)	0.122 (***0.000***)
Vocational qualification including HNDs	-0.048 (0.509)	-0.036 (0.617)	-0.040 (0.608)	-0.040 (0.586)	-0.044 (0.574)	-0.012 (0.882)	0.005 (0.952)
A-levels or equivalent aged 18	0.010 (0.802)	0.027 (0.490)	0.023 (0.586)	0.028 (0.482)	0.023 (0.579)	0.042 (0.325)	0.027 (0.551)
O-levels/GCSEs or equivalent aged 16	0.031 (0.276)	0.046 (0.104)	0.044 (0.139)	0.047 (*0.096*)	0.045 (0.131)	0.062 (***0.043***)	0.054 (0.102)
Father was business owner/employer	0.093 (***0.045***)	0.096 (***0.041***)	0.104 (***0.036***)	0.094 (***0.043***)	0.102 (***0.038***)	0.097 (*0.056*)	0.074 (0.159)
Mother was business owner/employer	-0.037 (0.585)	-0.033 (0.624)	-0.037 (0.601)	-0.030 (0.657)	-0.034 (0.632)	-0.031 (0.672)	0.005 (0.951)
Rural location	0.128 (***0.000***)	0.104 (***0.000***)	0.109 (***0.000***)	0.107 (***0.000***)	0.112 (***0.000***)	0.117 (***0.000***)	0.077 (***0.008***)
NUTS 1 regional controls	Yes	No	No	No	No	No	No
Time controls	Yes	No	Yes	No	Yes	No	No
N	49553	49553	49553	49553	49553	49553	39046
NT	106523	106523	106523	106523	106523	106523	86224

LogL	-7772.3	-7801.4	-7791.5	-7789.7	-7780.1	-7708.1	-5757.9
Pseudo R-sqrd	0.041	0.038	-	0.039	-	-	0.040
Proportion of error variance contributed by panel level error variance, ρ	-	-	0.085	-	0.083	0.117	-

Source: author's computations from Understanding Society Waves 1 to 4

Notes: Sample − all adults. P-values (columns 1,2 and 4) are computed after adjustment of standard errors for clustering by individual. *Italic* denotes significance at 0.1 or higher, ***bold italic*** at 0.05 or higher.

Table A5: Regression estimates for future self-employment likelihood (16-21 year olds) – full results

Coefficient (p-value)	
Local unemployment x male	0.005 (*0.078*)
Local unemployment x female	-0.004 (0.178)
Local 1st quartile earnings x male	0.019 (0.118)
Local 1st quartile earnings x female	0.027 (***0.038***)
Gender (female=1)	-0.037 (0.560)
Age (years)	-0.012 (***0.000***)
Ethnicity (reference: white British)	
White, non-British	0.069 (0.108)
African-Caribbean	0.118 (***0.000***)
Asian	0.016 (0.326)
Chinese and other East Asian	0.009 (0.817)
Other	0.165 (***0.000***)
Father was business owner/employer	0.070 (***0.007***)
Mother was business owner/employer	0.002 (0.946)
Rural location	0.022 (*0.078*)
NUTS 1 regional controls	No
Time controls	No
N	3670
NT	4939
R-sqrd	0.041

Source: author's computations from Understanding Society Waves 1 to 4
Notes: Ordinary least squares regression, dependent variable expressed as probability between 0 and 1. Sample – 16-21 year olds. P-values (columns 1 and 2) are computed after adjustment of standard errors for clustering by individual. *Italic* denotes significance at 0.1 or higher, ***bold italic*** at 0.05 or higher.