Self-employment and windfall gains in Britain: Evidence from panel data.

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Abstract

Liquidity constraints can affect self-employment in a number of ways. They can prohibit potential entrepreneurs from starting up in business, they can restrict the growth of existing entrepreneurial activities and, in the extreme, they can result in small business failure. This paper uses British panel data to investigate the effects of relaxing liquidity constraints on self-employment through the unanticipated receipt of windfall gains. The results suggest that the amount of payment received has a positive and concave effect on the probability of entering self-employment and on the performance of an existing self-employment enterprise, consistent with the liquidity constraint hypothesis.

1. Introduction

A major issue addressed in the self-employment literature concerns the constraints on entrepreneurial activities caused by a lack of capital. These can affect self-employment in a number of ways. They can prohibit potential entrepreneurs from starting up in business, they can restrict the growth of existing activities and, in the extreme, they can result in the failure of an enterprise. The underlying rationale behind the various government assistance schemes established in the majority of developed economies is the belief that capital markets do not provide adequate funds to finance small enterprises.

This paper uses British panel data to investigate the effects of windfall gains on: (i) the transition into self-employment, (ii) the survival rate in self-employment and (iii) for those that do survive in self-employment, the growth of entrepreneurial activities. The use of panel data allows us to overcome the usual problem encountered when investigating the effect of liquidity constraints on self-employment, that of endogeneity. Unexpected windfall gains, taking the form, for example, of inheritances or lottery winnings, reduce the liquidity constraints on (potential) entrepreneurs. The effect of this on subsequent labour market behaviour provides an indirect test of various liquidity constraint hypotheses.

Previous evidence on the effect of capital constraints on entrepreneurial activities has mainly concentrated on business start ups. Evans and Jovanovic (1989) and Evans and Leighton (1989) use U.S. data to show that the probability of self-employment increases with assets, consistent with the hypothesis that entrepreneurs face liquidity constraints. Lindh and Olhsson (1996) use Swedish micro-data and report that the probability of self-employment increases by 54% if lottery winnings are received and by 27% on receipt of an average sized inheritance. More direct evidence is available from Blanchflower and Oswald (1998) who, using data from the British Social Attitudes survey, report that more than one half of those seriously considering becoming self-employed had not done so due to an inability to raise the necessary capital. Multivariate analysis of the National Child Development Survey (NCDS) led the authors to conclude that those receiving inheritances of £5,000 or more are twice as likely to be self-employed than those not receiving an inheritance. Similar conclusions are drawn by Burke et al (1997) again using the NCDS. Burke et al, however, take the analysis further to examine the impact of an inheritance on the growth of self-employment enterprises, measured

by job creation and income. The authors report that an inheritance increases job creation in small enterprises, but has no impact on their income.

Evidence on the effects of capital constraints on self-employment survival is more ambiguous. Jovanovic (1982) and Holtz-Eakin et al (1994), using U.S. data, find that firms with larger capital inputs are more likely to survive. Unlike Burke et al, however, Holtz-Eakin et al also find that receiving an inheritance increases the receipts of an entrepreneurial enterprise. Cressy (1996) uses British data to conclude that personal assets have little effect on self-employment survival when controlling for basic individual characteristics such as age and education. Taylor (1999) uses data from the British Household Panel Survey to investigate self-employment survival, and reports that initial wealth significantly reduces the probability of bankruptcy.

The data used in this paper are from the British Household Panel Survey (BHPS). They allow identification of individuals who become and survive in self-employment, and their income. The impact of receiving windfall payments on each is assessed. The data are sufficiently rich to allow consideration of the receipt of a windfall payment, the type of windfall payment received, and the amount received. The usual problem when investigating the effects of liquidity constraints on self-employment is that of endogeneity. However the BHPS removes this problem by allowing us to identify the labour market status and income of individuals prior to the receipt of a windfall payment, whether such a payment was received (and if so of what kind and how much), and their subsequent labour market status and income.

The rest of the paper is set out as follows: The following section sets out a simple analytical framework, while Section 3 introduces the data and estimation procedure. Section 4 discusses the results, and the final section summarises and concludes.

2. Analytical Framework

Assume that the population consists of two groups, those self-employed at time t and those not self-employed at time t. Transitions into self-employment (and survival in self-employment) will occur when utility flows from self-employment exceed those from other labour market states. Identifying the determinants of utility in each labour market state is an

important step in understanding self-employment dynamics. Utility in each of the labour market states is defined as follows:[1]

Utility from self-employment

Utility from self-employment has pecuniary and non-pecuniary components (Scase and Goffee, 1982, 1987; Taylor, 1996). The self-employed receive a financial return on their labour and capital inputs, but may also derive utility from the personal autonomy that they enjoy, the benefits from 'being your own boss'. Utility from self-employment for individual i at time *t* can be written:

$$U_{i,t}^{S} = f\left(Y_{i,t}^{S}, H_{i,t}^{S}\right) \tag{1}$$

$$\frac{\partial U_{i,t}^{S}}{\partial Y_{i,t}^{S}}, \frac{\partial U_{i,t}^{S}}{\partial H_{i,t}^{S}} > 0 \tag{2}$$

where $U_{i,t}^{S}$ is increasing in $Y_{i,t}^{S}$ and $H_{i,t}^{S}$, which capture the pecuniary and non-pecuniary utility flows respectively. Furthermore:

$$Y_{i,t}^{S} = Y_{i,t}^{S}\left(\theta_i, k_{i,t}, a_{i,t}, r, X_{i,t}, e_{i,t}\right) \tag{3}$$

$$H_{i,t}^{S} = H_{i,t}^{S}\left(e_{i,t}, X_{i,t}\right) \tag{4}$$

$$\frac{\partial Y_{i,t}^{S}}{\partial e_{i,t}} > 0, \frac{\partial H_{i,t}^{S}}{\partial e_{i,t}} < 0 \tag{5}$$

where θ_i is what is commonly called entrepreneurial ability (and is time invariant), capturing an individual's business skills or acumen, and $k_{i,t}$ is the amount of capital invested in the enterprise. The assets of the individual are measured in $a_{i,t}$, r is the (time invariant) rate of interest and $X_{i,t}$ is a vector of personal characteristics, capturing an individual's tastes and preferences. Following Burke et al (1997), $e_{i,t}$ captures the effort an individual puts into their enterprise. Self-employment income is increasing in effort, while job satisfaction declines with effort.

The introduction of the effort and job satisfaction effects (omitted from most frameworks) allows for the possibility that individuals with specific preferences or with greater wealth may

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[1] Holtz-Eakin et al (1994) develop a framework similar to that here, but do not consider any job satisfaction or effort effects.

choose to devote less time to their business in favour of increased leisure time, or may concentrate business in areas providing more job satisfaction at the cost of smaller financial return. Some individuals may prefer lower self-employment income and greater job satisfaction.

An individual's net income from self-employment at time t can be written:

$$Y_{i,t}^S = \theta_i f\left(k_{i,t}\right)\pi + r\left(a_{i,t} - k_{i,t}\right) + e_{i,t}\left(k_{i,t}, a_{i,t}, X_{i,t}\right) \tag{6}$$

where $f\left(k_{i,t}\right)$ is the production function with capital input $k_{i,t}$, and π is a random variable that captures the risk and uncertainty associated with self-employment.

Within such a framework, liquidity constraints are caused by asymmetric information. An entrepreneur is assumed to know with certainty his or her entrepreneurial ability (θ_i), but the capital markets and/or financial institutions do not. Entrepreneurs are therefore able to borrow an amount proportional to their assets, and the available level of investment capital can be written:

$$k_{i,t} = a_{i,t} + \omega a_{i,t} \tag{7}$$

Each individual has an optimal level of capital (k_i^*) that maximises their output, which may or may not be attainable depending on the extent that their access to capital is constrained. If $k_i^* \leq a_{i,t} + \omega a_{i,t}$ then the entrepreneur is able to obtain his/her optimal amount of capital, and their is no liquidity constraint. If however, $k_i^* > a_{i,t} + \omega a_{i,t}$ then the entrepreneur is liquidity constrained, and:

$$\frac{\partial k_i}{\partial a_{i,t}} > 0 \tag{8}$$

Therefore, for a liquidity constrained entrepreneur, an increase in assets results in an increased availability of capital, bringing the business towards its optimal k^*.

Consider the effects of a windfall payment within this framework. For an entrepreneur liquidity constrained at t, a windfall payment will increase the capital available for investment in the subsequent period(s), and bring him (her) closer to his (her) optimal capital level. Thus, for a given level of effort, a windfall payment would result in higher subsequent self-employment income and utility. However, it is possible that capital invested in an

entrepreneurial activity and effort are substitutes, in which case the increase in capital might reduce effort. For a liquidity constrained entrepreneur, therefore, the receipt of a windfall payment will certainly result in higher self-employment utility in the subsequent period(s), and may also result in higher self-employment income depending on whether or not effort is reduced.

For an entrepreneur who is not liquidity constrained, there is no benefit in investing the windfall gain in the business. In this scenario, the windfall payment may provide financial security allowing an entrepreneur to focus on less profitable but more personally satisfying aspects of the business, or perhaps reduce his/her effort in the subsequent period(s). For an entrepreneur who is not liquidity constrained, the receipt of a windfall payment does not therefore necessarily increase self-employment utility, and may actually reduce self-employment income. Any utility loss caused by the reduction in income is compensated by an increase in job satisfaction.

Utility outside self-employment

An individual who is not self-employed can either be in waged employment or not participating in the labour force at time t. The utility from being in waged employment at t can be written as:

$$U_{i,t}^{W} = g\left(Y_{i,t}^{W}, H_{i,t}^{W}\right) \tag{9}$$

$$\frac{\partial U_{i,t}^{W}}{\partial Y_{i,t}^{W}}, \frac{\partial U_{i,t}^{W}}{\partial H_{i,t}^{W}} > 0 \tag{10}$$

where $U_{i,t}^{W}$ is increasing in $Y_{i,t}^{W}$, income in employment, and $H_{i,t}^{W}$, the non-pecuniary utility derived from waged employment (originating from job security, career prospects, incremental pay scales etc). Further:

$$Y_{i,t}^{W} = Y_{i,t}^{W}\left(w_{i,t}, r, a_{i,t}\right) \tag{11}$$

$$H_{i,t}^{W} = H_{i,t}^{W}\left(X_{i,t}\right) \tag{12}$$

where $w_{i,t}$ is the wage received in employment. It is assumed that being in waged employment requires a fixed amount of effort, so job satisfaction is a function only of individual tastes and preferences captured in $X_{i,t}$. Income from waged employment at t can be written as:

$$Y_{i,t}^{W} = w_{i,t} + ra_{i,t} \tag{13}$$

An increase in assets will therefore result in an unambiguous increase in waged employment income and utility.

Income from not participating in the labour market at time t can be written as:

$$U_{i,t}^{N} = Y_{i,t}^{N}\left(b,r,a_{i,t}\right) + \ell_{i} \tag{14}$$

where b is the available (time invariant) non-employment income, and ℓ_{i} captures the utility derived from exerting zero effort ($e=0$). Income associated with not working can be written:

$$Y_{i,t}^{N} = b + ra_{i,t} \tag{15}$$

and again an increase in assets results in an unambiguous increase in income and utility.

Effects of receiving a windfall payment

The framework outlined above allows us to consider how the receipt of a windfall payment affects the relative attractiveness of self-employment, and therefore the self-employment entry and survival rates. A windfall payment will increase personal assets and change the incomes associated with each labour market state. An increase in assets results in an unambiguous increase in income and utility in both waged employment and not working.

For a liquidity constrained entrepreneur, the increase in assets results in higher self-employment utility and perhaps, depending on tastes and preferences, higher income. However, if an entrepreneur is not liquidity constrained, a windfall payment may reduce self-employment income (through reducing effort or shifting the focus of work), and have no impact on utility. The effect of a windfall payment on self-employment utility and income is therefore ambiguous and depends on the capital position of the entrepreneur.

These relative utility changes may result in some non-liquidity constrained entrepreneurs entering waged employment or leaving work on the receipt of a windfall payment. Those that remain in self-employment may experience a decrease in income depending on effort and preferences. Similarly, some liquidity constrained potential entrepreneurs in waged employment or who are not in work may enter self-employment on receipt of a windfall payment.

3. Data and estimation procedure

The panel data used in this analysis are from the British Household Panel Survey (BHPS). This is a nationally representative random sample of some 5,500 households, including almost 10,000 individuals, residing south of the Caledonian Canal.[2] These individuals have been interviewed annually since the Autumn of 1991. As the windfall payment data is only available at Wave 5, this analysis uses data collected at waves 4, 5 and 6 (interviews conducted in the Autumn of 1994, 1995 and 1996).

At each wave, respondents are asked a detailed series of questions in order to classify their current labour market status. However, classification as self-employed is self-assessed: the respondent is asked whether (s)he is currently self-employed or an employee.[3]

Initially at Wave 4 (time *t*), we observe an individual's labour market status and personal characteristics. At Wave 5 (*t+1*), we observe whether the individual has received a windfall payment in the last 12 months and if so, its type and amount. Finally, at Wave 6 (*t+2*), we again observe the individual's labour market status, allowing the examination of transition and survival rates in self-employment. The data therefore allow the identification of personal attributes before any windfall payment is received and subsequent labour market transition is made.

Estimation

An individual who is not self-employed at *t* will be self-employed at *t+2* if:

$$U_{i,t+2}^{S} - U_{i,t+2}^{o} > 0 \tag{16}$$

where

$$U_{i,t+2}^{o} = \max\left\{U_{i,t+2}^{W}, U_{i,t+2}^{N}\right\} \tag{17}$$

The probability of entering self-employment is therefore:

$$\Pr\left(S_{i,t+2} = 1 \middle| S_{i,t} = 0\right) = \Pr\left(U_{i,t+2}^{S} - U_{i,t+2}^{o} > 0\right) \tag{18}$$

The receipt of a windfall payment at *t+1* affects the relative utility flows differently for different individuals. However, these utility flows are not directly observable. Instead we

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[2] The north of Scotland is therefore excluded.
[3] While this removes any formal problems of defining self-employment, there may be inconsistencies across individuals in how self-employment is defined.

observe labour market transitions occurring after windfall payment receipt and in particular, we observe whether individuals enter self-employment. This allows estimation of the net effect of windfall payment receipt on the relative utility flows by analysing it's effect on the probability of entering self-employment. For estimation purposes, the probability of entering self-employment can be written as:

$$\Pr\left(S_{i,t+2} = 1 \middle| S_{i,t} = 0\right) = \Pr\left(\alpha_1 X_{i,t} + \alpha_2 W_{i,t+1} + \varepsilon_i > 0\right) \tag{19}$$

where $X_{i,t}$ is the vector of personal and household characteristics at time t measuring individual tastes and preferences, and $W_{i,t+1}$ captures the receipt of a windfall payment at $t+1$. α_1 and α_2 are vectors of coefficients to be estimated, with the latter describing the net effect of the changes in utility flows caused by windfall payment receipt. By assuming $\varepsilon_i \sim N\left(0, \sigma_i^2\right)$ this can be estimated as a probit model with the dependent variable taking the value 1 for an individual who is self-employed at $t+2$ but not at t, and zero for those who are not self-employed at either time.[4,5]

Similarly, the probability of self-employment survival (being self-employed at both t and $t+2$) can be written for estimation purposes as:

$$\Pr\left(S_{i,t+2} = 1 \middle| S_{i,t} = 1\right) = \Pr\left(\beta_1 Z_{i,t} + \beta_2 W_{i,t+1} + \upsilon_i > 0\right) \tag{20}$$

where $Z_{i,t}$ is a vector of personal and household characteristics (which may or may not be the same as $X_{i,t}$), β_1 and β_2 are vectors of coefficients to be estimated.

This paper is also concerned with the effect of windfall payments on the growth of a self-employment venture. Here, this is being captured through self-employment income.[6] The econometric problem faced here is that only those with unobservable entrepreneurial ability above a certain threshold level survive in self-employment and have their income observed at

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[4] As the analysis uses panel data, it is possible to run models controlling for unobserved heterogeneity (e.g. random effects and fixed effects models). However, due to the relative small number of transitions and changes in levels of explanatory variables across the two years studied, attempts to use these models resulted in specification and convergence difficulties.

[5] The labour market status of each respondent is assessed at t (Wave 4) and $t+2$ (Wave 6), without any consiseration of intermediate statuses. It is quite possible for respondents to have had a short self-employment spell that starts and ends between these two observation points, and that is not included in this analysis.

[6] Although the BHPS does collect information on the number of individuals employed by the self-employed, this information is in banded categories. It is therefore difficult to assess accurately the impact of a windfall gain on job creation.

both t and $t+2$. There are, therefore, some selectivity problems. This implies a likely correlation between the error terms in the probability of surviving in self-employment (captured by υ_i in equation 20) and income. This correlation can be overcome by using Heckman's (1979) sample selection correction technique, with equation (20) becoming the selection equation. The income of a self-employed individual at $t+2$, conditional on surviving in self-employment since t, can therefore be written:

$$Y^S_{i,t+2} = \gamma_1 T_{i,t} + \gamma_2 W_{i,t+1} + \gamma_3 Y^S_{i,t} + \left(\rho\sigma_\mu\sigma_v\right)\lambda_i + \mu_i \tag{21}$$

where $T_{i,t}$ is a vector of personal characteristics which, for identification purposes, must be a subset of $Z_{i,t}$, $\rho\sigma_\mu\sigma_\upsilon$ is the covariance of μ and υ, λ_i is the standard Heckman sample selection term, and γ_1, γ_2 and γ_3 are coefficients to be estimated. As σ_υ can not be estimated (the value of σ_υ does not affect the observed labour market status of individuals), it can be normalised to one.

Descriptive statistics

The subsequent analysis is restricted to men and women aged 18 to 57 at Wave 4 (time t), and who provide complete responses to interviews waves 4, 5 and 6. This age restriction ensures that the at risk category are always of working age, and are not prone to the receipt of lump sum payments generally associated with retirement at the usual age. The questions at Wave 5 regarding windfall payment receipt take the following form: "Since September 1st 1994 have you received any payments, or payment in kind, from anything listed on this card?". If answering yes, respondents are subsequently asked, "Which ones?" and "About how much in total did you receive (was this worth)?". The list of payments includes a life insurance policy, a lump sum pension payout, a personal accident claim, a redundancy payment[7], an annual/seasonal bonus from employment[8], an inheritance or bequest (including inherited property), a win on the football pools, national lottery or other sort of gambling or anything else (receipts from life insurance policies or pension payouts may be endogenous, and so have been excluded from all analysis). It is the answers to this series of questions that form the

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[7] The 1965 Redundancy Payments Act in Britain introduced statutory payments as compensation when an employed worker is made redundant, as opposed to being dismissed/sacked. Redundancies in Britain tend to be almost exclusively 'permanent', while in the United States, temporary layoffs are more commonly used.
[8] Bonuses from employment are typically reward for personal and/or collective performance and firm loyalty. These bonuses generally take the form of incentive payments or profit related pay.

basis of the empirical work. Table 1 provides some descriptive statistics for the data on windfall payment receipt by 1994 labour market status.

This table shows that in total, 41% of the sub-sample received a windfall payment of some form in 1995. The breakdown by employment status shows that those in waged employment were the most likely to receive a payment (45.5%), followed by the self-employed (35.2%) while those not in work were the least likely (30.7%). The average amount received was £844, and, conditional on receipt, over £2000. It is highest for waged employees (both when averaged across all employees, and across recipient employees). The distribution of amounts received are quite different across labour market status, with just over one half of recipients in waged employment receiving less than £100, compared with over 60% of the self-employed and 70% of the non-employed. One in ten recipients receive windfall payments of £5000 or more.

The most common windfall payment received was lottery winnings, received by 31% of the sample (25% of the non-employed and 33% of waged employees). About 3% of the sample received an inheritance. More than 12% of employees received employment related bonuses while under 5% of the sample received any other single form of windfall payment.[9]

The focus of this paper is on the effects of receiving these windfall payments on the probability of entering and surviving in self-employment and on self-employment enterprise growth captured through income. Table 2 contains information on the state to state transition rates between Wave 4 (t) and Wave 6 ($t+2$) of the BHPS.

There are two quite striking features of the data presented in Table 2. Firstly, there are relatively few transitions into self-employment from other labour market states. Of those who were employees in 1994, less than 3% were self-employed in 1996. 4% of those not in work in 1994 were self-employed in 1996. The second feature is the instability of self-employment

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[9] The categories of payment received are not mutually exclusive. It is possible for a sample member to record the receipt of more than one payment type. For this reason it is not possible to analyse the amount received by type of receipt.

compared with paid employment. Over 20% of those self-employed in 1994 had entered paid employment in 1996.[10] Those out of work in 1994 have the greatest labour market mobility.

Table 3 focuses on survival rates and transition rates into self-employment by receipt and size of a windfall payment. The columns show whether a windfall payment was received and if so the amount, low (under £500), medium (between £500 and £5000) or high (>£5000). The rows indicate the proportion of the self-employed in 1994 who were still self-employed in 1996, and the proportion of the waged employed and non-employed in 1994 who had entered self-employment by 1996.

The table shows that only 78% of the entrepreneurs present in 1994 and who did not receive a windfall payment were still in business in 1996. For those receiving a windfall payment of some sort, the proportion is some 4 percentage points higher, suggesting that the receipt of a windfall payment is beneficial to the survival of the self-employed and supporting the liquidity constraint hypothesis. However, when the size of the windfall payment is taken into account, entrepreneurs receiving the largest payments are the least likely to survive. Those receiving payments under £500 have a 86% chance of still being in business in 1996, compared with 72% for those receiving £5000 or more. This is consistent with our insight from the theoretical model that non-liquidity constrained entrepreneurs may enjoy an increase in utility by leaving self-employment on receipt of a windfall payment.

The bottom two rows of Table 3 show the proportion of those in waged employment and non employment respectively in 1994 entering self-employment. For those not in work, the proportion entering self-employment is almost 50% higher if a windfall payment is received, and peaks at a rate of 10% for those receiving a payment between £500 and £5000. This is nearly three times the rate for those not receiving a windfall payment and supports the liquidity constraints hypothesis. For those in paid employment in 1994, the transition rate into self-employment is actually marginally lower for those receiving a windfall payment, again providing support for the theory. However, the transition rate increases monotonically with the amount received. The rate for those in waged employment and receiving a payment exceeding £5000 (5.4%) is three times greater than that for those receiving under £500 (1.7%).

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[10] See Taylor (1999) for detailed analysis of self-employment survival rates in Britain.

Table 4 examines the effect of windfall payment receipt on self-employment income. It describes the amount of self-employment income reported in waves 4 and 6, and the difference in these incomes, by receipt of a windfall payment.[11] Three interesting points emerge from this table. Firstly, the size of the windfall payment received appears to be inversely related to self-employment income in 1994. Those receiving the largest payments had, on average, lower self-employment income in 1994 than those receiving smaller payments. Secondly, those receiving a windfall payment on average experienced a marginal net increase in income between 1994 and 1995 (of £10 per month), while those not receiving a payment experienced a marginal net fall in income (of £3 per month). Thirdly, and more noticeably, the magnitude of the increase in income rises with the size of the windfall received. Those receiving payments less than £500 experienced on average a net loss in income of £60, compared with a net increase in income exceeding £450 per month for those receiving more than £5000. Although these income effects are relatively small, they nevertheless suggest that the receipt of windfall payments, and the amount received, may have some effect on entrepreneurial income.

These descriptive statistics have provided evidence supporting both the liquidity constraint hypothesis and the theoretical framework developed earlier. The next section considers multivariate analysis.

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[11] There are a number of well documented measurement error problems associated with self-reported self-employment income (see Eardley and Corden, 1996, for a summary of these issues). However, what is important here is the relation between income reported at *t* and at *t*+2. Therefore, consistency in reporting self-employment income over time is the relevant issue. Measurement error is not a problem if self-employment income is consistently misreported by individuals.

4. Multivariate Results[12]

Probability of entering self-employment

Table 5 presents the results of estimating the probability of an individual being self-employed in 1996 given that (s)he was not self-employed in 1994 (equation 19). The figures shown are the change in probability caused by a one unit change in the explanatory variable (or from moving from 0 to 1 for dummy variables) evaluated at the sample means (the marginal effects).[13] The first column (specification 1) focuses on the effect of receiving a windfall payment, the second (specification 2) on the amount received, and the third (specification 3) on the type of payment received. The final column (specification 4) focuses on the combined efect of the type and amount of windfall payment received. The results suggest that the receipt of a windfall payment is not itself a factor in entering self-employment, although the amount and type of payment received are important.

The probability of entering self-employment is a quadratic function of the amount of windfall payment received[14], reaching a peak at a payment of about £14,700. This non-linear relationship is similar to that found by Blanchflower and Oswald (1998), Burke et al (1997), Evans and Jovanovic (1989) and Evans and Leighton (1989). The initially positive relationship between the probability of entering self-employment and the amount of windfall payment received is consistent with the liquidity constraint hypothesis - potential entrepreneurs are prevented from entering self-employment because of a lack of capital. However, the non-linearity in the relationship is consistent with the theory outlined previously.

The results show that the type of windfall payment is also important. Receiving an inheritance or lottery winnings have no significant effect on the probability of entering self-employment. Receiving a redundancy payment however, increases the probability of entering self-employment by some 5%, while receiving a job-related bonus reduces the probability by

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[12] Although the explanatory variables are measured at Wave 4 (1994) and windfall payment receipt is captured at Wave 5 (1995), it is possible that in some cases, windfall payment receipt occurs prior to the identification of the explanatory variables. As the exact date of windfall payment receipt is not recorded (we know only that it is occurs between 1/9/94 and the Wave 5 date of interview), there is little to be done about this.

[13] Appendix Tables A1, A2 and A3 provide listings of definitions and descriptive statistics of variables included in the analysis.

[14] Those individuals who do not receive a windfall payment are given a value of zero. Higher polynomials of the amount of payment received were tried, but were found to be insignificant. In specification 4, the turning point is at about £14,200.

1.7%. These effects remain significant (although their quantitative impact is almost halved) when combined with the amount of payment received. Being made redundant, together with the associated lump sum capital gain, provide the encouragement for entering self-employment. This implies that personal unemployment experience is a motivation for starting a business. Individuals in jobs that reward individual and/or collective performance are less likely to enter self-employment.

Table 5 also highlights a number of other important effects on the probability of becoming self-employed. Men, for example, are about 2 percentage points more likely to become self-employed than women. Those who had self-employed parents at the age of 14 have a similarly higher probability of entering self-employment than those whose parents were not self-employed. The latter may capture the possibility of individuals inheriting small family businesses,[15] or human capital accumulated during childhood through contact with the business workplace at an early age (Lentz and Laband, 1990). Having a health condition that limits the type or amount of work possible reduces the probability by a similar amount.

It is interesting to note that formal educational qualifications have little effect on the probability of becoming self-employed, while measures of labour market experience have significant impacts. It may be that the highly qualified are able to find acceptable levels of personal autonomy within professional, paid employment or that those intending to enter self-employment have no need to succeed in the formal education system. Cowling et al (1997) report similar findings. Those not in employment in 1994 are some 2 to 4 percentage points more likely to be self-employed in 1996, as are those who have previously been self-employed. However, the probability of entering self-employment between 1994 and 1996 declines with the elapsed duration in the state occupied in 1994. These results suggest that individuals with a less stable employment background are more likely to enter self-employment, consistent with Evans and Leighton (1989). The probability of becoming self-employed is also influenced by local labour market conditions, measured by the travel-to-

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[15] Westhead, Cowling and Storey (1988) show that the rate of inheritance of family businesses is quite low in the UK.

work area U/V ratio.[16] This suggests that moves into self-employment are a response to low local labour market demand.

Those who consider the use of initiative and the type of work to be important job aspects are some 1-2 percentage points more likely to become entrepreneurs.[17] These findings support the qualitative work of Scase and Goffee (1982, 1987), who find that the personal autonomy offered by self-employment is a major attraction.

In order to quantify the importance of the size of the windfall payment received, Table 6 shows, for a number of hypothetical cases, the predicted probabilities of entering self-employment based on the estimates in specification 2 in Table 5. The first column shows the probability of entering self-employment on receipt of a windfall payment of varying amounts based on the 'average' person in the sample (estimated at the sample means). The second column uses the modal values for the categorical variables and sample means for the continuous variables. The third, fourth and fifth columns focus on the probabilities for individuals with the following characteristics:

Individual 1: Long term unemployed, mature male: 40 year old married male, unemployed in 1994 (and has been for 12 months), no qualifications, no assets, who had a self-employed parent and lives in an area where there are, on average 15 unemployed individuals per vacancy.[18] All other variables set to zero.

Individual 2: Male school leaver: 18 year old single male with A Levels, who considers the type of work important in a job, and who lives in an area where there are on average 15 unemployed individuals per vacancy. All other variables set to zero.

Individual 3: Woman returning to the labour market after raising family: 40 year old married woman with A Levels, who has been out of the labour force for 5 years , who considers use of initiative important in a job, and who lives in an area where there are on average 15 unemployed individuals per vacancy. All other variables set to zero.

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[16] This is defined as the unemployment stock in the respondents travel-to-work area of residence in the month of interview at Wave 4 divided by the vacancy stock. These data are from the National Online Manpower Information Service.

[17] At Wave 1 of the survey in 1991, individuals are asked about the most important aspects of a job. The answer to this question provides important information on the tastes and preferences of the individual.

The first column shows that, estimated at the sample means, those receiving a windfall payment of £14,700 are two and a half times more likely to enter self-employment between 1994 and 1996 than those who received no windfall payment (6.8% chance compared with 2.5%). These findings are consistent with Blanchflower and Oswald (1998), who report that those receiving a £5,000 inheritance are twice as likely to be self-employed than those who do not receive an inheritance. The modal individual has a maximum probability of entering self-employment of 3%. Our hypothetical individual 1 (long term unemployed male) is three times more likely to enter self-employment as the 'average' individual in the sample, peaking at a 27% chance of starting their own business. Individual 2 (male school leaver) has a below average probability of entering self-employment, peaking at 5.5%. Individual 3 (Woman re-entering labour market) has a maximum probability of self-employment nearing 11%, some 50% higher than the 'average' individual.

The probability of self-employment survival

Table 7 displays the estimates of modelling the probability of being self-employed in 1996 given self-employment in 1994 (equation 20), and indicates self-employment survival. It is clear from this table that none of the windfall receipt measures have a significant effect on the probability of remaining in self-employment. This suggests that the self-employed, once their business is established, do not suffer from liquidity constraints seriously enough for their survival to be threatened. An alternative interpretation suggested by the theory is that windfall payment receipt has an equal impact on exiting self-employment voluntarily as on self-employment survival. With this interpretation, for some individuals utility from out of self-employment is increased sufficiently by a windfall payment receipt to make exiting self-employment the utility maximising option. It should also be noted that the time span involved here is rather short, and it is possible that any effects of windfall payment receipt on self-employment survival have yet to impact. However, a number of other important effects emerge.

Men in self-employment in 1994 are, for example, some 15 percentage points more likely to still be in self-employment in 1996 than women, while those with a health problem that limits the type or amount of work possible are 11 percentage points less likely to survive.

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[18] This is the mean value for the U/V ratio variable.

Professionals are 14 percentage points more likely to survive, while managers and those who employ others are 10 percentage points more likely to remain self-employed. Industry effects emerge clearly, with entrepreneurs in manufacturing some 37 percentage points less likely to survive relative to the omitted category of non-financial services, those in distribution, hotels, catering and repairs 12 percentage points less likely and those in financial services 25 percentage points less likely. Individuals who have the most established business (those that have a longer elapsed duration in self-employment) are more likely to survive, supporting Jovanovic (1982).

It is interesting to note that those who have experienced self-employment prior to 1994 are 10 percentage points less likely to survive in self-employment from 1994 to 1996. This suggests that repeated spells of self-employment indicate a lack of entrepreneurial ability and business management skills (or perhaps bad luck). Those in areas with higher U/V ratios are also less likely to survive in self-employment, suggesting that self-employment exits are associated with low labour demand.[19]

A limitation of this analysis is that it takes no account of why the self-employment spell may have ended. Those that end because of retirement, for example, are likely to have very different characteristics than those ending because of bankruptcy. Unfortunately the sample sizes do not allow for this kind of detailed analysis.[20]

Self-employment income

Table 8 displays the estimates of the determinants of self-employment income in 1996 (used as a proxy for enterprise growth) given self-employment in 1994 (equation 21).[21] Again, neither the receipt of a windfall payment nor the type of windfall payment have a significant effect on income. The amount of payment received does, however, have a positive effect, although there is evidence that this is non-linear. Windfall payments have a positive effect on self-employment income up to a value of some £18,800, after which the effect is negative.[22] This is again consistent with our theoretical insights, suggesting that windfall payments exceeding this level induce the entrepreneur to expend less effort on the business, or to divert

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[19] See Robson (1996) and Taylor (1999) for similar results.
[20] See Taylor (1999) for some self-employment survival analysis by reason for termination.
[21] Note that this equation doubles as the selection equation for the two step estimation of self-employment income at *t*+2 (1996).

attention towards more personally satisfying but less profitable areas. This is also consistent with the liquidity constraint hypothesis, in that unanticipated capital gains up to a specific level have a positive effect on self-employment income, suggesting that this additional capital allows entrepreneurs to move towards their optimal level of capital investment. These findings are consistent with Holtz-Eakin et al (1994) for the US, but are in contrast with other British evidence. Burke et al (1997), for example, find that the size of any inheritance received has no impact on self-employment income.[23]

Other notable effects emerge from Table 8. Men have higher self-employment income than women, and unsurprisingly the income received in 1996 is positively related to that received in 1994. Formal education appears to pay little dividend in self-employment. Entrepreneurs with longer elapsed durations enjoy higher income, as do those in engineering and other manufacturing industries.

Summary and Conclusions

This paper has considered the effects of windfall payment receipt on entry into self-employment, self-employment survival and, having survived, the growth of an enterprise captured through income. A simple framework has been developed which, following Burke et al (1997), allows the income and utility derived from self-employment to be dependent upon tastes, preferences and effort expended in the business. This allows for the possibility that individuals with specific types of preferences, or with greater wealth, may choose to devote less time to their work in favour of increased leisure, or may concentrate business in areas providing more job satisfaction at the cost of smaller financial return. The receipt of a windfall payment in this framework can result in transitions out of self-employment, and falls in self-employment income.

The empirical work uses data from the BHPS, which allows individuals' characteristics and labour market status to be observed before and after the receipt of any windfall payment. The data show that those in waged employment are most likely to receive a windfall payment and,

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[22] The turning point occurs at £19,200 when the affect is combined with the type of payment received.
[23] The income data used in Burke et al (1997) is banded in eight classes, and estimation takes the form of ordered probits. The data are therefore not as accurate as the BHPS data used here. They argue that their results are inconsistent with the liquidity constraint hypothesis but consistent with the idea of reducing effort and/or focusing on less profitable but more personally satisfying ventures. Our results are consistent with both hypotheses.

on average, receive the largest payments. Lottery winnings, job bonuses and inheritances are the most common form of windfall payment received.

Multivariate analysis leads to the conclusion that the amount and type of payment received are important predictors of becoming self-employed. The probability of self-employment peaks at receiving a payment of £14,700 and the receipt of a payment of £5000 almost doubles the probability of becoming self-employed. This finding supports earlier work by, for example, Blanchflower and Oswald (1998), Evans and Jovanovic (1989) and Evans and Leighton (1989).

Receipt of a redundancy payment increases the probability of entering self-employment, while receiving a job related bonus payment has the opposite effect. This suggests that losing a job, together with the associated lump sum compensation payment, provides a catalyst for self-employment, while individuals in jobs that reward individual performance are less likely to start a business. The amount of windfall payment received also has significant effects on the income of the self-employed, suggesting that the growth of enterprises are restrained by a lack of capital. However this effect is non-linear.

The empirical results are consistent with both liquidity constraint hypotheses and the theoretical framework outlined here. The non-linear relationships between the amount of windfall payment received and the probability of entering self-employment and self-employment income suggest that (potential) entrepreneurs and the growth of enterprises are restricted by a lack of capital. However, it is clear that on receipt of a payment of a particular magnitude, the self-employed are able to maximise their utility elsewhere.

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Table 1: 1995 windfall payment receipt by 1994 labour market status

	1994 labour market status						
	Self-employed		Waged employment		Not employed		Total
Received windfall payment	35.2%		45.5%		30.7%		41.3%
Mean amount received							
All	£603.88		£972.01		£572.48		£843.69
(std dev)	*(4320.07)*		*(12002.02)*		*(4394.07)*		*(10176.65)*
Recipients	£1680.20		£2092.68		£1860.98		£2019.23
(std. dev)	*(7092.58)*		*(17546.90)*		*(7777.42)*		*(15670.22)*
Distribution of amounts (col %)							
No receipt	64.7		54.5		69.3		58.6
<£100	22.5	(63.6)	24.2	(53.2)	21.8	(70.8)	23.5 (56.8)
£100-£499	4.9	(13.9)	8.3	(18.1)	2.9	(9.5)	6.8 (16.4)
£500-£999	1.6	(4.6)	3.8	(8.2)	0.6	(1.8)	2.9 (6.9)
£1,000-£4,999	2.7	(7.5)	5.5	(12.0)	2.5	(8.0)	4.5 (11.0)
£5,000-£9,999	1.6	(4.6)	1.1	(2.5)	0.6	(1.8)	1.1 (2.6)
£10,000 +	2.0	(5.8)	2.6	(6.0)	2.4	(8.1)	2.6 (6.2)
Type of payment received (col %)							
Personal accident claim	1.3		1.0		0.9		1.0
Inheritance	4.0		2.6		4.1		3.1
Redundancy			2.0				1.5
Bonus			12.5				8.9
Lottery winnings	30.5		33.2		24.7		31.1
Other	2.1		2.5		1.5		2.3
Number of observations	475		3530		1107		5112

Source: BHPS Waves 4 and 5.

Table 2: Labour market transition rates 1994 to 1996: BHPS Wave 4 and 6 (Row %s).

	1996 Labour market state				
1994 labour market state	Self-employed	Employee	Not working	Total	N
Self-employed	79.8	14.4	5.8	100	485
Employee	2.4	90.9	6.7	100	3492
Not working	4.3	27.1	68.6	100	1055
N	515	3530	987		5032

Source: BHPS waves 4 and 6.

Table 3: Self-employment survival rates and transition rates 1994-1996

| | Windfall payment received | | Amount of windfall payment received | | |
	Yes	No	<£500	£500-£5000	£5000+
Survival rate in self-employment	81.9	78.0	85.7	76.2	72.2
Transition rate into self-employment from					
Waged employment	2.1	2.7	1.7	2.8	5.4
Not employed	5.4	3.7	5.0	9.7	6.5

Source: BHPS Waves 4, 5 and 6.

Table 4: Self-employment income by receipt of windfall payments

| Monthly Income | Windfall payment received | | Amount of windfall payment received | | |
	Yes	No	<£500	£500-£5000	£5000+
Wave 4 mean income	1320.81	1112.72	1345.61	1146.16	990.02
Wave 6 mean income	1212.12	1215.42	1168.05	1343.03	1342.03
Mean difference	10.44	-2.72	-59.09	120.184	459.63

Source: BHPS Waves 4, 5 and 6.

Table 5: Probit estimates of being self-employed in 1996 given not self-employed in 1994 (marginal effects)

Variable (measured prior to transition)	Spec. 1		Spec. 2		Spec. 3		Spec. 4	
Windfall payment receipt								
Received windfall payment	-0.0023	*-0.51*						
Amount received								
Amount received $(x10^{-3})$			0.0025	*2.11*			0.0023	*2.03*
Amount received^2 $(x10^{-8})$			-0.0085	*-1.75*			-0.0088	*-1.93*
Type received								
Personal accident claim					0.0173	*0.82*	0.0036	*0.36*
Inheritance					0.0118	*0.90*	0.0001	*0.01*
Redundancy					0.0495	*2.43*	0.0247	*1.95*
Bonus					-0.0170	*-2.37*	-0.0109	*-2.67*
Lottery					-0.0057	*-1.25*	-0.0035	*-1.33*
Other payment					-0.0065	*-0.50*	-0.0054	*-0.76*
Personal characteristics								
Male	0.0253	*5.03*	0.0161	*4.90*	0.0241	*4.94*	0.0138	*4.88*
Age	0.0027	*1.46*	0.0019	*1.57*	0.0026	*1.44*	0.0016	*1.53*
Age^2/100	-0.0035	*-1.41*	-0.0024	*-1.49*	-0.0034	*-1.43*	-0.0021	*-1.49*
Married	0.0017	*0.30*	0.0004	*0.12*	0.0017	*0.32*	0.0006	*0.20*
Assets $(x10^{-5})$	0.0084	*1.25*	0.0055	*1.15*	0.0096	*1.50*	0.0062	*1.48*
Assets^2 $(x10^{-9})$	-0.0001	*-0.52*	-0.0001	*-0.74*	-0.0001	*-0.66*	-0.0001	*-0.96*
Parent self-employed	0.0253	*3.56*	0.0180	*3.75*	0.0243	*3.52*	0.0154	*3.71*
Health limits work	-0.0158	*-2.34*	-0.0098	*-2.28*	-0.0149	*-2.32*	-0.0083	*-2.30*
Highest qualification								
Degree	-0.0033	*0.37*	-0.0029	*-0.52*	0.0031	*0.37*	-0.0020	*-0.42*
A Levels	-0.0044	*-0.63*	-0.0028	*-0.63*	-0.0041	*-0.61*	-0.0022	*-0.57*
O Levels	0.0047	*0.60*	0.0025	*0.49*	0.0034	*0.46*	0.0017	*0.40*
Other qualification	0.0038	*0.41*	0.0025	*0.42*	0.0034	*0.38*	0.0024	*0.47*
Employment								
Duration in 1994 status	-0.0010	*-1.92*	-0.0007	*-2.02*	-0.0010	*-2.01*	-0.0006	*-2.09*
Not working 1994	0.0345	*4.86*	0.0235	*4.95*	0.0314	*4.66*	0.0187	*4.63*
Has previous self-employment experience	0.0230	*3.35*	0.0140	*3.10*	0.0226	*3.39*	0.0123	*3.14*
Local U/V ratio in 1994	0.0006	*2.26*	0.0004	*2.00*	0.0005	*2.00*	0.0003	*1.70*
Important aspects of a job								
Use of initiative	0.0178	*1.78*	0.0120	*1.80*	0.0182	*1.86*	0.0116	*1.97*
Work itself	0.0131	*2.15*	0.0075	*1.90*	0.0132	*2.23*	0.0069	*2.02*
Pay	0.0081	*1.14*	0.0054	*1.16*	0.0078	*1.15*	0.0047	*1.18*
N	4684		4654		4680		4643	
Log-likelihood	-636		-624		-625		-612	
Chi^2	93.75		94.73		111.18		109.46	

Notes: t ratios in italics
Source: BHPS Waves 4, 5 and 6.

Table 6: The probability of being self-employed in 1996 given not self-employed in 1994

Size of windfall payment	Characteristics of individual				
	At sample means	At modal values[*]	Individual 1	Individual 2	Individual 3
£0	0.0247	0.0092	0.1373	0.0192	0.0415
£1,000	0.0286	0.0109	0.1516	0.0223	0.0474
£5,000	0.0449	0.0184	0.2051	0.0358	0.0715
£10,000	0.0620	0.0268	0.2530	0.0501	0.0957
£14,698	0.0682	0.0300	0.2688	0.0554	0.1042
£15,000	0.0682	0.0299	0.2687	0.0553	0.1042
£20,000	0.0604	0.0260	0.2487	0.0488	0.0935

Notes: [*] Estimated at modal values for categorical variables, and sample means for continuous variables. *Individual 1*: 40 year old married male, unemployed in 1994 (and has been for 12 months), no qualifications, no assets, who had a self-employed parent and lives in an area where there are, on average 15 unemployed individuals per vacancy. All other variables set to zero.
Individual 2: 18 year old single male with A Levels, who considers the type of work important in a job, and who lives in an area where there are on average 15 unemployed individuals per vacancy. All other variables set to zero.
Individual 3: 40 year old married woman with A Levels, who has been out of the labour force for 5 years , who considers use of initiative important in a job, and who lives in an area where there are on average 15 unemployed individuals per vacancy. All other variables set to zero.
Source: BHPS waves 4, 5 and 6

Table 7: Probit estimates of being self-employed in 1996 given that self-employed in 1994 (marginal effects)

Variable (measured prior to transition)	Spec. 1		Spec. 2		Spec. 3		Spec. 4	
Windfall payment receipt								
Received windfall payment	0.0026	*0.07*						
Amount received								
Amount received ($\times 10^{-3}$)			0.0050	*0.34*			0.0136	*0.83*
Amount received^2 ($\times 10^{-8}$)			-0.0129	*-0.52*			-0.0237	*-0.91*
Type received								
Inheritance					-0.1537	*-1.22*	-0.1632	*-0.99*
Lottery					0.0149	*0.41*	0.0214	*0.59*
Other					0.0298	*0.23*	-0.0061	*-0.04*
Personal characteristics								
Male	0.1419	*3.06*	0.1499	*3.28*	0.1457	*3.22*	0.1531	*3.34*
Age	0.0047	*0.28*	0.0017	*0.11*	0.0041	*0.25*	0.0031	*0.20*
Age^2/100	-0.0022	*-0.11*	0.0011	*0.05*	-0.0017	*-0.08*	-0.0006	*-0.03*
Married	0.0386	*0.78*	0.0480	*0.97*	0.0335	*0.69*	0.0491	*1.00*
Assets ($\times 10^{-5}$)	0.0265	*0.44*	0.0387	*0.66*	0.0388	*0.66*	0.0429	*0.74*
Assets^2 ($\times 10^{-9}$)	0.0004	*0.21*	0.0001	*-0.03*	-0.0001	*-0.01*	-0.0002	*-0.11*
Parent self-employed	0.0201	*0.50*	0.0398	*1.03*	0.0250	*0.64*	0.0384	*1.01*
Health limits work	-0.1202	*-1.77*	-0.1141	*-1.70*	-0.1103	*-1.63*	-0.1127	*-1.65*
Highest qualification								
Degree	-0.1023	*-1.20*	-0.1112	*-1.28*	-0.0876	*-1.02*	-0.1020	*-1.17*
A Levels	0.0303	*0.60*	0.0277	*0.55*	0.0274	*0.54*	0.0317	*0.63*
O Levels	-0.0198	*-0.36*	-0.0233	*-0.42*	-0.0266	*-0.48*	-0.0260	*-0.47*
Other qualification	0.0297	*0.44*	0.0274	*0.41*	0.0234	*0.34*	0.0264	*0.39*
Employment								
1994 Income/1000	-0.0129	*-0.99*	-0.0135	*-1.05*	-0.0148	*-1.14*	-0.0149	*-1.16*
Has employees	0.0958	*2.38*	0.1014	*2.59*	0.0945	*2.39*	0.0994	*2.53*
Professional	0.1427	*2.25*	0.1347	*2.07*	0.1412	*2.33*	0.1356	*2.18*
Manager	0.1037	*2.12*	0.0994	*2.01*	0.1069	*2.20*	0.0996	*2.07*
Other non-manual	0.0391	*0.60*	0.0587	*0.97*	0.0475	*0.76*	0.0572	*0.94*
Skilled manual	0.0781	*1.66*	0.0757	*1.60*	0.0757	*1.63*	0.0746	*1.62*
Duration in self-employment	0.0074	*2.36*	0.0076	*2.47*	0.0080	*2.57*	0.0076	*2.45*
Has previous self-employment experience	-0.1060	*-2.24*	-0.1130	*-2.37*	-0.1026	*-2.16*	-0.1110	*-2.33*
Local U/V ratio in 1994	-0.0046	*-2.20*	-0.0046	*-2.21*	-0.0049	*-2.33*	-0.0046	*-2.21*
Industry[a]								
Agriculture	0.0005	*0.01*	-0.0121	*-0.14*	-0.0051	*-0.06*	-0.0105	*-0.13*
Engineering	-0.0547	*-0.46*	-0.0681	*-0.58*	-0.0379	*-0.34*	-0.0506	*-0.45*
Manufacturing	-0.3653	*-3.90*	-0.3802	*-4.06*	-0.3613	*-3.97*	-0.3678	*-4.04*
Construction	-0.0442	*-0.74*	-0.0564	*-0.93*	-0.0527	*-0.89*	-0.0604	*-1.00*
Distribution, hotels, catering	-0.1179	*-1.93*	-0.1291	*-2.13*	-0.1223	*-2.05*	-0.1281	*-2.12*
Banking, finance, insurance	-0.2439	*-2.77*	-0.2506	*-2.84*	-0.2495	*-2.94*	-0.2524	*-2.92*
N	482		481		484		481	
Log-likelihood	-202		-199		-202		-198	
Chi^2	89.11		95.05		94.93		100.01	

Notes t ratios in italics [a] Non-financial services is the omitted category. Source: BHPS Waves 4, 5 and 6.

Table 8: Selection corrected maximum likelihood estimates of self-employment income in 1996 conditional on surviving since 1994

Variable (measured prior to transition)	Spec. 1		Spec. 2		Spec. 3		Spec. 4	
Windfall payment receipt								
Received windfall payment	-0.0620	*-0.58*						
Amount received								
Amount received ($\times 10^{-3}$)			0.1265	*1.87*			0.1553	*2.00*
Amount received^2 ($\times 10^{-8}$)			-0.3359	*-1.66*			-0.4035	*-1.79*
Type received								
Inheritance					0.0360	*0.12*	-0.2256	*-0.65*
Lottery					-0.0490	*-0.44*	-0.0777	*-0.69*
Other					0.1938	*0.54*	-0.1685	*-0.42*
Personal characteristics								
Male	0.3471	*2.54*	0.3330	*2.48*	0.3500	*2.59*	0.3484	*2.57*
Age	0.0654	*1.27*	0.0625	*1.22*	0.0684	*1.34*	0.0606	*1.18*
Age^2/100	-0.0952	*-1.49*	-0.0904	*-1.42*	-0.0988	*-1.56*	-0.0876	*-1.38*
Married	-0.1081	*-0.74*	-0.0875	*-0.60*	-0.1063	*-0.73*	-0.0755	*-0.51*
Assets ($\times 10^{-5}$)	-0.1174	*-0.62*	-0.1731	*-0.91*	-0.1370	*-0.72*	-0.1702	*-0.90*
Assets^2 ($\times 10^{-9}$)	0.0098	*1.63*	0.0114	*1.90*	0.0102	*1.71*	0.0114	*1.92*
1994 income/1000	0.4175	*10.79*	0.4232	*10.98*	0.4209	*10.86*	0.4214	*10.92*
Highest qualification								
Degree	0.0766	*0.31*	0.1006	*0.40*	0.0636	*0.25*	0.1225	*0.48*
A Levels	-0.0311	*-0.20*	-0.0270	*-0.18*	-0.0212	*-0.14*	-0.0153	*-0.10*
O Levels	-0.0974	*-0.58*	-0.1038	*-0.62*	-0.0906	*-0.54*	-0.1065	*-0.64*
Other qualification	-0.2333	*-1.10*	-0.2219	*-1.05*	-0.2181	*-1.03*	-0.2163	*-1.03*
Employment								
Has employees	0.1143	*0.95*	0.1076	*0.90*	0.1244	*1.04*	0.1071	*0.89*
Professional	0.0990	*0.37*	0.1224	*0.46*	0.1074	*0.40*	0.0907	*0.34*
Manager	0.1144	*0.63*	0.1146	*0.62*	0.1150	*0.61*	0.0968	*0.52*
Other non-manual	0.2632	*1.15*	0.2469	*1.08*	0.2609	*1.14*	0.2369	*1.04*
Skilled manual	0.0597	*0.35*	0.0686	*0.40*	0.0614	*0.36*	0.0705	*0.41*
Duration in self-employment	0.0175	*2.14*	0.0151	*1.83*	0.0165	*2.01*	0.0153	*1.85*
Industry[a]								
Agriculture	-0.1058	*-0.46*	-0.0637	*-0.28*	-0.1038	*-0.45*	-0.0696	*-0.30*
Engineering	1.0812	*3.48*	1.0948	*3.54*	1.1077	*3.47*	1.0805	*3.50*
Manufacturing	0.6636	*2.30*	0.6698	*2.34*	0.6654	*2.31*	0.6560	*2.29*
Construction	0.2160	*1.28*	0.2204	*1.31*	0.2149	*1.27*	0.2183	*1.30*
Distribution, hotels, catering	0.0598	*0.37*	0.0533	*0.33*	0.0515	*0.32*	0.0617	*0.39*
Banking, finance, insurance	0.0884	*0.43*	0.0724	*0.36*	0.0860	*0.42*	0.0753	*0.37*
λ	-0.2994	*-1.78*	-0.2976	*-1.83*	-0.3091	*-1.84*	-0.2971	*-1.78*
Constant	-0.7017	*-0.69*	-0.6903	*-0.69*	-0.7694	*-0.76*	-0.6536	*-0.65*
N	482		481		484		481	
Log-likelihood	-730		-724		-731		-723	
Chi^2	116.78		122.13		121.17		126.79	

Source: BHPS Waves 4, 5 and 6.

Note: Coefficients obtained from simultaneous maximum likelihood estimation of Heckman selection model. Selection equation estimates produced in Table 7. Dependent variable is Wave 6 gross monthly self-employment income divided by 1000. [a] Non-financial services is the omitted category.

Appendix Table A1: Definitions of variables used in Tables 5, 7 and 8

Variable	Definition
Windfall payment receipt	
Received windfall payment	Received windfall payment at $t+1$ (Wave 5)
Amount received $(x10^{-3})$	Amount of windfall payment received at $t+1$ (Wave 5) $(x10^{-3})$
Amount received^2 $(x10^{-8})$	Amount of windfall payment received at $t+1$ (Wave 5) squared $(x10^{-8})$
Personal accident claim	Received personal accident claim payment at $t+1$ (Wave 5)
Inheritance	Received an inheritance or bequest (including inherited property) at $t+1$ (Wave 5)
Redundancy	Received a redundancy payment at $t+1$ (Wave 5)
Bonus	Received an annual or seasonal bonus from employment at $t+1$ (Wave 5)
Lottery	Received a win on the football pools, national lottery or other form of gambling at $t+1$ (Wave 5)
Other payment	Received any other windfall payment (excluding life insurance and lump sum pension payouts) at $t+1$ (Wave 5)
Personal characteristics	
Male	Respondent male
Age	Age of respondent at t (Wave 4)
Age^2/100	Age of respondent at t (Wave 4) squared and divided by one hundred
Married	Respondent married at t (Wave 4)
Assets $(x10^{-5})$	Value of respondent's main residence if owned with or without mortgage at t (Wave 4) $(x10^{-5})$
Assets^2 $(x10^{-9})$	Value of respondent's main residence if owned with or without mortgage at t (Wave 4) squared $(x10^{-9})$
Parent self-employed	Respondent had self-employed mother or father when aged 14
Health limits work	Respondent has a health condition that limits the type or amount of work possible at t (Wave 4)
Highest qualification	
Degree	Holds a University first or higher degree or equivalent at t (Wave 4)
A Levels	Holds one or more Advanced level qualifications (or equivalent) representing university entrance-level qualification typically taken at age 18 at t (Wave 4)
O Levels	Holds one or more Ordinary level qualifications (or equivalent) taken at age 16 at end of compulsory schooling at t (Wave 4). Selection mechanism into A Level courses.
Other qualification	Holds some other vocational or academic qualification(s) (e.g. commercial or clerical qualifications, CSE grades 2-5, apprenticeship) at t (Wave 4)
Employment	
Duration in 1994 status	Years in 1994 labour market status up to t (Wave 4)
Not working 1994	Respondent unemployed or out of the labour force at t (Wave 4)
Previous self-employment	Respondent has experienced one or more periods of self-employment prior to t (Wave 4), excluding current status.
Local U/V ratio	Unemployment stock divided by the vacancy stock in travel-to-work area of residence at t (Wave 4)
1994 income/1000	Self-employment gross monthly income in 1994 divided by 1000
Has employees	Respondent has one or more employees at t (Wave 4)
Professional	Respondent in professional occupation at t (Wave 4)
Manager	Respondent in managerial occupation at t (Wave 4)

Continued over

Table A1 continued

Other non-manual	Respondent in non-managerial, non-professional non-manual occupation at t (Wave 4)
Skilled manual	Respondent in skilled manual occupation at t (Wave 4)
Duration in self-employment	Years in current self-employment spell up to t (Wave 4)
Important aspects of a job	
Use of initiative	Respondent considers being able to use your own initiative to be the most important aspect of a job
Work itself	Respondent considers the actual work itself to be the most important aspect of a job
Pay	Respondent considers the total pay to be the most important aspect of a job
Industry	
Agriculture	Respondent working in agriculture, forestry or fishing at t (Wave 4)
Engineering	Respondent working in metal goods, engineering or vehicle industries at t (Wave 4)
Manufacturing	Respondent working in light manufacturing at t (Wave 4)
Construction	Respondent working in the construction industry at t (Wave 4)
Distribution, hotels, catering	Respondent working in the distribution, hotels and catering or repairs industries at t (Wave 4)
Banking, finance, insurance	Respondent working in the banking, finance, insurance, business services and leasing industry at t (Wave 4)

Appendix Table A2: Variable means for Table 5 (*Standard deviations in italics*)

Variable	Spec. 1		Spec. 2		Spec. 3		Spec. 4	
Proportion entering self-employment	0.033		0.033		0.033		0.033	
Windfall payment receipt								
Received windfall payment	0.431							
Amount received								
Amount received $(\times10^{-3})$			0.908	*10.70*			0.910	*10.71*
Amount received^2 $(\times10^{-8})$			1.152	*54.53*			1.155	*54.59*
Type received								
Personal accident claim					0.010		0.009	
Inheritance					0.030		0.028	
Redundancy					0.017		0.016	
Bonus					0.094		0.092	
Lottery					0.311		0.311	
Other payment					0.023		0.023	
Personal characteristics								
Male	0.440		0.438		0.439		0.438	
Age	36.53	*10.39*	36.52	*10.39*	36.55	*10.39*	36.52	*10.39*
Age^2/100	14.43	*7.779*	14.41	*7.776*	14.44	*7.781*	14.42	*7.777*
Married	0.715		0.715		0.715		0.715	
Assets $(\times10^{-5})$	0.553	*0.541*	0.549	*0.535*	0.553	*0.542*	0.549	*0.535*
Assets^2 $(\times10^{-9})$	5.984	*18.45*	5.874	*18.20*	5.987	*18.46*	5.880	*18.23*
Parent self-employed	0.138		0.137		0.138		0.138	
Health limits work	0.121		0.121		0.121		0.121	
Highest qualification								
Degree	0.120		0.119		0.120		0.120	
A Levels	0.357		0.356		0.356		0.356	
O Levels	0.231		0.231		0.231		0.231	
Other qualification	0.101		0.101		0.101		0.101	
Employment								
Duration in 1994 status	4.658	*5.808*	4.655	*5.798*	4.662	*5.808*	4.657	*5.799*
Not working 1994	0.231		0.232		0.231		0.232	
Has previous self-employment experience	0.169		0.168		0.169		0.168	
Local U/V ratio in 1994	15.47	*7.820*	15.47	*7.816*	15.47	*7.816*	15.47	*7.814*
Important aspects of a job								
Use of initiative	0.068		0.068		0.068		0.068	
Work itself	0.253		0.252		0.253		0.252	
Pay	0.138		0.138		0.139		0.138	
N	4684		4654		4680		4643	

Appendix Table A3: Variable means for Tables 7 and 8 (*Standard deviations in italics*)

Variable	Spec. 1		Spec. 2		Spec. 3		Spec. 4	
Proportion surviving in self-employment	0.790		0.792		0.791		0.792	
1996 income/1000	1.229	1.247	1.224	1.247	1.223	1.246	1.224	1.247
Windfall payment receipt								
Received windfall payment	0.367							
Amount received								
Amount received ($\times 10^{-3}$)			0.580	*4.275*			0.580	*4.275*
Amount received^2 ($\times 10^{-8}$)			0.186	*2.179*			0.186	*2.179*
Type received								
Inheritance					0.037		0.033	
Lottery					0.310		0.308	
Other payment					0.021		0.021	
Personal characteristics								
Male	0.705		0.701		0.702		0.701	
Age	40.22	*9.200*	40.32	*9.206*	40.27	*9.215*	40.32	*9.206*
Age^2/100	17.02	*7.315*	17.11	*7.331*	17.06	*7.334*	17.11	*7.331*
Married	0.826		0.827		0.826		0.827	
Assets ($\times 10^{-5}$)	0.776	*0.679*	0.780	*0.680*	0.778	*0.679*	0.780	*0.680*
Assets^2 ($\times 10^{-9}$)	10.62	*19.39*	10.70	*19.41*	10.65	*19.36*	10.70	*19.41*
Parent self-employed	0.234		0.237		0.238		0.237	
Health limits work	0.089		0.091		0.091		0.091	
Highest qualification								
Degree	0.093		0.091		0.093		0.091	
A Levels	0.427		0.424		0.426		0.424	
O Levels	0.212		0.212		0.211		0.212	
Other qualification	0.091		0.091		0.091		0.091	
Employment								
1994 income/1000	1.186	*1.491*	1.184	*1.492*	1.182	*1.489*	1.184	*1.492*
Has employees	0.330		0.328		0.329		0.328	
Professional	0.079		0.077		0.079		0.077	
Manager	0.328		0.328		0.329		0.328	
Other non-manual	0.102		0.102		0.103		0.102	
Skilled manual	0.315		0.316		0.314		0.316	
Duration in self-employment	6.838	*7.174*	6.894	*7.217*	6.895	*7.212*	6.894	*7.217*
Has previous self-employment experience	0.183		0.181		0.182		0.181	
Local U/V ratio in 1994	15.17	*7.950*	15.15	*7.964*	15.15	*7.940*	15.15	*7.964*
Industry								
Agriculture	0.066		0.067		0.066		0.067	
Engineering	0.031		0.031		0.031		0.031	
Manufacturing	0.056		0.056		0.056		0.056	
Construction	0.218		0.218		0.217		0.218	
Distribution, hotels, catering	0.216		0.218		0.217		0.218	
Banking, finance, insurance	0.137		0.137		0.138		0.137	
N	482		481		484		481	