The long-run effect of temporary employment on consumption behaviors

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PRELIMINARY, DO NOT QUOTE

Abstract

There is a common belief, silently underlying the political debate on temporary employment, that once a temporary worker has obtained a permanent job, all his previous troubles (in terms of job security, wages, etc.) vanish. In particular, since his employment relationship has now become stable, consumption behaviors, and consequently welfare attainments, should be the same as for people who always kept a permanent job. However, this may not necessarily be the case. I will show that, despite the acquired tenure, time spent in precariousness may still affect expenditure decisions for three main reasons. The first one is that people with a previous intermittent career may receive on average a lower wage than people who were always employed on a permanent basis. The second one is that, following the same argument as before, they may also face an higher income variability. The third one, and more striking, is that people who experienced precariousness may react to future income uncertainty by saving more than other permanent employees, because they had "got their fingers burnt" before. I will test this *scarring* hypothesis on the British Household Panel Survey (1991-2001). Main findings tell us that it is not temporary employment *per se* but the unemployment spells attached to that which detriment future consumption. Moreover, while there is evidence for a *permanent income* effect, the data reject any *overreaction* hypothesis.

JEL classification: E21, J60

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1. Introduction

There is a common belief, silently underlying the political debate on temporary employment, that once a temporary worker has obtained a permanent job, all his previous troubles (in terms of job security, wages, etc.) vanish.[1] In particular, since his employment relationship has now become stable, consumption behaviours, and consequently welfare attainments, should be the same as for people who always kept a permanent job. However, this may not necessarily be the case. I will show that, despite the acquired tenure, time spent in precariousness may still affect expenditure decisions for three main reasons (see box 1). The first one is that people with a previous intermittent career may receive on average a lower wage than people who were always employed on a permanent basis (*expected income* effect). The second one is that, following the same argument as before, they may also face an higher income variability (*income variability* effect). The third one, and more striking, is that people who experienced precariousness may react to future income uncertainty by saving more than other permanent employees, because they had "got their fingers burnt" before (*overreaction* effect).

In particular, the first two arguments can be thought as part of a more general *permanent income* effect. This follows from the consideration that frequent job changes might imply human capital depreciation, mostly due to the partial loss of a work-specific productivity accumulated on the job, and to the fact that the end of a temporary contract is often accompanied by short spells of unemployment or inactivity, until the next job is found.[2] Moreover, temporary jobs usually do not provide as much or as good on-the-job training as the permanent ones. This can be thought as an extension to temporary employment of the effect of past unemployment on future individual wellbeing. Among the others, Arulampalam (2002) and Gregory and Jukes (2001) found that having experienced unemployment in the past increases the chances of future employment interruptions and penalizes future earnings, thus prolonging its effects over the

[1] See for example Booth et al. (2002) for the UK, Kvasniska and Werwatz (2004) for Germany.
[2] Here human capital is intended as the combination of general skills, specific skills and technical and scientific knowledge.

current spell. More specifically, Booth et al. (2002) found that it is not only unemployment but also temporary employment that, by affecting the process of human capital accumulation, causes a penalization on future wages for people who held a temporary contract (from now on, "TC" for a temporary and "PC" for a permanent contract) in the past as opposed to people who always had a stable employment relationship.[3]

At the same time we might expect that people who experienced precariousness in the past, even when they face the same income perspectives as people who always had a permanent contract, overreact to the possibility of future negative events by saving more for precautionary purposes.[4] This is apparently in contrast with the outcome of any standard permanent income model of consumption with rational-expectations agents. According to that, present consumption should be affected, apart from household and individual demographic characteristics, only by the expected value and the variability of future income streams. We may expect that two workers, who are identical for everything but for the way they reached the current permanent position, could face the same expectation and variability on future earnings or not. Nevertheless, even in case they face a different income stream, the scale of their reaction to that should be the same. The only case when this may not apply is when preferences, and in particular the degree of prudence, have changed over time exactly because of these "bad experiences", or when individuals do not behave rationally but according to some memory-linked process. But this is an hypothesis usually not accounted for in the literature.[5]

Evidence from the British Household Panel Survey (BHPS) for the period 1991-2001 provides preliminary support for a general *scarring* hypothesis. If we compare current food consumption levels for households whose head was prevalently employed on a temporary basis before becoming permanent with those of households whose head was always employed on a permanent basis, the difference falls on average between 10% and 20%. Even after controlling for the household size and the current income level, the difference still persists, then

[3] This I true for men but not for women.
[4] The term "precariousness" is used here as a situation of instability opposed to a permanent job. Consequently it may imply very different combinations of temporary work and job interruptions.

rousing the suspicion that past temporary employment is not only affecting the pattern of future earnings but also the way their variability is perceived by the agent.[6]

To check whether temporary employment has effectively a *scarring* effect on future consumption, I regress current household consumption on a set of variables including a measure for the time spent by the head of household in temporary employment before getting a permanent contract, then using *propensity score* matching estimators to reduce any possible source of endogeneity. Note that, since consumption is measured at household level while employment history can be referred to one individual only (the head), I will assume, as in all the rest of the literature, that the head of household is the main actor in household expenditure decisions.

After that, in order to disentangle the effect of each possible channel driving this general scarring effect, I introduce a standard permanent income model with a negative exponential utility function. Even tough very simple, this specification has a closed form solution in levels which allows controlling for both lifetime resources and precautionary motives for saving. As in Carroll et al. (2003), future unemployment risk estimates are used as a proxy for income variability and permanent income is estimated as the projection of an estimate for current income to the retirement age, assumed here as 65 years for men and 60 years for women.

Given the available data, I will focus on food consumption only. The study of the effect of past precariousness on durable goods is for the moment omitted since it requires a different theoretical framework, as well as different estimation techniques. Moreover, even if food consumption may not be representative of the entire expenditure basket, it remains the main determinant of individual and household welfare, and thus important *per se*.[7]

The paper is organized as follows: section 2 describes the data and preliminary

[5] See Ameriks et al. (2003) for an introduction to this argument.
[6] I am aware that in the UK labour market the distinction between temporary and permanent contracts is quite subtle, since also PCs have very low firing and hiring costs. Anyway, since the choice of UK is mostly driven by the availability of longitudinal data on both consumption and contract types, UK may be taken as a lower bound. In case I find evidence for a scarring effect, this is expected to be even amplified in countries where the dualism is more pronounced and where both public and private insurance are less effective.
[7] I am also aware food consumption usually follows different patterns with respect to other expenditure components. For more considerations on this, see below.

evidence supporting the investigation; section 3 provides a test for the overall *scarring* effect; section 4 presents the theoretical model of consumption to be used in the following empirical analysis; section 5 describes the empirical strategy used to disentangle the three channels; section 6 discusses the main results. Lastly, section 7 suggests final considerations and hints for future research.

2. Data and preliminary evidence

The data used in this paper are taken from waves one to eleven of the BHPS, covering the years from 1991 to 2001. A representative sample of 10,000 individuals living in Britain was interviewed in 1991. These individuals, together with their co-residents, were interviewed again each year thereafter. The BHPS provides information on respondents' demographic, occupational, educational, and income characteristics. Some information is also provided at the household level. In particular, respondents are asked the following question regarding their expenditure:

> *Tell me approximately how much your household spends each week on food and groceries?*

I then restrict the sample to those households whose head is aged between 20 and 65, and for whom there are valid data on expenditure, occupation, education, and net earnings. All the relevant income and expenditure variables are expressed in 2001 UK pounds.

In the BHPS data on consumption are grouped into 12 bands, specifying a particular interval or range for the level of weekly expenditure on food and

groceries. A common methodology in this case is that of using the mid-points to the bands, and then treating the variable as if it was continuous. [8]

Note that there may be two approaches to the study of the long-run effect of temporary employment on consumption behaviors. The first one is "backward looking", such that you take consumption at time *t* and then check whether it differs among households according to the past working career of the household head (see box 2a). The second one is instead *forward looking*. In this case you take people at the entry in the labor market and then you actualize their future stream of consumption, in this case testing whether there are differences according to the type of job they got since the entry in the labor market (see box 2b).

I choose the first one (*backward looking*), because it avoids the actualization of future streams of consumption, as well as the imputation of household total consumption to each single member, which are needed instead in the *forward looking* approach and may result too discretional. Moreover, working on current consumption levels, as in the *backward looking* approach, allows using a structural framework for consumption that is of help when you want to disentangle the different components of the *scarring* effect.

Table 1 presents summary statistics of selected variables for two samples of head of household who are employed under a permanent contract in time *t*. In the first one, the previous working career is restricted to the 10 years before, in the second one to the 5 years. Main characteristics look similar across the two samples. In both the cases married males represent the majority (around 75%), most of the households have a size of 3 individuals, and half of the head of households have a degree certificate. Major differences regard the percentage of heads of household who never held a TC contract in the previous years, which is 78% for the 10 years sample and 87% for the 5 years sample, and the percentage of heads of household always employed during the previous years, which as expected is higher for the 5 years sample (72%) than for the other one (56%).

[8] The bands are the following: below £10; £10 to £19; £20 to £29; £30 to £39; £40 to £49; £50 to £59; £60 to £79; £80 to £99; £100 to £119; £120 to £139; £140 to £159; above £160. I know this procedure does not in

Before going further, it is interesting to have a preliminary look at what comes out of the data. In the next graphs (1 to 3) I then plot household food and grocery consumption by the number of temporary experiences of the head of household before getting the current permanent job (10 years before). In particular I take households whose head is currently employed on a permanent basis, and whose tenure is of at least one year. Doing so, what I observe is the difference between situations that are currently equivalent in terms of job stability but different in terms of past working experiences. In addition to household food consumption, I also plot total household income: in case it follows consumption patterns, this would be preliminary evidence for the fact that temporary employment is affecting income levels and then only indirectly household expenditure. If not, this would instead give space for an *overreaction* interpretation.

As you can see, from graph 1a comes out that, as far as the number of temporary jobs increases, the level of food consumption in the family shifts down (from -12.3% to -16.2%).[9] This is not the case when we restrict the sample to those household heads who were always employed over the interval (graph 1b), even if in this case the effect may not be significant just because of the lack of enough observations. Note that in the latter case what we observe is the pure effect of having held temporary jobs as opposed to having been always employed on a permanent basis, since the possibility of unemployment spells between is ruled out. The fact that in this case food consumption is no more significantly decreasing with TC experiences could then anticipate that most of the detrimental effect is not driven by temporary jobs *per se*, but by the interruptions attached to temporary working spells. Moreover, income does not seem to follow so evidently consumption trends. At least to this stage, this gives some space for a more complex interpretation than just a *permanent income* effect.

When I restrict the horizon to five years (see graphs 2a and 2b) I find similar evidence, even tough in this case the overall *scarring* effect seems to be less pronounced. This is not a so obvious result. It is in fact true that if a precarious

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general provide consistent parameter estimates. For this reason I will also try later with a maximum likelihood approach (to be developed).

[9] See tables 2, 3 and 4 for more details.

condition is more prolonged in time this should have a stronger incidence on future prospects, but it is also true that most recent "bad events" should also count more on the agents' memory, thus implying a more pronounced effect on present behaviors.

When I use the time spent in temporary employment instead of the number of temporary contracts during the 5 years before getting the permanent position, I find more or less the same results (see graphs 3a and 3b). Actually, in this case the effect seems also to be higher (from -11.3% to -24.4%, and from -2.6% to -31.3%), thus suggesting that it is not the number of experiences but the time effectively spent on them which affects consumption behaviors.

However, it could be argued that part of the effect observed in the previous tables is not directly referring to the time spent in a precarious condition, but to the number of individuals in the household. I have controlled for that (see Table 2c) and what I have found is that even within each household size class, consumption is approximately decreasing together with the number of experiences and the time spent in temporary employment.[10]

In the next section I then move to a multivariate framework in order to more properly account for any other possible factor driving food expenditure decisions.

3. A test for the *scarring* effect

In this section I regress food and grocery consumption on current total household income, plus a set of controls which includes two variables measuring the number of times first, and then the time the head of household spent on temporary contracts.[11] Note that in this case all the effect of any past precarious experience is embedded endogenously in that variable. No restrictions are made on the possibility to have unemployment spells between different contracts and tenure in PC is also controlled for. As before, the household head is employed in *t*

[10] For simplicity I present only the case of an household with respectively 2 and 3 individuals.

on a permanent basis.

I will therefore start estimating by *OLS* the following equation:

$$c_{it} = \alpha + \lambda y_{it} + \mu(TC\exp_t) + \varphi Z_{it} + \varepsilon_{it}$$

where c_{it} is the current household food and grocery consumption, y_{it} is the current total household income, Z_{it} is a set of demographic characteristics and $TCexp_t$ is a measure for the time spent in temporary employment.

As you can see from Table 3a, current income has the expected positive sign on current food consumption. More interestingly, the number of temporary contracts has a strong and significant negative effect on current consumption (-2.219), which is preliminary evidence for the fact that, at a first sight, past precariousness still affects current food consumption, even once the head of household is employed on a permanent basis. Same results when I also control for the time spent in temporary employment instead of the number of contracts (-0.274), even if now the number of TC is no more significant.

However, as I said before, part of the effect may be driven not by the temporary experiences *per se*, but by the unemployment spells that may be attached to the end of a temporary contract. For this reason in column 3 I also control for the number of the unemployment spells between ("N. of U. exp."). We can see that in this case the effect of past temporary experiences is significant only for the length (-0.390) but not for the number of TCs and that most of the effect is now captured by the number of times the head of household has been unemployed (-1.371). Finally, in column 4 and 5 I restrict the sample to those individuals who were always employed during the period of analysis. In this case the effect of past precariousness is still negative but no more statistically significant.

Same results when we reduce the horizon of analysis to the previous five years (see Table 3b), even if in this case the effect of the number of TC spells for people who where always employed is significantly negative (-0.578). Note also

[11] Respectively "N. of TC exp." and "Time in TC". Note also that total household income enters the equation in a liner form: doing so I am implicitly assuming here that food consumption is a constant share of income. However it may be reasonably argued that its share is instead decreasing as long as income increases.

that the overall effect comes out to be reduced: this means that the effect of a longer time in precariousness prevails on the effect of recent experiences of precariousness.

Still, the three variables of interest (namely "N. of TC", "Time in TC" and "N. of U. exp."), independently from the specification used, may suffer from an endogeneity problem with respect to current consumption: we might in fact expect that some individuals choose to work intermittently, then have a higher risk-propensity and for that reason also have different consumption habits. Or that some individuals are less likely to success in the labour market for some unobservable characteristic that is linked to consumption behaviours as well.[12]

To reduce any possible source of bias, I then apply propensity score matching techniques. The central idea of this method is to base the estimation of the treatment effect (here the temporary employment experience) on a matching of cases and controls on the basis of a very rich set of observable characteristics. This requires assuming that conditioning on these observable variables, also unobservables, and then the assignment, are random, such that the selection into treatment is completely controlled by the researcher (*unconfoundness assumption*).

In doing so, I restrict the analysis to people who are at their first job in time *t-5*, and then I compute the *propensity score* (the probability of belonging to a certain group of "similar" individuals) using a set of pre-treatment variables that are observed at the time of the entry into the labour market, including: sex, marital status and child presence at the time of entry in the labor market, 13 educational levels, 7 macro regions, occupational status of both the parents at the age of 14 years.[13] Then I create a set of dummy variables *I(TCexp)* which can be used as a proxy for precariousness. The first one is a dummy which is 1 if the household head had at least one temporary contract in the past 5 years; the second one is 1 if not only had at least one TC but also an unemployment spell;

[12] Any consideration on the direction of the bias is as usual difficult. However, if self-selection into temporary contracts is associated to a higher risk-propensity, according to any standard consumption model we would expect that the "true" effect is even higher, and then *ols* results can be considered as a lower bound for the *scarring* effect.

[13] It is commonly assumed that once controlled for parents' background and personal education at the time of entry into the labour market, the assignment can be plausibly considered as exogenous. I restrict the analysis to a 5 years interval only instead of 10 years since otherwise I would be left with too few observations.

the last one is instead 1 if the head of household spent in temporary employment at least one year.

The *ATT* (Average effect of Treatment on the Treated) can therefore be computed on the basis of the following equation:

$$c_{it} = \alpha + \lambda y_{it} + \mu I(TC\exp_t) + \varphi Z_{it} + \varepsilon_{it}$$

In order to check robustness of my results, I present estimates of the *ATT* using *Kernel*, *Nearest Neighbour* and *Radius* propensity score estimators.[14]

Results (see Table 4) do provide some evidence in favour of a *scarring* effect, even after applying bias-reducing techniques. The effect of having held at least one TC is significantly negative in all the three specifications; in the case of *Kernel* estimator it is even stronger when combined with at least one unemployment spell, while the effect of having spent more than 1 year in temporary employment is never significant. However, when I restrict the sample to people who were always employed during the interval of analysis, any effect disappears. This leads again to a more general interpretation: that is not exactly temporary employment but the unemployment spells attached to that which have a detrimental effect on future consumption attainments.

Note however that propensity-score matching estimators are just a bias reducing technique, but do not eliminate completely the source of endogeneity. In particular, as well documented in the most recent literature, consumption has a lot of heterogeneity driven by psychological and sociological factors that cannot be accounted just by controlling for educational levels or parents' background.

Moreover, with this general specification still remains the suspect that time spent in precariousness is affecting current consumption levels not only trough the earning function, but also through some other channel, which cannot be isolated here. Therefore, in order to investigate more correctly what is actually driving the observed fall in household expenditure, a structural model for consumption is needed if we want to separate the different "scarring" components, and in particular the *overreaction* effect.

[14] See Ichino et al. (2002) for a description of the different propensity score matching estimators.

4. A structural model for consumption behaviours

In this section I briefly review a model of consumption with earnings uncertainty that can be used as a reference framework for the rest of the analysis. Following Caballero (1990) and Weil (1993), I assume that the household maximizes a time-separable utility function over an infinite horizon and that the within-period utility function is exponential (CARA), with constant degree of absolute prudence equal to θ. I further assume that after-tax labor income *y* follows the stochastic process

(1) $$y_t = \gamma * y_{t-1} + (1-\gamma)\hat{y} + \varepsilon_t$$

which is the sum of a deterministic component $\hat{y}$ and a stochastic component ε_t, identically and independently distributed with zero mean and variance σ^2. The parameter γ measures the degree of persistence of innovations in income.

The consumer chooses a sequence of consumption values to maximize the expected value of utility under the budget constraint $w_t = R^* w_{t-1} + y_t - c_t$, where w_t is end-of-period wealth, c_t is the consumption, and *R* is the interest factor, assumed to be constant. The problem is then

$$\max -\frac{1}{\theta} E \sum_{j=0}^{\infty} \beta^j \exp(-\theta c_{t+j})$$

subject to

$$w_t = R w_{t-1} + y_t - c_t, \quad y_t = \gamma y_{t-1} + (1-\gamma)\hat{y} + \varepsilon_t$$

It can be shown that the solution to this problem has two parts.[15] The first part

[15] See Caballero (1990) for more details.

is the certainty equivalence level of consumption; the second can be identified with precautionary saving. When the interest rate is equal to discount rate (βR = 1) it can be shown that

$$c_t = \frac{R-1}{R-\gamma}\left(y_t + \frac{1-\gamma}{R-1}\hat{y} + w_t\right) - \frac{\Pi}{R} \tag{2}$$

where

$$\Pi = \frac{R-\gamma}{\theta R}\log\left[E\exp\left(-\frac{\theta R}{R-\gamma}\varepsilon\right)\right] \tag{3}$$

The first term in eq. (2) is the optimal level of consumption when income is certain and equal to $E(y_t)$. The term Π in eq. (3) is the precautionary component of saving. When the income shock is normally distributed, this term reduces to

$$\Pi = \frac{\theta R}{R-\gamma}\sigma^2$$

which increases with the variance of the shock σ^2, the degree of earning persistence γ, and the degree of prudence θ.

I am aware that exponential utility function, though analytically convenient, is quite restrictive. It implies that the sensitivity of consumption to uncertainty, measured by the degree of prudence, is independent of the level of individual resources. However, the intuition behind equation (2) is more general. Provided that prudence is positive, uncertainty lowers the optimal level of current consumption and the level of assets that individuals choose to hold. This problem can partly be solved by using a second-order Taylor expansion on a general consumption function that includes quadratic and interaction terms between lifetime resources and the measure of uncertainty, as suggested by Skinner (1988). Moreover, given my interest in how past temporary jobs can affect current lifetime resources, this specification allows to take it explicitly into

account. In the context of a non-expected utility function, Weil (1993) also studies a hybrid case in which preferences are isoelastic intertemporally, but exponential with respect to the risk component, thus obtaining a closed-form solution where consumption is a function of labor income, total resources and labor income risk.

5. The empirical strategy (to be developed)

As mentioned in Section 2, only in the case of constant absolute risk aversion (CARA) an explicit closed form solution for optimal consumption can be derived. In this special case individual consumption can be written as the sum of two components. The first is a fraction λ of the certainty equivalence level of lifetime resources L_i, where L_i is the sum of human wealth and nonhuman wealth; the second is the precautionary component, which, under the assumption of normality, is proportional to the variance of the earnings shocks:

$$c_{it} = \lambda L_{it} - \mu\sigma_{it}^2 \qquad (4)$$

where *i* indexes households. In my case c_i is the consumption of a household whose head is currently employed under a permanent contract, but with a possibly different working career.

Following what I said above, past precariousness may be scarring the present level of consumption as defined in equation (4) in three different ways. The first one is by reducing the expectation on lifetime resources L_i, since a discontinuous career can be penalizing in terms of human capital accumulation, and consequently also in terms of wages (*expected income* effect). For the same reason, people could face a higher probability of job loss, which turns out into a higher income variability σ^2 (*income variability* effect). Lastly, "bad events" may have changed the way they react to income variability, which is captured by the

parameter μ (*overreaction* effect).

The first two channels can be checked by testing the significance of past precariousness in the estimation of L_i and σ^2. For the third one, I will instead proceed by interacting the parameter μ in equation (4) with a dummy which is 1 for people who had at least a temporary contract in the past, namely μ_{TCpast}: in case this parameter is significant, this means that to some extent people react to income uncertainty according to their previous job career.

This specification implies estimating a consumption function of the following form:

$$c_{it} = \alpha + \lambda_1 y_{it}^P + \lambda_2 y_{it}^T + \lambda_3 y_{it}^W + \mu\sigma_{it}^2 + \varphi_1 Z_{it} + \varepsilon_{it} \quad (4)$$

where Z_{it} is a set of household and personal characteristics.

Before estimating equation (4) we therefore need a measure for lifetime resources L_i and income uncertainty σ^2.

5.1 Income uncertainty estimation

Concerning the estimation of income uncertainty, several alternative specifications of precautionary savings are available. Precautionary savings are defined as the difference between the wealth that consumers would hold in the absence of uncertainty and the amount they hold when uncertainty is present (Kimball, 1990). However, the most appropriate empirical measure of uncertainty is not obvious. Many previous studies have proxied uncertainty with either the variability of a household's income (Carroll, 1994) or the variability of its expenditures (Dynan et al., 2004). But, as and Guiso et al. (1992) have pointed out, variability measures may be poor uncertainty proxies because they can contain large controllable elements.

My measure of uncertainty is therefore the probability of job loss, specifically, the estimated probability that a consumer who currently is employed will be unemployed one year hence. This represents a potential major interruption to

income over which households generally have little influence, and thus should provide a much cleaner signal of the uncertainty faced by a household than variability of income or expenditures.

Econometric identification requires at least one instrument to be related to the dependent variable (consumption, in my case) solely through that instrument's correlation with uncertainty; this instrument can then legitimately be excluded as an independent variable in the second-stage regression of consumption on instrumented uncertainty.

However, finding an appropriate instrument to exclude is difficult. For example, suppose that more risk-averse consumers both hold more precautionary wealth and choose occupations with lower job-loss risk. Then occupation may be a good predictor of job-loss risk, but, if it is excluded from the second-stage regression, the coefficient estimate on the uncertainty proxy will be biased because of correlation between occupation-instrumented job-loss risk and the unmeasured risk aversion in the error term. Similar arguments can be made regarding excluding educational achievement.

To avoid this identification problem, I then use as excluded instruments for uncertainty the region in which the household resides, as well as the workplace size and the union coverage.[16] The large variation in regional economic conditions suggests that region will be significantly correlated with job-loss risk. In addition, if we assume that, ex-ante, most households do not choose where to live on the basis of regional differences in job-loss risk, region should be uncorrelated with unobserved determinants of consumption. Concerning the workplace size, it may be the case that jobs at larger establishments are more secure, due to larger employers possessing greater market power or that for a given employer the closure of smaller establishments incurs lower re-organisation costs. Union status is also usually considered as a zero restriction in the consumption equations. Owing to the emphasis unions impose on due process they are also likely to improve job security: this leads us to expect a role for union status in both the income and job security equations. Again, it seems unlikely that this

[16] As in Carroll et al. (2003) and Benito (2002).

characteristic should be related to consumption independent of any effect via job insecurity.

Other controls included in this first stage are age, sex, marital status and education of the household head. In addition to them I also use the number of TC and unemployment spells the household head had in the last 5 years. As I said before, this is a way of testing whether past precariousness is affecting income variability, and then indirectly consumption. However, this variable is clearly endogenous with respect to the probability of becoming unemployed in one year. Less talented individuals are more likely to have been unemployed or temporarily employed in the past and also to become unemployed in the future. If this is true, estimates should be negatively biased. Therefore a bias correction is required here in order to identify the effect of past precariousness on the current probability of becoming unemployed. The best candidate is the regional unemployment rate at the time of the entry in the labour market, which is correlated with the probability of being unemployed or receiving a temporary offer in the past, but not with the current probability of being fired.

As in Benito (2002), I assume there exists a latent variable $u_i^* = Z_i^u \alpha_u + v_i$ such that $u_i^* > 0$ if the person will be unemployed one year hence and $u_i^* \leq 0$ if the person will be employed. v_i is a normally distributed idiosyncratic shock that is uncorrelated with Z_i^u, a row vector of observable characteristics for the individual *i* at time *t*, including past precariousness. Thus the probability that a person who is currently employed on a permanent basis becoming unemployed is

$$\Pr(u_i \mid e_i) = \Phi(Z_i^u \alpha_u) \tag{5}$$

where Φ is the standard normal distribution function and α_u are the maximum likelihood probit estimates. I estimate this probability using the BHPS from wave 1996 to wave 2000. The dependent variable is an indicator that takes the values 1 if individual *i* is employed at time t and unemployed in time t+1, and takes the value 0 if individual *i* is employed in both periods. Note that in this case the model is also identified because of the non-linear form of the probit model.

The results accord with standard economic priors (see table 5 below). Males, older individuals and people covered by the union all have a lower propensity for job insecurity, controlling for the other characteristics, whilst the degree-educated have a significantly lower probability of job insecurity. With respect to the three variables of interest, past TC experiences over the last 5 years increase the probability of becoming unemployment as opposed to people who never had a temporary contract, even if this effect is significant only when I account for the length and not for the number of TCs (0.022).[17] However, if we look at the effect of past unemployment spells, this seems to be even stronger (0.042), thus confirming once more what I said in Section 2, that unemployment has a higher long-run detrimental effect than TC *per se*. Note also that most of the other two dummies used for identification, region of residence and firm size, are significant at a 5% level.[18]

In the wave 1996 and 1997 of the BHPS a self-reported job insecurity measure is also provided. Each employed individual is asked:

In the next twelve months, how likely do you think it is that you will become unemployed?

Responses fall into one of four categories, 'very likely' (2.66%), 'likely' (6.10%), 'unlikely' (52.09%) and 'very unlikely' (39.15%). I will use this measure as an alternative to the estimated unemployment risk. This variable avoids the identification issues we have seen before, but it also presents the usual drawbacks of self-reported measures. However, the limited degree of variation for this variable might mitigate against finding a significant relation between this variable and consumption.

5.2 Permanent income estimation

[17] This result is partly confirmed by Zijl et al. (2003).
[18] More correctly, their significance should be tested jointly for all the dummies.

The construction of the measure of permanent income takes as its starting point a regression for current household labor income on the same observable characteristics used for the estimation of unemployment risk. As before, I use as excluded instruments for lifetime resources the region in which the household resides, the workplace size and the union coverage. The large variation in regional economic conditions suggests that region will be significantly correlated with job prospects and then with future earnings. Workplace size is also a key wage differential in the labour market and is quantitatively large.[19] A favoured interpretation of this differential is one of reflecting (dynamic) monopsony associated with labour turnover costs such that larger employers bid up wage rates. Lastly, unions raise earnings, with this differential being associated with coverage and individual membership. There seems no reason why the resulting wage differential due to the effect of these instruments should be related to consumption behaviour.

In addition I also use as controls the size of the household, the number of kids in the household, the number of unemployed people in the household, some cohort dummies and age squared. Defining the age-effect and cohorts-effect as $\pi(a)_i$ and $\varphi(c)_i$, gives the following cross-sectional equation for the log of the current (annual) labour household income, y_i^t:

$$(6) \qquad y_i^t = Z_{it}^y \varphi + \pi(a)_i + \varphi(c)_i + v_{it}$$

The error term, v_{it} consists of an unobserved (permanent) heterogeneity component, u_i, and transitory income component, ε_t. The income equation is therefore estimated as a GLS random effects model allowing for the unobserved heterogeneity through the random effects error component, u_i.[20]

Even in this case, the results accord with standard economic priori (see Table 6 below). Let me also point out that TC and unemployment experiences over the past 5 years still negatively affect current income (respectively -0.061 and -0.211) and that most of the dummies used for identification (union coverage,

[19] See Green et al. (1999)
[20] As in Benito (2002). Carroll et al. (2003) use instead a simple OLS regression.

region of residence and firm size) are significant at a 5% level.[21] This result is very close to the findings in Booth et al. (2002). Using an IV/GLS approach still on the BHPS, they find that the wage penalty associated with the experience of temporary jobs is of 12% for men and 8% for women.

Given these results, permanent income is then computed as the projection of the estimate for current income to the retirement age, assumed here as 65 years for men and 60 years for women. Transitory income is consequently defined as the difference between current and permanent income.

6. Final results

Once I have a measure for lifetime resources L_i and income uncertainty σ^2, I can try to disentangle the effect of past precariousness on the expected permanent income (*expected income* effect) and income variability (*income variability* effect) from what I have called the *overreaction* effect by estimating the following equation:

$$(7) \qquad c_i = \alpha + \lambda_1 y_i^P + \lambda_2 y_i^T + \lambda_3 y_i^W + \mu\sigma^2{}_i + \mu_{TCpast} I(TC\,\exp)\sigma^2{}_i + \varphi Z_i + \varepsilon_i$$

where past precariousness is now operating through the lifetime income y_i^P and through the income uncertainty σ^2, as we have seen in the two subsections above, but also through a third parameter, namely μ_{TCpast}, which measures the "overreaction" effect. In particular the latter is obtained by interacting income uncertainty σ^2 with a dummy which is 1 for individuals who had at least one temporary job experience before reaching a permanent position.

As you can see from the table above, the parameter μ_{TCpast} is negative in all the

[21] As for the income uncertainty estimation, their significance should be tested jointly for all the dummies (to be developed).

specifications, but never significant. [22] Even when I use the self-reported measure of uncertainty, the data reject the hypothesis that people who had "bad experiences" in the past react more to future income uncertainty, but in this case this result may be still due to the scarce variability attached to the self-reported measure.

Concluding, while it seems that temporary work experiences in the past still influence future consumption behaviors by affecting future income patterns, the suspect that this period of precariousness may have generated an "overreaction effect" does not find clear evidence in the data. (to be developed)

7. Conclusions

In this paper I have tried to check whether the time spent in a so called "precarious" position early in the career may continue to affect consumption behaviors even when an individual has obtained a stable (permanent) job.

Evidence from the BHPS supports this hypothesis and seems to confirm that past working career is still affecting current consumption, but only by reducing the expected permanent income ("expected income" effect) and increasing the income uncertainty ("income uncertainty" effect). The suspect that this period of precariousness may have also generated an "overreaction" effect does not find clear support in the data. Moreover, the general "scarring" effect seems to be mostly driven by the unemployment interruptions and not by temporary employment *per se*.

Anyway, the study still presents some open issues. The overall measure for past precariousness used in section 3 is very likely to be endogenous. Even after controlling for possible unobserved heterogeneity through matching estimators, the possibility of unobserved mechanisms driving both employment and consumption behaviors is very likely to still be there. This is because

[22] I am aware that the standard errors should be corrected for the presence of estimated variables in the second stage regression, as suggested by Newey. For the moment this is left to future research.

heterogeneity in consumption behaviors is much more affected by psychological factors that cannot be completely controlled with matching estimators.

Moreover, a correct identification of the *overreaction* effect in equation (7) would also require controlling for any possible source of endogeneity exploiting the positive correlation of regional unemployment with the probability of receiving a TC offer. As for the estimates in section 3, it might in fact be the case that there are some unobservable characteristics driving both past labor market choices and current consumption behaviors: as an example, people with a lower risk aversion could in principle accept more easily temporary jobs before *t* and also consume more in *t*. In order to obtain an unbiased estimate for μ_{TCpast}, one possibility could be to implement Robinson (1988), which is a partially linear non-parametric method, and to use as an exclusion restriction the local unemployment rate. [23] Equation (7) could be therefore re-written as follows:

$$c_i = \lambda_1 y_i^P(TC\exp) + \mu\sigma^2{}_i(TC\exp) + \mu_{TCpast} I(TC\exp)\sigma^2{}_i(TC\exp) + \varphi Z_i + \eta_i$$

where $TCexp_i = \delta X_i + \varepsilon_i$, ε_i and η_i are correlated, and X_i includes local unemployment rate as an exclusion restriction. Then obtain $\hat{\varepsilon}$ and take:

$$c_i - E(c_i \mid \hat{\varepsilon}) = \lambda_1(y_i^P(TC\exp) - E(y_i^P(TC\exp) \mid \hat{\varepsilon}) + etc.$$

to partial out the source of endogeneity.

[23] Local unemployment rate is usually assumed to be significantly correlated with the probability of receiving a TC offer, but uncorrelated with individual decisions.

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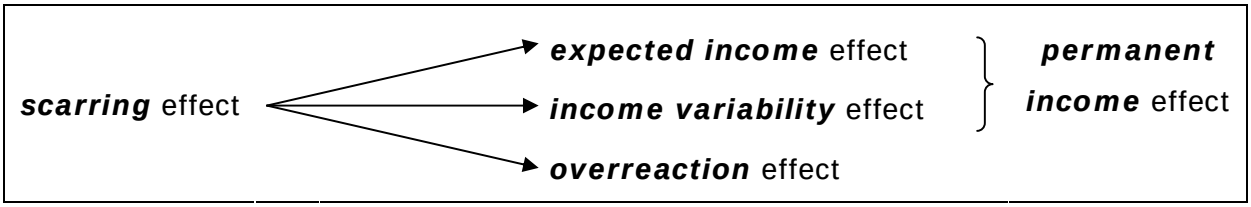
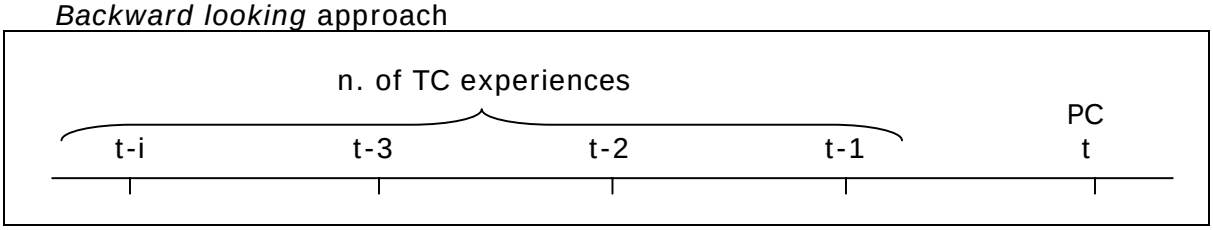
Boxes

Box 1



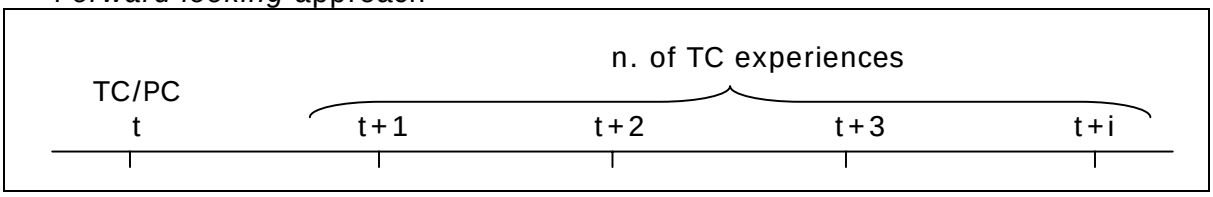
Box 2a

Backward looking approach



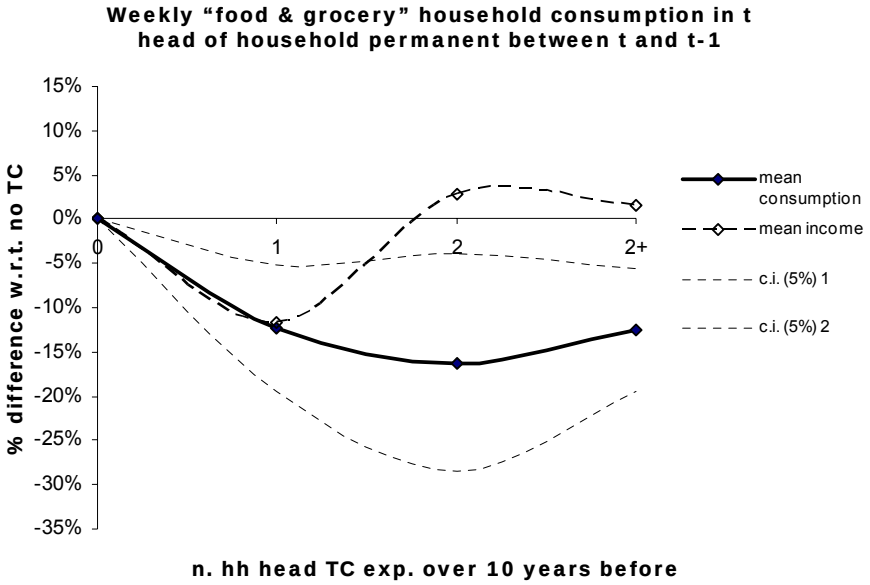
Box 2b

Forward looking approach



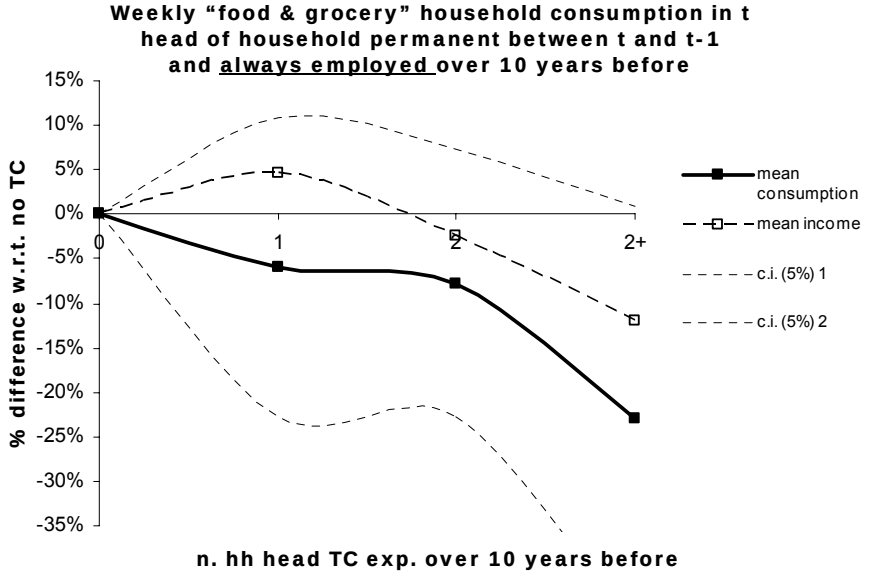
Graphs

Graph 1a



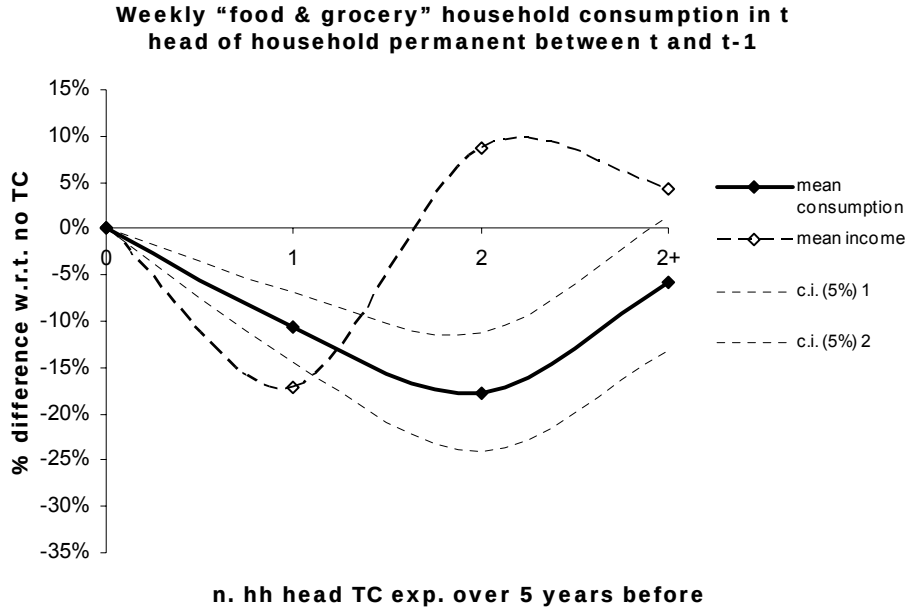
Food and grocery consumption in 2001 UK pounds. Income is the total household income during the week. Head of household employed on a permanent basis at least between t-1 and t.

Graph 1b



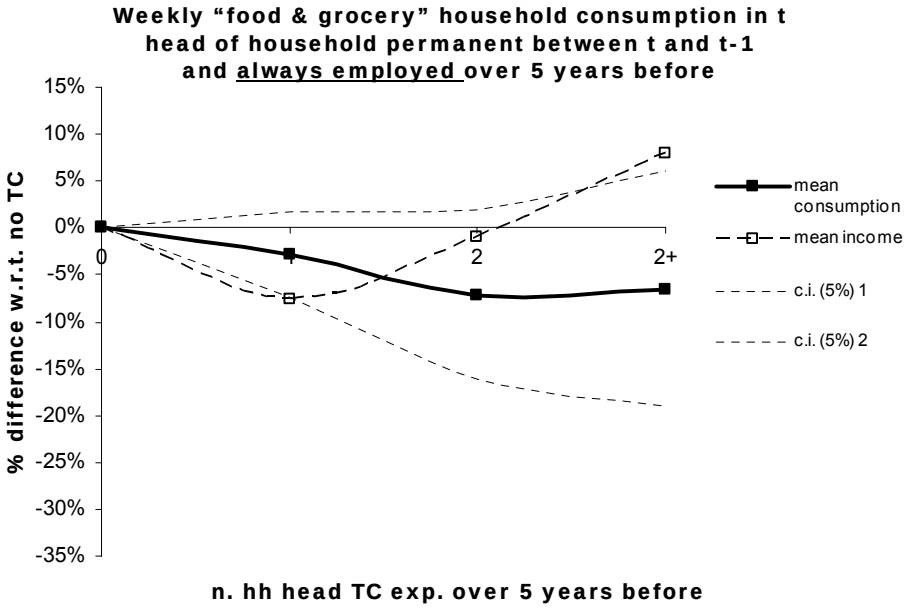
Food and grocery consumption in 2001 UK pounds. Income is the total household income during the week. Head of household employed on a permanent basis at least between t-1 and t. "Always employed" means that the head of household was always employed during the previous 10 years.

Graph 2a



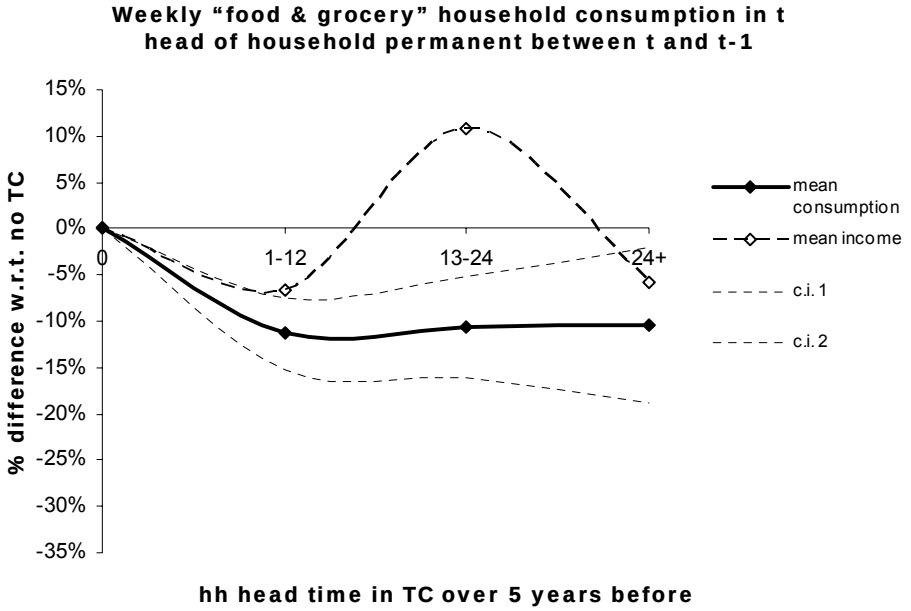
Food and grocery consumption in 2001 UK pounds. Income is the total household income during the week. Head of household employed on a permanent basis at least between t-1 and t.

Graph 2b



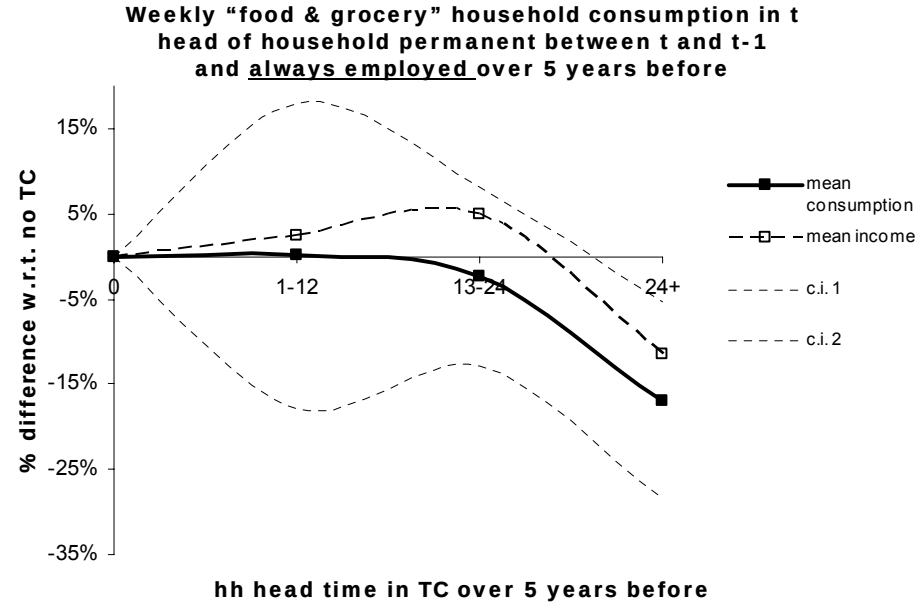
Food and grocery consumption in 2001 UK pounds. Income is the total household income during the week. Head of household employed on a permanent basis at least between t-1 and t. "Always employed" means that the head of household was always employed during the previous 5 years.

Graph 3a



Food and grocery consumption in 2001 UK pounds. Income is the total household income during the week. Head of household employed on a permanent basis at least between t-1 and t.

Graph 3b



Food and grocery consumption in 2001 UK pounds. Income is the total household income during the week. Head of household employed on a permanent basis at least between t-1 and t. "Always employed" means that the head of household was always employed during the previous 5 years.

Tables

Table 1

Summary statistics, head of household permanent in t, 10 and 5 years interval sample

	10 years interval			5 years interval		
	mean	min.	max.	mean	min.	max.
Male	0.74	0	1	0.75	0	1
Married	0.72	0	1	0.72	0	1
Household size	3	1	8	3	1	9
Home property	0.82	0	1	0.80	0	1
N. of kids	0.71	0	5	0.71	0	7
Tenure (months)	72	1	502	70	1	621
Degree	0.55	0	1	0.49	0	1
O level	0.10	0	1	0.11	0	1
A level	0.14	0	1	0.12	0	1
N. employed in household	2	0	5	2	0	6
No TC exp. in 10/5 years	0.78	0	1	0.87	0	1
N. TC in 10/5 years	0.37	0	8	0.19	0	9
Length TC in 10/5 years	2.15	0	51	1.11	0	52
No U. exp. in 10/5 years	0.56	0	1	0.88	0	1
N. U. in 10/5 years	1.43	0	13	0.69	0	12
Length U. in 10/5 years	9.06	0	92	4.27	0	73
Always employed 10/5 years	0.56	0	1	0.72	0	1
N. of observations	1482			10902		

All the variables at time t. The length of TC and U spells expressed in months. "Always employed" means that the head of household was always employed during the previous 10 years.

Table 2a

Weekly "food & grocery" household consumption in t
Head of household permanent between t -1 and t-11

by the n. of household head TC exp. over 10 years

	Basic				**Always employed**			
n. TC exp.	n. obs.	consumption	% change	Income	n. obs.	consumption	% change	income
0	911	**69.7**	-	681.6	644	**72.8**	-	714.9
1	129	**61.3**	-12.3 (-3.29)	602.4	30	**68.5**	-5.9 (-0,69)	747.8
2	43	**58.6**	-16.2 (-2.55)	639.6	17	**67.1**	-7.8 (-1.02)	729.1
>2	42	**61.2**	-12.5 (-3.42)	628.3	9	**56.1**	-22.9 (-1.89)	642.5

by the time of household head in TC over 10 years

	Basic				**Always employed**			
months in TC	n. obs.	consumption	% change	Income	n. obs.	consumption	% change	income
0	910	**69.7**	-	681.7	642	**72.8**	-	714.2
0-12	146	**61.8**	-11.3 (-3.53)	603.6	26	**70.9**	-2.6 (-0.30)	738.3
12-24	44	**62.3**	-10.6 (-1.63)	630.0	23	**75.1**	+3.2 (+0.43)	737.5
>24	20	**52.7**	-24.4 (-2.81)	508.2	7	**50.0**	-31.3 (-3.02)	516.3

Food and grocery consumption in 2001 UK pounds. Income is the total household income during the week. Head of household employed on a permanent basis at least between t-1 and t. "Basic" means no restriction to the possibility of being unemployed within the interval. "Always employed" means that the head of household was always employed during the previous 10 years. "% change" with respect to the case of no TC experiences. T-test in parenthesis.

Table 2b

Weekly "food & grocery" household consumption in t
Head of household permanent between t -1 and t-6

by the n. of household head TC exp. over 5 years

	Basic				Always employed			
n. TC exp.	n. obs.	consumption	% change	Income	n. obs.	consumption	% change	income
0	7533	**67.9**	-	632.4	6168	**69.3**	-	653.1
1	567	**60.7**	-10.6 (-5.35)	523.5	216	**67.3**	-2,9 (-1.17)	603.6
2	168	**55.9**	-17.7 (-5.26)	569.7	65	**64.4**	-7,1 (-1.46)	597.8
>2	120	**63.9**	-5,9 (-1.56)	593.2	34	**64.8**	-6,5 (-0.97)	645.1

by the time of household head in TC over 5 years

	Basic				Always employed			
months in TC	n. obs.	consumption	% change	Income	n. obs.	consumption	% change	income
0	7490	**67.9**	-	631.4	6168	**69.3**	-	603.2
0-12	533	**60.2**	-11.3 (-5.55)	589.3	26	**69.5**	+0.1 (+0.03)	617.3
12-24	222	**60.6**	-10.7 (-3.75)	653.3	23	**67.7**	-2.3 (-0.41)	647.1
>24	59	**60.8**	-10.5 (-2.37)	615.2	7	**57.6**	-16.9 (-2.73)	573.6

Food and grocery consumption in 2001 UK pounds. Income is the total household income during the week. Head of household employed on a permanent basis at least between t-1 and t. "Basic" means no restriction to the possibility of being unemployed within the interval. "Always employed" means that the head of household was always employed during the previous 5 years. "% change" with respect to the case of no TC experiences. T-test in parenthesis.

Table 2c

Weekly "food & grocery" household consumption in t by the n. of TC exp. over 5 years
Head of household permanent between t -1 and t-6

Household size = 2

	Basic				Always employed			
n. TC exp.	n. obs.	consumption	% change	Income	n. obs.	consumption	% change	income
0	2209	**58.0**	-	618.9	1760	**58.9**	-	642.2
1	181	**50.8**	-12.4 (-4.40)	540.3	66	**54.8**	-6.9 (-1.58)	654.6
2	65	**55.3**	-4.6 (-1.34)	567.0	24	**55.0**	-6.6 (-1.12)	579.0
>2	43	**53.6**	-8.1 (-1.51)	628.1	14	**55.7**	-5.4 (-0.54)	615.1

Household size = 3

	Basic				Always employed			
n. TC exp.	n. obs.	consumption	% change	income	n. obs.	consumption	% change	income
0	1625	**74.4**	-	713.3	1317	**69.3**	-	745.1
1	110	**65.6**	-11.8 (-3.29)	635.5	40	**67.3**	-2.9 (-0.52)	714.6
2	32	**60.9**	-18.1 (-3.63)	653.4	26	**64.4**	-7.1 (-1.21)	662.8
>2	20	**68.2**	-8.6 (-1.26)	696.9	9	**64.8**	-6.5 (-1.34)	733.1

Food and grocery consumption in 2001 UK pounds. Income is the total household income during the week. Head of household employed on a permanent basis at least between t-1 and t. "Basic" means no restriction to the possibility of being unemployed within the interval. "Always employed" means that the head of household was always employed during the previous 5 years. "% change" with respect to the case of no TC experiences. T-test in parenthesis.

Table 3a

Weekly "food and grocery" household consumption, TC exp. over 10 years before
Head of household permanent in t
OLS estimates

	Basic			Always employed	
	(1)	(2)	(3)	(5)	(6)
Current income	0.025	0.025	0.024	0.026	0.025
	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)
TCexp:					
N. of TC exp., 10 years before	-2.219	-0.662	0.812	-1.280	-0.432
	(0.744)	(0.967)	(1.135)	(1.064)	(2.389)
Time in TC, 10 years before		-0.274	-0.390		-0.443
		(0.101)	(0.201)		(0.289)
N. of U. exp., 10 years before			-1.371		
			(0.353)		
R^2	0.477	0.477	0.473	0.483	0.483
N. obs.	1433	1433	1433	817	817

Food consumption in 2001 UK pounds. Robust standard errors in parenthesis. Head of household aged between 20 and 65 and employed in *t* on a permanent basis. Also control for household size, tenure (measured in years), sex, marital status, age, education, home property, number of kids, number of unemployed people in the household, occupation. Time in TC measured in months. Current income is total current income, including investments and labor income. "Always employed" means that the household head was always employed during the previous 10 years.

Table 3b

Weekly "food and grocery" household consumption, TC exp. over 5 years
Head of household permanent in t
OLS estimates

	Basic			Always employed	
	(1)	(2)	(3)	(5)	(6)
Current income	0.019	0.019	0.018	0.017	0.017
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
TCexp:					
N. of TC exp., 5 years	-1.385	-0.616	-0.210	-0.782	-0.347
	(0.374)	(0.561)	(0.394)	(0.617)	(1.442)
Time in TC, 5 years		-0.144	-0.212		-0.578
		(0.058)	(0.103)		(0.175)
N. of U. exp., 5 years			-1.902		
			(0.191)		
R^2	0.469	0.469	0.469	0.466	0.467
N. obs.	10601	10601	10601	7653	7653

Food consumption in 2001 pounds. Robust standard errors in parenthesis. Head of household aged between 20 and 65 and employed in t on a permanent basis. Control also for household size, tenure (measured in years), sex, marital status, age, education, home property, number of kids, number of unemployed people in the household, occupation. Time in TC measured in months. Current income is total current income, including investments and labor income. "Always employed" means that the household head was always employed during the previous 5 years.

Table 4

Weekly "food and grocery" household consumption, TC exp. over 5 years, hoh permanent in t and at 1st job in t-5

ATT *Kernel estimates* of μ (propensity score matching)

	Basic			Always employed		
I(TCexp):	N. treated	N. controls	ATT	N. treated	N. controls	ATT
N. of TC>0	327	3793	-0.992	132	3132	4.904
			(0.378)			(4.338)
N. of TC>0 & N. of U>0	195	3925	-7.043			
			(2.444)			
Time in TC>1 year	94	3806	0.165	42	3140	0.456
			(2.888)			(5.083)

ATT *Nearest Neighbor estimates* of μ (propensity score matching)

	Basic			Always employed		
I(TCexp):	N. treated	N. controls	ATT	N. treated	N. controls	ATT
N. of TC>0	327	1284	-2.913	132	789	3.263
			(1.228)			(3.766)
N. of TC>0 & N. of U>0	195	1142	-2.284			
			(3.456)			
Time in TC>1 year	94	853	-1.735	42	797	0.585
			(3.467)			(6.551)

ATT *Radius estimates* of μ (propensity score matching)

	Basic			Always employed		
I(TCexp):	N. treated	N. controls	ATT	N. treated	N. controls	ATT
N. of TC>0	104	3326	-5.098	9	2641	-2.841
			(2.490)			(5.561)
N. of TC>0 & N. of U>0	84	3448	-5.493			
			(3.489)			
Time in TC>1 year	75	3182	-5.165	11	2455	-2.186
			(7.681)			(9.436)

Food consumption in 2001 pounds. Bootstrapped standard errors in parentheses. Head of household aged between 20 and 65 and employed in t on a permanent basis. Control also for household size, tenure (measured in years), sex, marital status, age, education, home property, number of kids, number of unemployed people in the household, occupation, current income is total current income, including investments and labor income. All the ATTs computed on the common support. Radius estimates computed with a radius of 0.1. "Always employed" means that the head of household was always employed during the previous 5 years. Propensity score computed with a probit model.

Table 5

Unemployment risk (*Probit estimates*) in 1 year

	coefficient	standard error	marginal effect
Age	0.029	(0.003)	0.002
Male	-0.202	(0.080)	-0.011
Married	0.014	(0.076)	0.003
Degree	-0.068	(0.085)	-0.003
A level	-0.061	(0.112)	-0.003
O level	0.083	(0.089)	0.002
N. of TC exp. last 5 years	0.068	(0.085)	0.002
TC length exp. last 5 years	0.022	(0.012)	0.001
U length exp. last 5 years	0.042	(0.002)	0.002
Union coverage	-0.037	(0.025)	-0.001
Tenure	0.008	(0.004)	0.000
Firm size 101-500	0.121	(0.061)	0.000
Firm size 501-1000	-0.122	(0.047)	0.000
Firm size >1000	-0.140	(0.124)	0.000
Wave dummies		Yes (4)	
Occupation dummies		Yes (4)	
Sector dummies		Yes (3)	
Regional dummies		Yes (14)	
Log-likelihood		-1011.82	
Pseudo R^2		0.1388	
N. observations		7650	

Hoh aged between 20 and 65 and employed on a permanent basis in time t. “Tenure” and “Age” measured in years. “TC” and “U” experiences measured in months. Marginal effects computed at the mean value, for dummy variables a change from 0 to 1. Reference group is: always employed on a permanent basis, no qualification, female, non-married, non union-covered, firm size 1-100, wave 2000. 6 over 14 regional dummies significant at 5% level.

Table 6

Ln of annual household labor income (*GLS estimates*)

	coefficient	standard error
Age	1.467	(0.245)
Age squared	-0.016	(0.003)
Male	3.407	(0.586)
Married	7.068	(0.158)
Degree	5.654	(0.599)
A level	3.913	(0.799)
O level	2.080	(0.720)
N. of TC exp. last 5 years	-0.158	(0.472)
TC length exp. last 5 years	-0.064	(0.043)
N. U. exp. last 5 years	-0.214	(0.019)
Number of kids	-1.270	(0.222)
Number of employed	6. 175	(0.232)
Union coverage	0.708	(0.356)
Tenure	0.114	(0.026)
Firm size 101-500	0.807	(0.360)
Firm size 501-1000	1.092	(0.433)
Firm size >1000	1.061	(0.535)
Cohorts dummies	Yes (4)	
Wave dummies	Yes (4)	
Occupation dummies	Yes (4)	
Sector dummies	Yes (3)	
Regional dummies	Yes (14)	
Number of groups	2679	
Number of observations	9668	
Wald chi2	3519.09	
Hausman Chi2(40)	251.33	

Coefficients and standard errors divided by 1000. Ln hh annual labor income in 2001 UK pounds. Hoh aged between 20 and 65 and employed on a permanent basis in time t. “Tenure” and “Age” measured in years. “TC” and “U” experiences measured in months. Reference group is: always employed on a permanent basis, no qualification, female, non-married, non union-covered, firm size 1-100, wave 2000. 5 over 14 regional dummies significant at 5% level. Cohort dummies not significant at 5% level.

Table 8

Weekly "food and grocery" household consumption
TC exp. over 5 years, head of household permanent in t

	Basic		Always employed	
	(1)	(2)	(3)	(4)
Permanent income	0.029	0.029	0.026	0.029
	(0.002)	(0.002)	(0.003)	(0.005)
Investment income	0.030	0.029	0.028	0.034
	(0.003)	(0.001)	(0.004)	(0.009)
Transitory income	0.017	0.016	0.016	0.017
	(0.001)	(0.004)	(0.001)	(0.002)
Estimated Urisk	-0.123		-0.431	
	(0.066)		(0.163)	
Estimated Urisk*I(TCexp)	-0.080		-0.251	
	(0.090)		(0.324)	
Perceived Urisk		-0.302		-0.364
		(0.134)		(0.156)
Perceived Urisk*I(TCexp)		-0.107		-0.237
		(0.153)		(0.329)
R^2	0.477	0.478	0.474	0.475
N. obs.	9638	2993	7014	2177

Food consumption in 2001 pounds. Robust standard errors in parenthesis. Hoh aged between 20 and 65 and employed in t on a permanent basis. Control also for household size, tenure (measured in years), sex, marital status, age, education, home property, number of kids, number of unemployed people in the household, occupation.