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Abstract

Mental health status often has a strong association with labour market outcomes. If people in temporary employment have poorer mental health than those in permanent employment then it is consistent with two mutually inclusive possibilities: temporary employment generates adverse mental health effects and/or individuals with poorer mental health select into temporary from permanent employment. We reveal that permanent workers with poor mental health appear to select into temporary employment thus signalling that prior cross sectional studies may overestimate the influence of employment type on mental health. We also reveal that this selection effect is significantly mitigated by job satisfaction.

Keywords: Employment transitions; Psychological distress; Anxiety; Life satisfaction; Job dissatisfaction

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1. Introduction

Health and labour market status are intrinsically linked. Health status can be separated into two mutually inclusive parts: physical conditions, that can strike in an instant and may heal quickly, and mental health conditions[4] that typically onset gradually and are long-lasting. Analyses of these links adopt two distinct perspectives: first health impacts on employment and second employment impacts on health. This study assesses the relationship between mental health conditions and labour market transitions between permanent and temporary employment.[5] With a quarter of people experiencing a mental health condition at some point in their lives and with depression affecting around one in twelve people (Mental Health Foundation, 2014), the links between mental health and the labour market should be a growing research area.

Dominant explanations of the impacts of health on employment focus on health as a medically classified condition (Oliver, 1990) and emphasise the effects of clinical factors on an individual's employment capabilities. When an individual is in employment but has a mental health condition they are known to be at risk of experiencing presenteeism[6]; this might be because people with poor mental health lack obvious outward signs and are reluctant to have to prove they are ill because of the resulting stigma (Department of Work and Pensions, 2013). However, individuals with poor mental health are also known to be less likely to be in employment: in 2004 in the UK, 74 percent of the working age population was employment but the comparable figure for people considered disabled by a long term mental illness was only 21 percent (Social Exclusion Task Force, 2006).

[4] Throughout we use the term 'condition' to refer to issues that others sometimes refer to as problems or illnesses, although mental health states can be neither a problem nor a debilitation. We retain others terminology when citing others work.

[5] Although a full analysis of all possible employment transitions is beyond the scope of this paper our methodological approach could be applied to other transitions.

[6] Presenteeism is where an employee is unwell and remains in work but is less productive. As much as 60 percent of employment related costs of mental illnesses are due to presenteeism (Sainsbury Centre for Mental Health, 2007).

A distinctly different literature emphasises the existence of the reverse association, i.e. that lower labour market status affects health. For instance, Silla *et al.* (2005) find that temporary workers experience relatively poor health outcomes and Martens *et al.* (1999) find that employees on temporary contracts, working irregular hours or working compressed working weeks report up to 40 percent more health complaints than those with non-flexible work schedules. However, Bardasi and Francesconi (2004) find no evidence that atypical employment is associated with adverse health consequences.

Hence the literature is divided on whether poor mental health affects labour market status or whether a poorer labour market status affects mental health; the literature is equally unclear about the links between mental health and changes in employment status. This article fills this gap in the literature by assessing whether deteriorating health status leads to labour market transitions or whether labour market transitions precede deteriorations in health.

The purpose of this article is to identify the temporal relationships between poor mental health and transitions between permanent and temporary employment, and thereby identify if poor mental health is a cause or consequence of this type of labour market transition. Our focus is on the transition between what many would term the best employment position – that of permanent employment – into a type of employment that is necessarily more precarious – temporary employment.

This article contributes to the literature in three ways. First, it presents an investigation into the associations between three indicators of mental health (psychological distress, psychological anxiety and life satisfaction), an overall indicator of general health and transitions between temporary and permanent employment. Second, we draw on data from the British Household Panel Survey (BHPS) to understand whether the link between employment type and health status is more of a causal outcome and/or a selection effect. If the temporarily employed are identified as having poorer mental health than those in permanent employment

then it is consistent with two mutually inclusive possibilities: (i) temporary employment generates adverse mental health effects and/or (ii) a selection effect whereby individuals with below average mental health are drawn away from permanent and into temporary employment. This is a particularly pertinent issue as Virtanen *et al.*'s (2005) review of the empirical associations between temporary employment and psychological morbidity suggests that many results may be confounded by selection bias: if the selection effect is discovered to be more prominent relative to a causal effect then cross sectional studies that present estimates of a negative influence of temporary employment on mental health status may be reporting upwardly biased estimates.

A potential confounding issue is that mental health is associated with job satisfaction, with either lower job satisfaction deteriorating mental health or worsening mental health adversely affecting job satisfaction. Thus we extend our analysis to examine the effect of job satisfaction on mental health and in mitigating any effect of employment type on mental health. This extension is conducive to policy recommendations as mental health conditions can rarely be directly affected by managers whereas job satisfaction often can.

2. Health and employment status

The literature documents the recent upsurge in and diverse range of temporary employment arrangements (see for example De Cuyper *et al.*, 2008) and some mechanisms through which workers end up in temporary employment. De Jong *et al.* (2009) acknowledge that these mechanisms are varied and heterogeneous with some being free choice whereby workers choose temporary contracts due to preferable attributes, such as greater flexibility. De Jong *et al*. also acknowledge that people may end up in temporary employment because of a lack of suitable permanent employment opportunities, and many workers may enter temporary employment with the hope that it turns into a permanent contract.

Employment influences health

Diverse employment contracts and greater employee flexibility are often sought by organizations when they adapt and learn to compete in a globally competitive environment (Nollen, 1996); it is also recognised that workers experiencing temporary and limited time contracts, who often have poorer employment protection and lower job security, can experience greater pressures to fulfil duties in shorter time periods. For instance, Hesselink and van Vuuren (1999) found that 44 percent of fixed-term workers in The Netherlands worry about job insecurity compared with only 15.5 percent of permanent contract workers. These pressures can sap energy and intensify psychological stress, and thus it is not entirely surprising that a literature has evolved which suggests that employment status affects health.

The evidence initially appears to corroborate a negative association between temporary employment and health. Temporary workers appear to experience poorer physical health, such as higher fatigue and stress levels, backache and muscular pains (Benavides and Benach, 1999) and poorer mental health, such as lower psychological wellbeing (Lasfargues *et al*., 1999). In Sweden, with temporary employees have a higher risk of both non-optimal self-rated health and psychological distress (Waenerlund *et al*., 2011). Further corroborating evidence comes from Benavides *et al*. (2000), who find workers on fixed-term contracts have worse physical health than permanent workers, and Hesselink and Van Vuuren (1999), who report higher percentages of workers on fixed-term contracts with physical health complaints than workers on permanent contracts.

Nevertheless, the effects of employment contract on health remain debatable. Part of the reason for this lack of consensus is that much of this literature tends to focus on general health issues and provides evidence using a string of data that combine physical and mental health conditions; this makes it difficult to disentangle mental and physical health conditions

from labour market status. For instance, Rodriguez (2002) finds that full-time employees with fixed-term contracts in Germany are 42 percent more likely to report poor health than those who have permanent work contracts, with similar effects not found for Britain.

The lack of clarity on the effects of employment type on health is compounded by studies which show that fixed-term workers may experience better health. Sverke *et al.*'s (2000) find fixed-term contract workers have better physical health compared to permanent workers and Virtanen *et al.*'s (2003 and 2005) studies show that non-permanent workers in Finland report better health. Similarly, Benavides *et al.* (2000) show that non-permanent employees tend to report lower work stress in a study of 15 European countries.

Health influences employment

Health may affect employment status instead of employment status affecting health. Meltzer *et al.*'s (2002) reveals that just 57 percent of people who have a common mental disorder in the UK were working, compared with 69 percent of people who did not. They also found that only 9 percent of people with a probable psychotic disorder were working full time.

This debate requires re-examination and not simply a comparison of employment states but a longitudinal analysis that captures changes in mental health and employment transitions. Only then will we be able to comprehend whether a change in mental health precedes or follows a change in employment.

Labour market transitions and health

Rather than focus on a comparison of workers in two different employment states some studies focus on the associations between health status and transitions between employment states; unfortunately there is a lack of consensus here too and it suffers from a number of limitations.

First, literature discussing effects of employment transitions on health is sparse. One exception is Robone *et al*. (2011) who find that both contractual and working conditions influence health.

Second, although some literature find changes in health status contribute to a change in employment status, the vast majority of these empirical studies examine transitions between unemployment and employment only; for example, García-Gómez *et al.* (2010) find that a worsening of mental health increases the hazard ratio of non-employment, which suggests that self-assessed measures of general health and psychological wellbeing are important predictors of employment transitions in and out of the workforce. However, Anthony *et al.* (1995) demonstrate that a diagnosis of poor mental health is not a reliable predictor of work capacity but may predict the likelihood of being in employment.

Wagenaar *et al.* (2012) corroborate García-Gómez *et al.*'s (2010) findings. They analysed of two consecutive waves of The Netherlands' Working Conditions Cohort Study and reveal evidence which suggests that emotional exhaustion and poor mental workability are associated with a subsequent downward employment trajectory. However, although using two years of data is the minimum necessary to investigate employment transitions, a longer time frame is required if the investigation is going to ensure specific temporal issues, such as a recession, are not confounding results. A strength of our approach is that the empirical research makes use of 18 waves of BHPS data and differentiates fixed term from seasonal / agency temping / casual contracts which are known to be distinct groups.

Third, it is plausible that there is no association between employment transitions and health change; for instance, Virtanen *et al*. (2003) disclose there is no change in health indicators when workers move from fixed-term to permanent jobs in Finland and Rodriguez's (2002) highlights that the health status of part-time workers with permanent contracts is not significantly different from those who are employed fulltime. Bardasi and Francesconi (2004) find no evidence that atypical employment is associated with adverse health consequences

thereby arguing that very few employment transitions appear to be the result of worsening in health outcomes. Similarly, Sverke *et al*. (2000) report that fixed-term work has no effect on wellbeing in Sweden and Artazcoz *et al*. (2005) find no association between fixed-term contracts and poor mental health in Spain. However, the paucity of studies that suggest there is no association between mental health and employment transitions may be a reflection of the tendency for journals to publish articles that report definitive empirical results.

Job satisfaction

A further potential issue is that mental health may be positively associated with job satisfaction, with either greater job satisfaction lifting mental health status or improvements in mental health leading to the ability to accrue greater job satisfaction. Such a connection is in line with the findings of Booth *et al.* (2002) who show that temporary workers in the UK report lower levels of job satisfaction.

The suggestion of a contemporaneous positive association between temporary work and job satisfaction is by no means certain: Connelly and Gallagher (2004) find evidence of equal, lower and higher levels of job satisfaction among temporary workers, relative to permanent ones. Similarly, De Cuyper and De Witte (2007) investigate the influence of employment type and volition on job satisfaction in Belgium and find permanent employment is negatively related to job satisfaction while volition is positively related. Such cross sectional evidence makes it difficult to pinpoint causal directions, and there is scant evidence from longitudinal data sources.

Although the relationship between mental health and job satisfaction may be contemporaneous it is possible that any longitudinal connection between mental health and employment transition is mitigated by the association between mental health and job satisfaction. This would lead to slightly different policy implications: for instance, if someone

suffered a deterioration in their mental health and this increased the risk they would resign then although their manager might not be able to boost their mental health they may be able to enhance their job satisfaction, which would then mean that the company would be more likely to reap the returns from any training embodied in that worker. Accordingly, this article assesses whether any dynamic association between poor mental health and employment transition is associated with job satisfaction.

Given the insufficient literature on the role that mental health may have on an individual's labour market status, this study tackles five questions that lack definitive answers: (i) Does poor mental health status have a causal influence on transitions between permanent and temporary employment? (ii) Does mental health status differ between individuals who never transit into temporary employment and those about to switch into temporary employment? (iii) Do the effects described within (i) and (ii) differ for different types of temporary employment (fixed term versus seasonal / agency temping / casual)? (iv) Are findings robust to different measures of mental health? (v) Does job dissatisfaction affect relationships between mental health and employment type?

3. Data and Methodology

We employ all 18 waves of the BHPS (1991-2008/2009), which is a nationally representative annual survey of more than 5,000 households and approximately 10,000 individuals in the UK. The BHPS contains self-reported data on a wide range of topics. Our sample is constrained to the original BHPS sample covering Great Britain, to employees that are below the state pension age (16-59 for women, 16-64 for men), who report they are currently in paid employment and who gave a valid response to the employment contract question.

In line with Booth *et al*. (2002) and Bardasi and Francesconi (2004), we partition our sample of temporary employees into two distinct groups: those holding a seasonal, agency

temping or casual contract and those with fixed term contracts. This is based on the expectation that fixed term contracts are usually of higher quality; examples would include junior doctors in the health sector and research fellows in the academic sector.

Our investigation exploits the panel nature of the BHPS. The data set allows comparisons to be made between respondents in permanent employment who never become temporarily employed (hereafter '*Nevers*') and five other groups: (i) those in permanent employment who subsequently become temporarily employed ('*Futures*'),[7] (ii) those in permanent employment who were previously in temporary employment contracts ('*Pasts*'), (iii) those who report a transition into temporary employment in the next period ('*Switchers-in*'), (iv) those who report a transit out of temporary employment from the previous period ('*Switchers-out*') and (v) those in a spell of temporary employment ('*Temps*'). These distinct groups are illustrated with an example in Figure 1 of an individual who is permanently employed and becomes a temporary worker in period *t*, and then switches out of this status a year later. It is important to comprehend the differences between *Switchers-in* and *Futures*, and likewise between *Switchers-out* and *Pasts*: *Switchers-in* are those who report a transition into non-permanent employment between periods *t* and *t*+1 whereas *Futures* are those who report further in the future a change into temporary employment. Similarly *Switchers-out* are those who report a transition out of temporary employment between periods *t*-1 and *t* whereas *Pasts* are those who report further in the past a transit out of temporary employment. The analysis is conducted separately for two samples: one that covers movements in and out of seasonal / agency / casual contracts and one that covers movements in and out of fixed-term contracts.[8]

[7] *Nevers* are identified as never being in temporary employment during the sample period. Some may enter temporary employment after the 18 year sample time-frame, in which case the tendency is to under record the extent of the mental distress difference with *Futures*.

[8] In both samples we keep only individuals that are either *Nevers* or *Futures* in their first year of occurrence in the BHPS in order to capture the whole transition process of the latter group. We exclude employees that record multiple transitions in the BHPS but recognise that future research could relax this constraint.

We use subjective information sourced from three questions to capture mental health status; these have been used in the literature by Bardasi and Francesconi (2004), Taylor *et al.* (2009) and Clark and Georgellis (2013):

1. **Psychological distress** – This uses the General Health Questionnaire (GHQ) asked at each wave. The GHQ is widely used in the medical literature as an indicator of minor psychiatric morbidity and psychological distress (Madden, 2010). It has twelve items which each have a four (from 0 – 3) point scoring system that corresponds to frequencies of specific individual feelings related to psychological wellbeing. The GHQ provides a measure of psychological distress ranging from 0 to 36 and it is standard in the literature to collapse it to a 12 point scale that captures the number of GHQ items for which the answer is either of the two points in the scoring system that correspond to low wellbeing. High scores then correspond to low feelings of wellbeing and hence a measure of higher psychological distress.[9]

2. **Psychological anxiety** – Respondents are asked in each wave: "*Do you have any of the health problems or disabilities listed on this card?*" A possible answer is "*Anxiety, depression or bad nerves, psychiatric problems*." Responses are binary and take the value of one if an individual suffers from a mental health condition related to anxiety or depression and zero otherwise.

3. **Life dissatisfaction** – In waves 6–10 and 12–18 respondents were asked: "*How dissatisfied or satisfied are you with your life overall?"* Responses were recorded on a 7-point Likert

[9] The results presented here employ the 12 point scale but are robust to using the 36 point scale.

scale ranging from ‘not satisfied at all’ to ‘completely satisfied.’ We reorder this variable so that it is decreasing in life satisfaction and retain the same range.

The correlations between the three measures of mental distress are sufficiently small to indicate that they measure different aspects of mental distress. The largest correlation is between psychological distress and life dissatisfaction (0.47) with the two remaining correlations being lower than 0.3.

We also make use of a general health indicator that permits comparison of the relationships between mental health and employment type versus general health and employment type. Specifically, we use the following information:

4. **Poor General Health** – Respondents are asked in each wave (except for 1999): “*Compared to people of your own age, would you say your health over the last 12 months on the whole has been: excellent, good, fair, poor or very poor?*” From this question, we construct a 5-point scale that is increasing in poor general health.

Descriptive statistics

The raw data reveals that individuals who have been in temporary employment at any time over the sample period tend to be female and have more dependent children in their household relative to those that do not enter temporary employment (*Nevers*). There is no obvious pattern with regard to educational attainment although *Temps* and *Switchers-out* are more likely to have university qualifications relative to *Nevers* in the seasonal, agency or casual worker category whereas *Nevers* are the group that is least likely to have university qualifications in the fixed term category. Those who experience temporary employment contracts work fewer

hours on average, relative to *Nevers*. *Nevers* are more likely to be managers and have a bonus or profit share as part of their employment contract.

Figure 2 reports percentage differences between the sample averages for each health measure for both temporary employment categories. Note that each panel corresponds to the same categories on the x-axis but have slightly different calibrations on the y-axis. The solid line corresponds to those in the seasonal/agency temping/casual sample and the dashed line corresponds to those on the fixed term sample. Relative to *Nevers*, mental and general health is better on average for individuals who never work on a seasonal, agency or casual employment contract. It is also evident that in the vast majority of cases individuals on a fixed term contract report better health than individuals on a seasonal, agency or casual employment contract. *Switchers-in* have similar or worse mental health status to *Temps*; this tentatively suggests that relatively poor mental health is not a consequence of becoming a temporary worker but may actually be present in individuals who will be in temporary employment in the immediate future.

Similar patterns of relatively poor health are not as clear for those in the fixed term contract sample. Although *Futures*, *Switchers-in* and *Temps* report a slightly worse health status than *Nevers*, this does not hold for *Switchers-out*. In many cases *Switchers-out* have no worse health than *Nevers*, suggesting that better health is associated with returning to permanent employment.[10]

[10] While we refer to transitions into temporary employment as contract type changes, the majority of them are in fact job transitions. In our sample, over 70% of individuals in their first year of temporary employment report a change in job since the previous year.

Estimation approach

Our literature review highlights that cross sectional estimates of the relationship between contract type and wellbeing generally indicate that temporary employment contracts are negatively associated with mental wellbeing. The strengths of its two possible explanations, a sorting mechanism versus a causal effect, have been examined in previous studies through the use of longitudinal data and models that control for worker fixed effects. These studies find little or no causal influence of contract type on wellbeing (Bardasi and Francesconi, 2004; Green and Heywood, 2011), which is generally interpreted as suggesting that cross-sectional estimates are biased upwards.

However, application of a fixed effects regression approach may be limited in this instance. Fixed effects regression models identify the effect of contract type on wellbeing through the analysis of transitions between temporary and permanent employment. An insignificant coefficient in a fixed effects regression may itself be the result of two distinct mechanisms: (i) a selection / sorting effect where individuals with low levels of wellbeing require temporary employment (or are more easily hired on such contracts by employers) and (ii) a causal effect where individuals leave permanent for temporary contracts due to unusually poor permanent jobs, which influences both the change in contract type and their wellbeing. If it is the former, and we initially assume that temporary contracts do indeed adversely influence wellbeing, then cross-sectional findings would be biased upwards; if the latter and if we cannot fully control in the model for working conditions and other variables capturing job quality then fixed effects models would give results that are biased downwards.

In order to circumnavigate these potentially confounding issues, we adopt a novel baseline approach by focusing on the estimates from pooled cross sectional models where the pattern of contract changes through time is identified by the series of relevant dummy variables (*Futures, Switchers-in,* etc.). Since our base category consists of individuals that never move

into or out of temporary employment (i.e. *Nevers*) our estimated coefficients offer insights on the relative strengths of the selection / sorting and causal impact explanations. Estimates will be obtained using ordered logit models for three ordered dependent variables (psychological distress, life dissatisfaction and poor general health) and a binary logit model for our dummy dependent variable (psychological anxiety).

4. Results

In all our regressions the dependent variables are mental health measures and the issue of interest is whether their values are associated with mutually exclusively defined binary indicators of employment transitions. The *Nevers* category is chosen for the transition control throughout as it captures those people who do not transition into temporary employment. Included in all regressions are a variety of control variables. Prior literature has identified factors that influence the mental health of an individual including: age, gender, marital status, education, job type and employer characteristics. In line with existing literature (Araya *et al.*, 2001; Breslau *et al.*, 2008; Lindstrom and Rosvall, 2012), all health equations include covariates to capture effects of personal and workplace characteristics and year and regional dummies. For brevity we present only the results that correspond to health and employment transitions.

Tables 1 and 2 present three columns of results relating to mental health and a fourth relating to general health. The results presented in table 1 correspond to transitions between permanent and seasonal, agency temping or casual temporary employment while those in table 2 correspond to transitions between permanent and fixed term temporary work.

The results in table 1 reveal the following. First, these coefficients estimates are almost exclusively positive, suggesting that individuals who experience a temporary employment contract are more likely to report poorer levels of mental and general health than *Nevers*.

Consistent with existing studies, our results show that *Temps* report poorer levels of psychological distress and greater dissatisfaction with life relative to *Nevers*.

Second, individuals who have recently or previously left temporary employment for permanent employment – i.e. *Switchers-out* and *Pasts* – rarely have significantly worse mental health than *Nevers*. One exception is that *Switchers-out* report greater life dissatisfaction than *Nevers*, which may reflect regret about giving up the positive attributes of temporary work, such as more leisure time and greater flexibility. The other exception is that *Pasts* report poorer general health than *Nevers*, which may reflect a physical health characteristic. In general and relative to *Nevers*, these results suggest that mental health is not significantly lower for those who have transitioned from temporary to permanent employment (*Switchers-out* and *Pasts*) and that even if temporary employment does negatively affect mental health (for which no supportive evidence was found here) then the effects are short-lived once back in permanent employment.

Third, individuals who will switch-in to temporary employment or be in temporary employment in the future report poorer health in the current period. Table 1 suggests that *Switchers-in* always report poorer mental health – including psychological distress, psychological anxiety and life dissatisfaction – and poorer general health than *Nevers*. These findings strongly suggest that poor mental health *precedes* a switch into temporary employment.

The results are similar for individuals classified as *Switchers-in* and *Temps*. The respective coefficients in the mental health regressions are not statistically different in the psychological distress and life dissatisfaction models, although *Switchers-in* have a higher probability of anxiety than *Temps*. These findings corroborate the view that seasonal, agency and casual temporary employment does not necessarily contribute to poor mental health but instead people with poor mental health are selected into these types of temporary work, either

through choice or coercion. The larger coefficients on the *Switchers-in* dummy relative to *Futures* suggest that wellbeing (in terms of psychological anxiety and life dissatisfaction) deteriorates up to and peaks at the point of transition into temporary employment.

Table 2 repeats the above analysis for those who transition into and out of fixed term contracts from permanent employment. These results are much weaker compared to the respective estimates in table 1 and highlight the heterogeneous nature of different forms of temporary employment in terms of its relationship with mental health indicators. There is some evidence that individuals with greater life dissatisfaction will switch-in to temporary employment and that individuals with poor general health will move into temporary employment in the future. There appears to be no significant and positive relationship with any of the mental health measures and *Temps*. Taken together, these results provide evidence in favour of a sorting explanation based on a negative relationship between mental health and being in seasonal, agency temping or casual employment which does not appear to exist for the potentially more secure and higher quality fixed term contract.

The final columns in tables 1 and 2 repeat the analysis for poor general health. The corresponding coefficients and significance levels for the employment type dummies are not as strong as those for psychological distress and life dissatisfaction. This may be a signal that it is mental health issues rather than general health that drive selection into temporary employment. In particular, the final column of table 1 reveals that both *Pasts* and *Futures* are more likely to have poorer general health relative to *Nevers*. Again, the positive and significant coefficients for the *Future*s and *Swithers-in* dummies corroborate the sorting mechanism explanation of the relationship between temporary employment and general health status.

Tables 3 and 4 present marginal effects estimates of the variables of interest. Estimates in table 3 suggest that the probability of belonging in the highest category of psychological distress is increased by 0.4 percentage points (or 36 percent in relative terms) for *Switchers-in*,

while the probability of reporting the lowest category is decreased by 8 percentage points (or 14 percent in relative terms) relative to *Nevers*.[11] Larger relative effects are estimated for *Switchers-in* for the other two mental health indicators, while the marginal effects for *Futures* are smaller.

Is poor job satisfaction a catalyst?

Although the results presented above are compelling they cannot distinguish between two possible sorting mechanisms. Ostensibly, individuals with poor mental and general health sort into temporary employment. However, it is unclear whether our results correspond to a standard sorting mechanism or whether individuals who are categorised as *Switchers-in* or *Futures* have experienced unusually poor permanent jobs which then influence their employment transitions and wellbeing.

Although the above regression results include controls for variables that can be thought as proxies of job quality (promotion prospects, work location, shift working etc.), it is possible to delve deeper into this issue by re-estimating the models with the inclusion of an extra explanatory variable: job dissatisfaction. Although it could be argued that job dissatisfaction itself may be an imperfect proxy, we argue in line with Green and Heywood (2011) that this variable is likely to capture the crucial aspect of each individual's perception of whether their job is poor.[12]

The job dissatisfaction variable is measured in each wave of the BHPS when respondents are asked the question: *"All things considered, how satisfied or dissatisfied are you with your present job?"* As with the life dissatisfaction measure, responses were given

[11] The relative effect is derived by dividing the average marginal effect with the estimated predicted probability reported in the first row of Table 3.

[12] We recognise that job satisfaction is likely to be endogenous in our models but we are not interested directly in the coefficient of the job dissatisfaction control but simply in its impact on the transition dummies.

using the 7 point Likert scale and rescaled so that it decreased with job satisfaction, i.e. increasing in job dissatisfaction.[13] Figure 2 also reports percentage differences between the sample averages for job dissatisfaction for both temporary employment categories relative to *Nevers*. Job dissatisfaction is better on average for individuals on fixed term contracts than on seasonal, agency or casual contracts. *Futures*, *Switchers-in* and *Temps* have poorer job satisfaction than *Nevers*.

Regardless of whether permanent workers move into a seasonal / agency temping / casual or fixed term contract, when job dissatisfaction is included in the regressions it acts as a precursor to all indicators of poor mental health and the indicator of poor general health, as shown in table 5.[14]

Inclusion of job dissatisfaction as a right hand side control reduces the magnitude of the coefficients in the psychological distress regressions. The coefficient of the *Futures* dummy in the upper panel of Table 5 is reduced by around 40 percent compared with Table 1 and moves from being significant at the 1 percent level to being significant at the 10 percent level. While the impact on psychological distress of being classed as *Temps*, relative to *Nevers*, remains significant, the coefficient drops from 0.406 to 0.276.[15] These findings suggest that accounting for job dissatisfaction acts to mitigate the impact of employment type on psychological distress for those either already in temporary employment or entering temporary work in the future. In the psychological anxiety regression, only *Switchers-in* was significant but this now becomes insignificant in table 5. In terms of life dissatisfaction, the inclusion of job dissatisfaction reduces the magnitude and removes statistical significance from the coefficients of the *Temps*, *Switchers-in* and *Future* dummies. These results add further weight

[13] The correlations between job dissatisfaction and the four health variables (distress, anxiety, life dissatisfaction and poor general health) are 0.245, 0.085, 0.332 and 0.127 respectively.

[14] As with all abbreviated results presented here, the full set of results are available from the authors on request. In table 5 we include the same control variables that were included in tables 1 and 2.

[15] As most of the variables of interest are statistically insignificant we do not report a table with the respective marginal effects.

to the argument that unhappiness in the workplace mitigates the role of employment arrangement *per se* with respect to mental health.

Sensitivity checks

A first objection to the above results concerns the probable existence of different determinants of health and wellbeing by gender (see Madden, 2010, for the psychological distress case). However, when these models are estimated for each gender separately we identify no substantial differences for any of the five variables of interest. This holds for all health measures and for both types of temporary contracts.

Second, the same questions that we answer in this article can be dealt with through the use of a different modelling procedure. Following Clark and Georgellis (2013), we constructed and entered into our health and wellbeing equations a series of lead and lag dummy variables denoting each year before and after the transition into temporary employment.[16] The results of this exercise confirm our findings presented above. For the seasonal / agency temping / casual sample, and in the majority of cases, the results for the lead variables (and mainly those closer to the year of the transition) were positive and significant, while they were also not statistically different from the variable denoting the first year into the temporary contract. The results for the fixed term contract sample were weaker than we initially identified, with most of the dummy variables of interest being statistically insignificant. Controlling for job dissatisfaction again showed that a possible sorting mechanism is related to the perceived low quality of permanent jobs among employees who change contract status: all coefficients of the interest reduced in size when job dissatisfaction was added to the models.

[16] The base category here consists of employees observed in the years long before their transition into temporary employment and *Nevers*.

4. Conclusion

Existing research suggests that lower labour market status is associated with poorer general health status (Rodriguez, 2002) but it is unclear whether poor health is associated with a subsequent transition from permanent into temporary employment or whether being in temporary employment causes poorer mental health. This article focuses on the association between mental health status (psychological distress, psychological anxiety and life satisfaction), general health and the movements between temporary and permanent employment, and identifies whether there is selection or causation between mental health status and employment contract.

Evidence is provided that permanent employees who will be in temporary employment in the future have lower levels of mental health relative to individuals who never transition into temporary employment. The strength of the relationship between employment type and mental health is similar for those in temporary employment and for those in permanent employment who will be employed temporarily in the future. We surmise that people with low mental wellbeing select into temporary employment. It is likely that cross sectional evidence of the relationship between health and employment may be an amalgam of selection and situational effects and overestimate the effect of contract type on wellbeing. These findings question whether individuals with poorer mental health choose to leave permanent employment of their own volition or whether such individuals are encouraged to leave. Future research should investigate whether *Futures* and *Switchers-in* experience higher levels of discrimination (whether real or perceived) in permanent employment.

Our second major finding is that controlling for job dissatisfaction in our regressions dampened the influence of employment type on mental health. This may imply that individuals observed as leaving permanent and entering temporary employment have lower quality jobs, where quality is proxied by job dissatisfaction. This implies that the effects of contract type

change on wellbeing may be biased downwards in fixed effects estimations. It appears that poor health influences employment contract type via a selection effect, and in part this selection process is governed by individuals who switch into temporary employment due to unhappiness in the workplace. Appropriate policy here would be for managers to focus on enhancing workers' job satisfaction as a way to ameliorate the effects of poor mental health on employment. Further research should investigate whether it is the circumstance of permanent employment and/or particular job characteristics that results in the individuals' unhappiness in the workplace.

Although this analysis has employed one of the world's most detailed longitudinal and contemporarily-relevant individual-level datasets, it is unfortunate that the dataset stopped in 2009. Further research is necessary to identify if these results hold for other countries and since the recent global recession.

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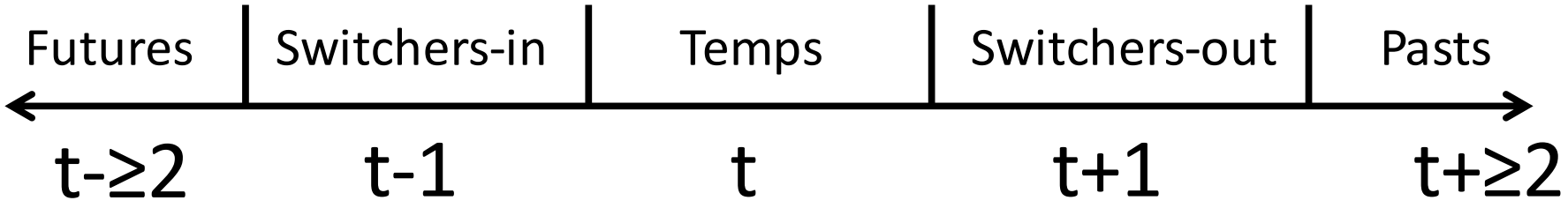

Figure 1: Transition types

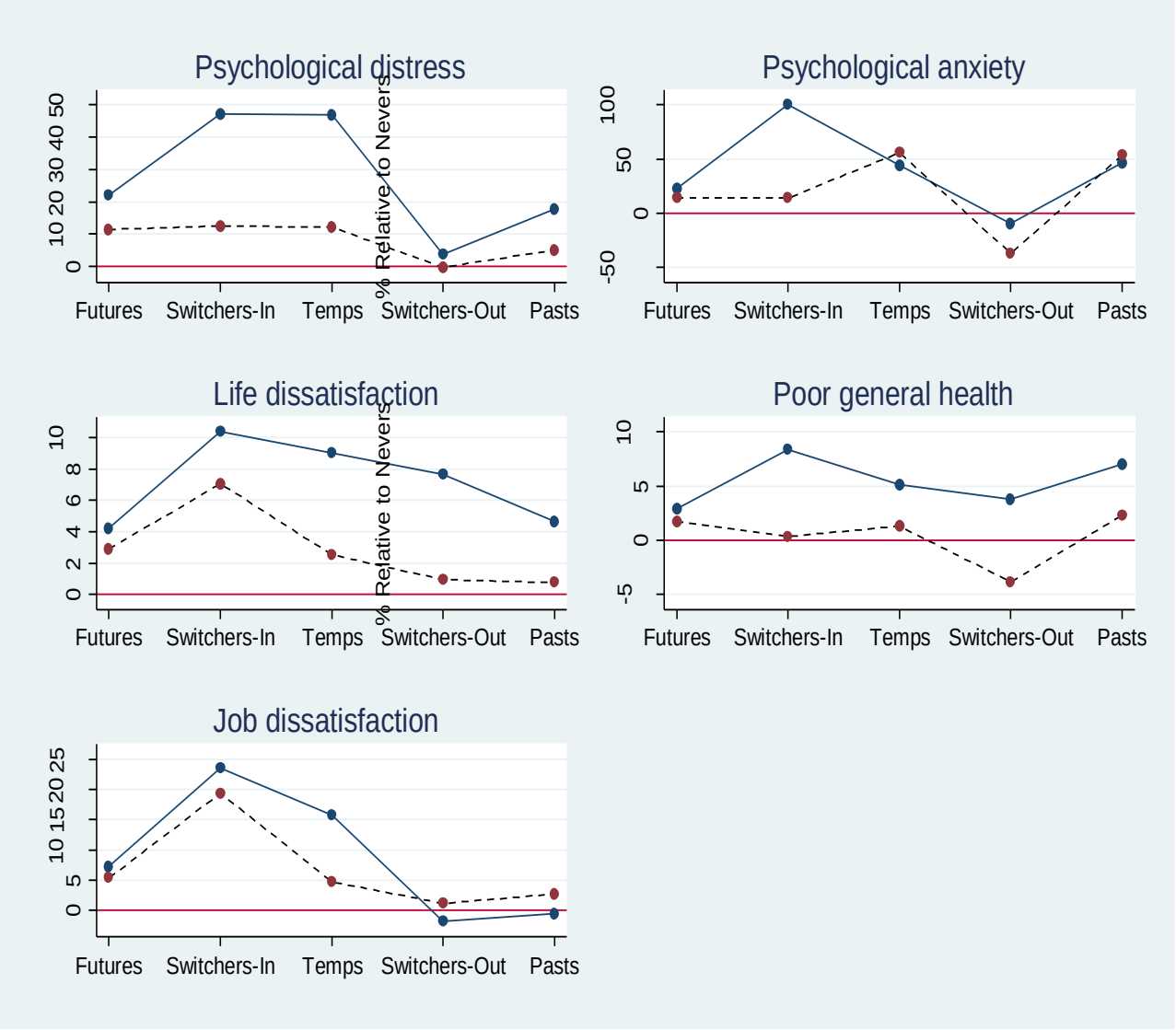

Figure 2: Differences in reported mental health and job dissatisfaction
Solid lines correspond to the seasonal/agency temping/casual sample; dashed lines correspond to the fixed term contract sample.

Table 1: Ordered and binary logistic regressions, where temporary work = Seasonal/Agency Temping/Casual

Dependent Variable	Psychological distress	Psychological anxiety	Life dissatisfaction	Poor general health
Variable	**Coefficients**			
Futures	0.206***	0.231	0.228*	0.138*
Switchers-in	0.330**	0.567**	0.389**	0.221*
Temps	0.406***	0.072	0.314**	0.020
Switchers-out	0.040	-0.419	0.259*	0.015
Pasts	0.055	0.064	0.149	0.151*
Number of observations	50,275	50,751	32,098	47,801

Note: Through all our results, all ordered logistic and logistic regressions control for repeat observations through standard error clustering correction for intragroup correlations while *, ** and *** signify statistical significance at the 10%, 5% and 1% levels respectively.

Table 2: Ordered and binary logistic regressions, where temporary work = Fixed Term Contract

Dependent Variable	Psychological distress	Psychological anxiety	Life dissatisfaction	Poor general health
Variable	**Coefficients**			
Futures	0.105	0.226	0.161	0.190**
Switchers-in	0.177	0.180	0.338**	0.059
Temps	0.033	0.320	0.097	0.022
Switchers-out	-0.098	-0.637	0.024	-0.191
Pasts	-0.033	0.326*	-0.055	0.054
Number of observations	49,985	50,452	31,944	47,521

Table 3: Predicted probabilities and average marginal effects where temporary work = seasonal / agency temping / casual

Dependent variable	Psychological distress		Psychological anxiety	Life dissatisfaction		Poor general health	
Probability of interest	P(*y* = *lowest*)	P(*y* = *highest*)	P(*y* = 1)	P(*y* = *lowest*)	P(*y* = *highest*)	P(*y* = *lowest*)	P(*y* = *highest*)
Predicted probability for *Nevers*	0.554	0.011	0.043	0.083	0.003	0.283	0.006
AMEs							
Futures	-0.050***	0.003***	0.010	-0.016**	0.001*	-0.026*	0.001*
Switchers-in	-0.080**	0.004**	0.029*	-0.025***	0.002*	-0.042*	0.001
Temps	-0.099***	0.005***	0.003	-0.021***	0.001*	-0.004	0.0001
Switchers-out	-0.010	0.0005	-0.014	-0.018*	0.001	-0.003	0.0001
Pasts	-0.013	0.001	0.003	-0.011*	0.001	-0.029*	0.001

Note: Predicted probabilities and average marginal effects are calculated over the *Nevers* sample for each model, based on the results from Table 1.

Table 4: Predicted probabilities and average marginal effects where temporary work = fixed term contract

Dependent variable	Psychological distress		Psychological anxiety	Life dissatisfaction		Poor general health	
Probability of interest	P(*y* = *lowest*)	P(*y* = *highest*)	P(*y* = 1)	P(*y* = *lowest*)	P(*y* = *highest*)	P(*y* = *lowest*)	P(*y* = *highest*)
Predicted probability for *Nevers*	0.553	0.011	0.043	0.082	0.003	0.283	0.006
AMEs							
Futures	-0.025	0.001	0.010	-0.011	0.001	-0.036**	0.001**
Switchers-in	-0.043	0.002	0.008	-0.022***	0.001**	-0.012	0.0003
Temps	-0.008	0.0004	0.015	-0.007	0.0003	-0.004	0.0001
Switchers-out	0.024	-0.001	-0.020**	-0.002	0.0001	0.039	-0.001
Pasts	0.008	-0.0003	0.015	0.004	-0.0002	-0.011	0.0003

Note: Predicted probabilities and average marginal effects are calculated over the *Nevers* sample for each model, based on the results from Table 2.

Table 5: Ordered and binary logistic regressions, with the inclusion of job dissatisfaction

Dependent Variable	Psychological distress	Psychological anxiety	Life dissatisfaction	Poor general health
		Coefficients		
Temporary work = **seasonal / agency temping / casual**				
Futures	0.122*	0.139	0.096	0.084
Switchers-in	0.085	0.383	0.086	0.100
Temps	0.276***	-0.027	0.170	-0.054
Switchers-out	0.029	-0.431	0.242	0.007
Pasts	0.052	0.056	0.158*	0.151*
Job dissatisfaction	0.385***	0.304***	0.548***	0.207***
Number of observations	50,243	50,715	32,082	47,765
Temporary work = **fixed term contract**				
Futures	0.042	0.177	0.086	0.157*
Switchers-in	-0.055	0.022	0.165	-0.056
Temps	-0.008	0.295	0.050	0.0001
Switchers-out	-0.135	-0.649	-0.015	-0.213
Pasts	-0.039	0.316*	-0.084	0.053
Job dissatisfaction	0.388***	0.310***	0.554***	0.210***
Number of observations	49,954	50,417	31,929	47,486