JRF JOSEPH ROWNTREE FOUNDATION

REPORT

DOES POOR HEALTH AFFECT EMPLOYMENT TRANSITIONS?

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This report explores the relationships between poor health and transitions between different types of employment.

Poor health is associated with low levels of participation in paid employment and therefore increased risk of poverty. The work experiences of people with poor health have been the subject of limited quantitative research, despite the fact that negative labour market experiences may well be a strong predictor of poverty.

This report:

- identifies that self-reported poor health is associated with a reduced propensity to be employed;
- finds those reporting problems with alcohol or drugs are the least likely to be in employment;
- pinpoints that employed people reporting poor physical or mental health are more likely to move from permanent to temporary work;
- ascertains that people reporting poor mental health have a significantly increased likelihood of moving from full-time to part-time work;
- recognises that qualifications can play a role in mitigating the negative impact of poor health on labour market transitions, but cannot overcome them altogether.

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EXECUTIVE SUMMARY

This study investigated the relationships between health status, employment propensity, employment status and skills. It explored whether being in poor health affects the probabilities of being in different employment types, and whether the possession of skills, measured by educational qualifications, mitigates any adverse effects associated with poor health.

The relationships between health and employment are well established, and research has demonstrated that both physical and mental health are associated with an individual's position in the labour market, which in turn is a strong predictor of poverty.

This report builds upon past JRF research by exploring the relationships between health status and the probability of being in employment, and also the quality of that employment. It explores the associations between employment and mental and physical health, separately and together, and complements existing research into health, skills and employability by analysing the relationships between health status and formal skills.

This research had two key objectives: first, to investigate the interactions between mental and physical health, formal skills and *employment propensity*, and, second, to analyse the associations between mental and physical health and skills with *employment type*. In particular, we investigate individuals' transitions between different employment statuses (including unemployment, temporary and part-time work) and the extent to which these are associated with mental and/or physical health.

Data and methods

We use survey data on individuals taken from the British Household Panel Survey (BHPS). The BHPS followed and interviewed the same adults between 1991 and 2008 and collected information about a range of self-reported socio-economic variables, including health, employment status and education.

In addition to the range of factors that are believed to influence an individual's tendency to move between different types of employment, we make use of self-assessed health variables encompassing physical *and* mental health. Much of the past literature focuses on either physical or mental health, and does not control for both. Specifically, we investigate the relationships with employment statuses of the following five health variables:

1. general health status;
2. physical health status;
3. mental health status;
4. combined physical and mental health status;
5. alcohol or drugs status.

We take advantage of the longitudinal nature of the BHPS and examine individuals' transitions between different labour market statuses. We compare groups of individuals who have self-reported good or poor health status, as measured by the five categories listed above. We estimate the probability of transition between each employment status and identify whether there is a statistically significant difference between individuals with good and poor health.

The impact of health on employment

This report demonstrates that an individual's health status is strongly and – in most cases – significantly associated with key indicators of labour market status including employment propensity, employment status (full-/part-time; permanent/temporary), wage levels and skills (as measured by formal qualifications). In brief, people who report poor physical and/or mental health are significantly less likely than those in good health to be in work, to transition from unemployment into employment, to transition from inactivity into activity, to transition from unemployment into full-time employment; they are also more likely to transition from employment into unemployment even when we control for other variables that are known to affect labour market status. This might indicate that people with poor mental health are especially vulnerable to being caught up in *low-pay/no-pay cycles* of labour market activity.

The longitudinal nature of the BHPS allowed the exploration of the extent to which different groups move between different employment statuses (employment transitions), an important indicator of labour market status that is more dynamic than the static indicators typically used in this type of analysis. The findings reveal the position in the labour market of people with poor health. For example, such individuals have a significantly greater chance than those in good health of moving out of employment and into either unemployment or economic inactivity. Conversely, unemployed people with poor mental and/or physical health have a much lower probability than average of moving into full-time employment.

Those reporting poor mental and/or physical health are more likely to transition into low-paid employment, even when the analysis controls for other variables that are known to affect labour market status, such as education and skills. This indicates they are more likely to be in jobs that are generally considered to be of lower status (in terms of pay, conditions, development opportunities and job security). While there is evidence from other studies that some people with poor health deliberately choose to enter part-time or temporary employment contracts rather than enter

full-time work, the findings suggest that there is a policy challenge to help at least some of these people to enter more secure career paths with greater development opportunities.

There is a small number of people in the sample with poor alcohol and/or drugs status. This report analyses data on these individuals and finds that their health status was also associated with a much lower propensity to move into more favourable contract types, particularly transitions into permanent or full-time employment, as well as from unemployment into employment *per se*.

As would be expected, educational qualifications are fundamental to the employment equation, and where an individual has an educational qualification the apparently negative impact of poor health on obtaining and maintaining full-time, permanent employment is reduced. However, while education is important, it appears that it is not sufficient on its own to address negative employment transitions. Poor health has a strong association with poorer employment outcomes, even when educational qualifications are taken into account.

These findings suggest that poor health is associated with the labour market status of individuals, even after other factors, such as age, gender and qualifications, had been taken into account. Policies designed to improve the labour market status of people with poor health must address the wider issues related to individuals' poor health status *per se*, as well as applying other more conventional interventions, such as training or job search support.

Conclusions and policy implications

This report demonstrates the presence of important differences in employment transition probabilities between individuals reporting poor health and those in good health. Many of these gaps remain even after other characteristics have been accounted for. This means that policy interventions aimed at addressing the relationship between health, unemployment and in-work poverty are not succeeding in breaking the link. Policies that focus solely on the individual – and do not consider structural challenges – are unlikely to make a major impact on the disadvantages that we have identified, especially among people with poor mental health. Given the association between people reporting poor health and negative labour market experiences, policy that simply focuses on shifting people with poor health from unemployment and inactivity into activity and employment is likely to be insufficient in the context of the nature and scale of the inequalities indicated here.

There is need for an independent assessment of the relative success of recent welfare reforms in helping people with poor health to access and sustain high-quality employment. Detailed policy proposals are beyond the scope of this project; however, a number of suggestions are made based on the evidence presented here.

First, the more precarious work experiences of those with poor health may be mitigated, to some extent, by educational qualifications. Certainly those with poor health and no qualifications are particularly likely to be at a disadvantage in the labour market. For these individuals, training may be particularly important if they are to succeed in the labour market.

Second, agencies concerned with assisting people with poor health into the labour market, in particular Work Programme providers, need to ensure that they have the capacity and capability to identify those with poor health,

especially those with poor mental health. These individuals are likely to be more disadvantaged in the labour market and to require a greater level of support to find and sustain good-quality work. This is likely to encompass education initiatives, intensive work preparation and in-work support when an individual finds employment.

Third, this analysis does not simply point to the need for better supply-side interventions. Overall, those in poor health find it more difficult to stay in employment than people in good health. This suggests the need for measures to address retention once in work, with a particular focus on addressing the in-work experiences of people with poor physical and mental health. Such measures are likely to include working closely with employers to help them to understand and address the issues that arise in these circumstances. This will include the promotion of workplace adjustments, support for both employers and employees, and flexible work policies to reduce the transitions of people experiencing poor health from employment to unemployment. There is a danger, however, that such measures are less likely to be available to those in poor health when they are not in permanent employment. There is a need to raise awareness among employers and Welfare to Work providers about how to identify those with poor health statuses, how to make reasonable adjustments and how to support people during transitions into work, and once in work. This may entail greater access to occupational health information and greater recognition of the role of GPs and mental health professionals in informing employer and government policies. Flexible working policies are also likely to be important.

1 INTRODUCTION

The association between poor health status and lower levels of participation in paid employment is well established. However, the in-work experiences of people with poor health have received limited research consideration, despite the fact that under-employment, low contract hours, precarious employment contracts and low pay are associated with a higher risk of poverty. This study analyses the transitions of people self-reporting poor health into and out of work, and between different work statuses.

The small amount of research that does exist in this field suggests that the relationship between work and health is complex. Pacheco *et al*. (2012a, 2012b) illustrate a complex blend of effects of health status on employment propensity and employment type. They identified that being in physical pain does *not* influence employment propensity but does reduce the probability of being in full-time or permanent employment, with people experiencing physical pain more likely to work casually. They also identified that having depression diminishes the probability of being in permanent employment but does not diminish the probability of being in full-time employment.

Understanding the types of work that people with poorer health are more likely to experience is particularly important in light of welfare reform, which is placing greater emphasis on active labour market participation for people who are able to undertake some work. This means that more people who were previously in receipt of benefits related to sickness and disability are now expected to take steps to move into work. In this context, it is vital to know more about how people with poor health are likely to fare in the labour market, what sort of jobs they are taking and whether those jobs are likely to operate as a springboard for progression to a better job or higher pay.

This report contributes to this body of evidence by undertaking new analysis of a detailed social survey that contains data on the labour market transitions and labour market experience of individuals. The data is used to compare the experiences of those in good and poor health. Throughout

this report the term 'poor health' is used to refer to individuals who identify themselves as having either a physical or mental health condition or disability (or both). We also use data on how people assess their general health overall, and whether they report drug and alcohol problems. These are broad categories that do not mirror precisely the standard definitions of ill health or disability. Moreover, the question used to create these categories is not asked in such a way as to enable a distinction between individuals experiencing poor health and those who have a disability. These caveats should be borne in mind throughout the report. Nonetheless, defining poor health in this way enabled this study to access and analyse a rich source of longitudinal data on individual labour market transitions contained in the BHPS. The definition is also not constrained by the legal definition of disability, which takes a medical model approach. The definitional issues that arise as a result are discussed in more detail in section 3, along with a more thorough description of the methodology.

This report provides a careful quantitative analysis of the working patterns of people self-reporting good and poor health. As such, it provides a critical context for future in-depth analysis of the qualitative labour market experiences of people with poor health in the contemporary labour market, relative to people reporting good health. This research had the following key aims:

- to investigate the interactions between mental and physical health and formal skills;
- to analyse the influences of mental and physical health and skills on employment type and employment propensity.

The objectives of this research were to explore:

- the nature of the relationships between labour market participation and poor health;
- the effect of poor health on employment propensity;
- the impacts of poor health on labour market transitions; and
- the impacts of skills on access to employment of people reporting poor health.

2 REVIEW OF THE LITERATURE AND POLICY CONTEXT

Research has tended to focus on the negative impact of disability and ill health on labour market outcomes, in particular on levels of employment (see for example Blackaby *et al*., 1999; Kidd *et al*., 2000; Meltzer *et al*., 1995; Waddell and Burton, 2006). This is important, given that being out of work is associated with a higher risk of experiencing poverty. Nonetheless, individuals' in-work experience, in terms of the quality of their employment, has tended to be overlooked.

There is an emerging debate about 'good' versus 'bad' jobs, but much of the evidence to date has focused on the US. This research contrasts 'good' jobs that offer higher wages, opportunities for progression, training and development and secure employment, with 'bad' jobs, characterised as dead-end and precarious, paying minimum wages and contributing to a growing population experiencing in-work poverty (Kalleberg, 2011). This is sometimes also referred to as the secondary or peripheral labour market (Tomlinson and Walker 2010).

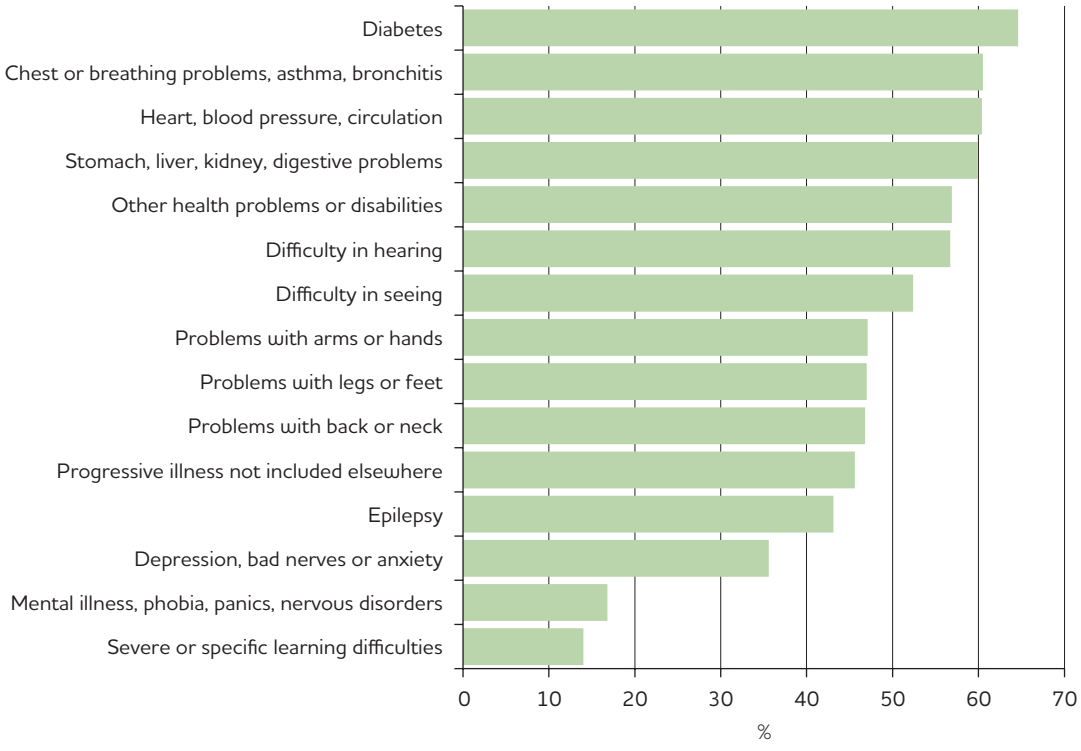
There is a growing body of evidence that the labour market experiences of people self-reporting a variety of health conditions are characterised not only by long-term unemployment, with the majority being inactive, but also by marginalisation in the secondary labour market (Labour Force Survey, 2008).

By its nature, health is hugely complex and difficult to define. Although they remain a subject of significant theoretical debate, definitions of health are dominated by medical approaches, where health is typically conceptualised as the 'absence of disease'. This is despite attempts by the World Health Organization to incorporate a 'subjective' definition of

health, which, it suggests, is 'a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity'.[1] As much controversy in the literature illustrates, health is related to but differs from other complex health ideas, such as illness, disease, impairment and disability, all of which have clear political and social components.

Over the ten years from 2002 to 2012, the likelihood of people in poor health or with a disability being employed increased, despite the economic downturn of recent years. Nevertheless, people in poor health remained significantly less likely to be in employment than people in good health. To take disability as an example, in 2012, 46.3 per cent of working-age people who were classified as disabled were in employment compared to 76.4 per cent of working-age non-disabled people (Labour Force Survey, 2012). This picture differs depending on the type of impairment that people experience, as shown in Figure 1. The most striking evidence is that those with mental illnesses and learning difficulties fared particular poorly in the labour market, with employment rates of 17 per cent (for mental illness) and 14 per cent (for learning difficulties) in 2012, and this was at their highest point compared to previous years. They are followed by those with what could be termed the more common mental health problems, such as depression, where the employment rate also falls to 35 per cent, significantly lower than the rate for those with physical disabilities or conditions. There are clearly differences in the labour market outcomes between disabled and non-disabled people (see Jones *et al.*, 2006).

Figure 1: Employment rate among disabled people by types of impairment (total) for all aged 16–64 in Great Britain[2]



Data source: Labour Force Survey, Quarter 2, 2012 (http://odi.dwp.gov.uk/disability-statistics-and-research/disability-equality-indicators.php)

Poor health, disability and welfare reform in the UK

The relationships between poor health, poverty and labour market inequality have become an important policy focus for successive UK governments. This section outlines major relevant welfare reforms, including those undertaken by the previous government as well as those planned by the current coalition government.

Barnes *et al.* (2010) highlight a significant increase in the number of people claiming sickness related benefits in the previous three decades. These findings are corroborated by the Black Review (2008), which highlighted that over 2.5 million people were claiming incapacity benefits, a caseload that grew by 600,000 each year. The report highlighted that many of these claimants could have maintained and progressed in their jobs with the right support. Similarly, where claimants were joining from Jobseekers Allowance or Income Support, with the right support some would still be able to work (Black Review, 2008).

This trend is of economic and social concern, especially as a prolonged period on benefits can be damaging to well-being and lead to detachment from the labour market (Kemp and Davidson, 2007), and being in employment is generally associated with better health (Waddell and Burton, 2006).

In response to the evidence on the relationship between poor health and poverty, successive governments have focused on welfare reforms designed to encourage active participation in the labour market. This has focused on paid employment as the prime route out of poverty and enhancing people's employability (Bradshaw *et al.*, 2013). Drake (2000) emphasises that while the government's desire is to help people with poor health into work, it was clear that they also want to cut costs and reposition employment as the central component of achieving personal independence.

Central to these reforms has been a focus on supporting more people claiming benefits related to sickness and disability to move into work where they are able to. This began under the New Labour administrations, with voluntary programmes like New Deal for Disabled People and the Pathways to Work Pilots. Evaluations of these programmes suggest that they helped more people with poor physical health into work than those with poor mental health, but overall their success was limited (Bailey *et al.*, 2007; Stafford *et al.*, 2007). Bewley *et al.*'s (2007) study of the impact of Pathways to Work revealed that some people with poor mental health were helped into work, but this effect could not be attributed to any aspect of the Pathways provision: 'It was not possible to detect a statistically significant effect of Pathways on the employment or self-reported health of those whose main health condition at the time they were first interviewed involved mental illness' (2007: 82). These voluntary programmes were subsequently replaced by Employment Support Allowance, under which the entire Incapacity Benefit caseload will ultimately be assessed for their capacity to work, with those assessed as capable of some work expected to undertake work-related activity or actively seek work, depending on their capabilities.

Reform continued under the current coalition government with the creation of the Work Programme for the long-term unemployed. This was a major new payment-for-results welfare-to-work programme launched across the UK in 2011 (Bradshaw *et al.*, 2013), where private and voluntary sector providers offer personalised support to job seekers and are paid on the basis of sustained employment outcomes. Full payment is received only once a job seeker has sustained employment, with higher-level payments available for those job seekers Department of Work and Pensions (DWP)

regards as harder to help. However, there are concerns that these incentives are not operating effectively and that the Work Programme is not working effectively for more disadvantaged job seekers, such as those experiencing poor health or disabilities (Work and Pensions Select Committee, 2013).

Further changes by the current government have included the introduction of Universal Credit. The detail of Universal Credit is outlined elsewhere (see Bradshaw *et al*., 2013) but, importantly for this report, Universal Credit introduces levels of conditionality that are described as the toughest yet (Bradshaw *et al*., 2013). A major concern, as outlined by a JRF review of the evidence, is that while sanctions can result in higher employment entry rates, earnings are likely to be lower and jobs more unstable, often resulting in a quick return to unemployment (Griggs and Evans, 2010).

Overall, the welfare-to-work regime for people claiming benefits related to sickness and disability has involved 'a growing emphasis on supply-side measures, a focus on benefit reforms to make work pay, increased activation via compulsory participation in schemes and conditionality, more individualised support packages, greater involvement of the private and voluntary sectors, and increased emphasis on early intervention in the sickness absence process' (Barnes *et al*., 2010).

Turning to qualification levels, there is a positive story to tell. Focusing on those with a disability, overall, educational attainment for this group has improved over the past 10 years and there has been a reduction in the percentage of people with no qualifications. Nonetheless, the proportion of people with no qualifications remains considerably higher compared to the non-disabled population. Furthermore, it is not clear whether this increase in qualification levels has been associated with commensurate improvements in labour market participation. There is evidence that the stated aim of reducing inactivity among individuals reporting a variety of health conditions is being achieved, and inactivity rates have fallen consistently since 2002, from 52 per cent in 2002 to 44.6 per cent in 2012.[3] While this may appear encouraging, and despite overall increases in employment rates, it is clear that the majority of this movement from inactivity is into unemployment.

While the emphasis of welfare reform has been on addressing supply-side barriers to people moving into work, the Disability Discrimination Act (DDA) did also address the role of employers. Importantly, it obliged employers to make 'reasonable adjustments' to the physical workplace environment or to employment arrangements to enable disabled people to work or continue working. Consequently, the legislative responsibility of employers went beyond simply accommodating people with disabilities to actively enabling their participation through workplace adjustment.

However, the focus on paid employment as a solution to poverty is problematic if available or obtained employment is low-paid, precarious and of low quality. This may be particularly salient for people in poor health. The UK has experienced an increase in the polarisation of the quality of employment during the current economic crisis (Kalleberg, 2011). Bradshaw *et al*. (2013) highlight that while unemployment did not reached the levels anticipated at the beginning of the downturn, this was initially achieved through an increase in part-time and non-standard employment. In terms of activation policies, such as the Work Programme and conditionality, if people are to be supported to make the transitions expected of them, it is essential to better understand their labour market experiences. This study therefore fills an important gap in the literature by analysing the transitions of people reporting poor health into and out of the labour market, and their experiences while in work.

3 RESEARCH METHODS AND DATA

This section outlines the dataset, the main variables and the research methods employed in this report.

This research study sources data from the BHPS, a national representative panel survey of approximately 5,500 households containing around 10,000 individuals, sampled in 1991 and followed until 2008. This enables a longitudinal analysis of individuals' experiences in the labour market.[4] The original BHPS sample, which is the one that is used here, was designed to be representative of the population of Great Britain (south of the Caledonian Canal). The analysis that follows is restricted to working-age people only (16–59 for women, 16–64 for men).

The aim is to present an assessment of the relationship between health status and employment outcomes (labour market status, contract type, activity and pay level). Much of the existing literature has investigated the roles of *either* physical *or* mental health in relation to labour market outcomes. Based on the wealth of relevant health information in the BHPS, this study presents evidence for the impact of both physical *and* mental health (both individually and in combination) on labour market outcomes. By utilising the longitudinal nature of the dataset, this study was able to present a detailed examination of the differences in labour market transitions between people with good health and people with poor health. It also examined the interactions of skills (measured by the existence of formal educational qualifications) and health status on employment propensity and employment type.

Definitions and main variables

The BHPS does not contain relevant data to enable the researchers to utilise standard definitions of ill health and disability. But the survey does offer a range of self-reported measures of health. This study used these measures to create definitions of good and poor health which were used throughout the analysis. This section describes the variables constructed and compares them to the standard definitions such as those used in the DDA.

In the BHPS, respondents are asked to assess their own health over the past 12 months when compared to their age-specific peer group (general health status, see below). It measures people's self-reported functional limitations and codes them into work-limiting, day-to-day life-limiting, or both, based on the question 'Does your health limit your daily activities compared to most people of your age?', hence the respondents inform the surveyors whether they are in good health or poor health relative to their peers. This is the question that is most closely aligned to the official definition of disability. Therefore, the primary measure of disability in the BHPS is subjective and self-assessed, and its impact on work and daily activities is assessed by the individual, with no reference to standardised or universal values or scales.

Self-assessed health measures have been widely used in previous studies regarding the relationship between health and socio-economic status (see, for example, Contoyannis and Jones, 2004). Furthermore, self-assessments link to the definitions employed by the DDA 1995 and have proved useful in existing labour market analysis (see, for example, Acemoglu and Angrist, 2001; Kidd *et al.*, 2000). One of the central principles of the DDA is the concept of equal treatment for all and therefore the Act attempts to provide collective definitions of different disabilities. Changes in the DDA removed the requirement set out in the original Act that a mental illness must be 'clinically well-recognised' before it can amount to a mental impairment. However, at the heart of the framework of the DDA is the same medical definition of disability, which includes:

- the requirement to prove that an illness has a long-term effect, which is defined in Schedule 1 of the 1995 Act and the Code of Practice produced by the Disability Rights Commission as an impairment that 'has lasted, or is likely to last, for at least a year';
- impairment, as defined, must also have a substantial adverse effect on normal day-to-day activities.

Based on requirements set out by the DDA and continued under the Equality Act 2010, there is the strong possibility of inequity in coverage due to the requirement of individuals to meet strict criteria before they are protected from discrimination. This is particularly problematic in the case of those experiencing poor mental health, as these definitions fail to recognise its periodic and recurrent nature. In the context of the DDA normal day-to-day activities are defined largely in physical terms and yet physical activities may not be affected by mental health. These definitions fail to take sufficient note of the kinds of difficulties people with poor mental health face, such as psychiatric impairment affecting behaviour, social interaction, relating to strangers and communication. As such, variables rooted in the DDA do not capture all people experiencing poor health who might have negative experiences in the labour market.

It is, therefore, also important to examine those who self-report poor mental health but are not classed as disabled under the DDA or the BHPS definition outlined above. This represents an important group, as labour force discrimination experienced within this group is perhaps the most prevalent, even though it cannot be explained away as the result of lack of abilities or the presence of physical barriers, perhaps associated with poor health. As a result, the analysis presented here does not make use of the question about whether health limits daily activity. Rather it mainly uses the final measure provided by the BHPS, namely the variable measuring specified poor health 'problems'.[5] Participants are directly asked (see also Table 1 below):

'Do you have any of the health problems or disabilities listed on this card...'

To date, research has not taken sufficient account of these sorts of self-reported measures. As Oliver (1992) and Oliver and Campbell (1996) have argued, it is not the disability that is the sole cause of problems in the lives of people with impairments, but society itself, in terms of people's attitudes and such things as building design and transport provision. Moreover, a health problem or impairment can limit activities in some environments and not in others (see also Barnes and Mercer, 1997; Crow, 1996; Priestley, 2000; Riddell and Watson, 2003; Zarb, 1998). As a result, Burkhauser *et al.* (2002) conclude that work-limiting and daily-activity-limiting definitions are not ideal, although they can be useful in monitoring labour market trends. Instead, this final BHPS question enables researchers to identify specific types of poor health and it is not restricted to a disabled sample. We are able to distinguish 12 categories of poor health, which can be associated with problems or disabilities. In this analysis, these categories are reported collectively as 'poor health', indicating the self-reporting of a health problem or disability, and 'good health', indicating no reported health problem or disability. This does not relate to the severity of illness, rather, the presence of particular health issue, problem or disability (Cohen, 2008).

It is important to note that here the term 'disability', as used in the BHPS, is also medical in that it refers to the presence or otherwise of an illness, problem and/or condition, all of which have clear medical connotations. However, given the limitations emphasised above regarding the definition of disability and the medical definitions at the heart of both the DDA and consequently the BHPS, the definition adopted here incorporates all individuals who self-report some form of health issue, problem or disability. An inclusion of all those reporting health problems, irrespective of their legally defined disability status, is vital if we are to understand fully the extent and nature of the labour market participation and the relationship between health and poverty.

Table 1 provides the list of the health conditions/disabilities that can be reported in this BHPS question. We cluster these into larger variables so that the analysis captures four health variables for use in the analysis. These new variables are described below and are all coded as binary indicators, with the value of 1 (one) corresponding to an individual reporting poor health for that particular health trait and equal to 0 (zero) where an individual does not report having that particular poor health status. Along with these health

Table 1: Health measures in the BHPS

Do you have any of the health problems or disabilities listed on this card?	
a)	Problems connected with arms, legs, hands, feet back or neck
b)	Difficulty in seeing
c)	Difficulty in hearing
d)	Skin conditions/allergies
e)	Chest/breathing problems, asthma, bronchitis
f)	Heart/high blood pressure or blood circulation problems
g)	Stomach/liver/kidneys or digestive problems
h)	Diabetes
i)	Epilepsy
j)	Migraine or frequent headaches
k)	Alcohol or drug related problems
l)	Anxiety, depression or bad nerves, psychiatric problems

status variables, an additional dummy variable measuring subjective general health status is also used. Hence, the variables we construct and use as indicators of poor health status are the following:

1. *General health status*. This is derived from the BHPS question that asks: *'Please think back over the last 12 months about how your health has been. Compared to people of your own age, would you say that your health has on the whole been: a) excellent, b) good, c) fair, d) poor and e) very poor?'* Following Bardasi and Francesconi (2004), answering d or e indicates poor general health. It should be noted that this question is unavailable in Wave 9 (1999) of the BHPS.

2. *Physical health status*. This is derived from the following BHPS question (Table 1): *'Do you have any of the health problems or disabilities listed on this card?'* It takes the value of 1 (one) if the individual indicates any of these conditions/disabilities: a) problems with arms, legs, hands etc., b) problems with sight, c) problems with hearing, d) skin conditions, allergies, e) chest/breathing problems, f) heart/blood pressure problems, g) stomach, liver, kidneys or digestion problems, h) diabetes, i) epilepsy, and/or j) migraines/headaches; otherwise this variable takes the value of 0 (zero).

It should be noted that while some of these health conditions, such as skin conditions, allergies (e.g. hay fever) and migraines, might seem relatively unimportant, they can limit the amount and the types of work individuals are able to undertake. Having a poor health status can restrict employment options, make people less employable, reduce their productivity, reduce the incentive to find employment and/or the material rewards from employment. In view of this, we include these seemingly less important conditions in our definition of physical health problems; note, however, that all the results presented in the next sections are similar to those we get once we exclude these conditions from our definition of physical health problems.

3. *Mental health status*. This is derived from the BHPS question in Table 1 and takes the value of 1 (one) if the individual indicates having anxiety, depression or psychiatric problems, and is equal to 0 (zero) otherwise.

4. *Physical and mental health status*. This variable takes the value of 1 (one) if the individual indicates *both* physical *and* mental health problems as above. A value of 0 (zero) is assigned if the individual has poor physical health only, poor mental health only or if (s)he self-reports being in good health.

5. *Alcohol/drugs status*. This is derived from the BHPS question in Table 1 and takes the value of 1 (one) if the individual indicates having alcohol and/or drugs problems and 0 (zero) otherwise.

Hence, with reference to Table 1, traits a) to j) are subsumed into the physical health status variable; trait k) forms the alcohol/drugs status variable and trait l) forms the mental health status variable. The general health status variable can be used in addition to the standard physical and mental health conditions listed in Table 1.

The key self-reported employment outcome variables in our analysis are: employment status (employed, unemployed or inactive), employment type (holding a full- or part-time job, being on a permanent or temporary contract) and low pay (being paid less than two-thirds of the median hourly wage).

The importance of skills is examined using a dichotomous variable

indicating whether the respondent self-reports having no formal educational qualifications. It should be noted, however, that this is an imperfect proxy for skills, since it does not capture any lifelong learning, on-the-job training or a range of often unmeasurable qualities known to affect employment propensity, such as cognitive skills. Nonetheless, following standard practice in the relevant literature, this is the variable used as a basic skills indicator.

It is assumed that some of the employment outcomes or skills outlined above are more favourable or of a higher quality than others and the aim of this study was to show how they differ between people reporting good and poor health statuses. Although this makes sense for outcomes such as being in employment or unemployment, holding a low-pay job and having no qualifications, it is not a valid and straightforward assumption when it comes to employment indicators such as working part-time or on a temporary contract. These labour market conditions can be the outcome of an informed choice and research suggests that people sometimes prefer such working arrangements. However, many commentators (see for example Kalleberg, 2011 and Bradshaw *et al.*, 2013) categorise these latter conditions as indicators of *precarious* employment on the basis that they are usually associated with poorer working conditions relative to permanent, full-time jobs (e.g. in the form of hourly wage 'penalties' and being less likely to receive work-related training). In light of this, *precarious* employment may be used interchangeably with *poor-quality* employment in what follows, with the above caveats kept in mind.

Research methods

Using the BHPS 1991–2008 data, this analysis provides an evidence base for the issues at hand and contributes to knowledge of the interrelationships between health status, skills and employment. The quantitative exploration proceeded through three stages.

The first stage (section 4) described the individuals in the dataset and focused on the differences in employment status, demographics and job characteristics between people with and without self-reported good health. This section, thus, provides a picture of how health is distributed across the British working-age population.

Section 5 presents the main results of the research. Using the panel dimension of the BHPS, the yearly transition probabilities/rates between different employment statuses are estimated, split by health status. The aim here is to investigate the extent to which people reporting poor health exhibit less favourable transitions than people in good health. In other words, this part of the analysis tests the hypothesis that poor health status is associated with an increased likelihood of entering more precarious employment types and conditions, and/or exiting more favourable employment types. The differences in the transition probabilities of the two (good and poor) health groups are ascertained using simple statistical tests to determine their statistical difference from zero.[6] More detailed analysis is also carried out using multivariate regression models to check whether the differences between the two groups can be explained by other characteristics, such as their age or educational attainment.[7]

Section 6 examines the issues of skills in more detail and considers how educational qualifications affect the above-mentioned transitions for people self-reporting either good or poor health. Education (and/or training) can be thought as a mediating factor that potentially weakens the adverse relationship between poor health and labour market outcomes.

4 CHARACTERISTICS OF PEOPLE REPORTING GOOD AND POOR HEALTH

This section of the report presents a comparison of the labour market and socio-demographic characteristics of people with good and poor self-reported health statuses. This is in order to establish whether people who self-report good or poor health have different characteristics that might affect their labour market transitions.

Sample size

The dataset contains observations for 15,859 people between 1991 and 2008, with each person observed on average for over eight years. The maximum possible number of person-year observations is equal to 127,794, but due to missing observations for each variable the actual number of observations varies from one table to the next. This can be illustrated in Table 2, which shows that at least 369 (127,794 minus 127,425) people did not respond to each specific health question.

Summary statistics

Of particular interest are the different proportions of respondents who stated that they had poor physical and/or mental health. Table 2 illustrates that, over the entire period, 48 per cent of respondents stated that they had poor physical health at one point in time. At first sight this could be perceived as a surprisingly high percentage, but once we appreciate that this variable includes things like skin conditions, allergies and migraines then

Table 2: Percentage of people with poor health and sample sizes

Health status	Percentage of sample reporting poor health	Obs.	Number in poor health	Number in good health
General health status	7.5	120,463	9,001	111,462
Physical health status	48.0	122,319	58,768	63,551
Mental health status	6.7	127,425	8,593	118,832
Physical and mental health status	4.6	126,675	5,885	120,790
Alcohol or drugs status	0.5	127,425	634	126,791

Source: BHPS 1991–2008 and authors' calculations.

the percentage becomes intuitively reasonable. As noted above, all results presented in the rest of this report are robust to the exclusion of these health conditions from the definition of poor physical health.

A smaller proportion (6.7 per cent) of respondents reported that they suffered from poor mental health, and just under 70 per cent of these reported that they had both poor mental *and* physical health (4.6 per cent of the entire sample) in the same year. Table 2 illustrates that about 1 in 200 people indicated that they had a poor alcohol/drugs status.

Socio-demographic and labour market differences

The next stage is to identify whether there are differences in labour market status and socio-demographic characteristics between people who self-report good or poor health status. Table 3 presents these descriptive statistics and begins to illustrate the differences in labour market conditions that are experienced according to health status. This table has five groups of columns corresponding to each of our indicators of health status. Each of these groups of columns has three sub-columns where, according to this specific health type, the first column presents the descriptive statistics for individuals who state that they are in good health, the second column presents the statistics for individuals who state that they are in poor health and the third column indicates whether there is a significant difference between the preceding two columns. For example, the top left-hand of the table corresponds to whether individuals are employed and whether they are in good or poor health according to the general health measure; 74.4 per cent of those in good general health are employed whereas only 42.4 per cent of those with poor general health are employed; this 32 per cent gap between the sample means is statistically significant and the positive sign suggests that having good general health is associated with being employed.

Those respondents stating that they have poor general health are also more likely to be unemployed than those saying they have good general health (5.9 per cent vs. 4.6 per cent). Of course, it is unclear whether individuals with poor health are less likely to want to be in employment (supply-side issue) or whether individuals with good health are preferable as employees relative to individuals with poor health (demand-side issue).

Individuals with poor general health are older on average than those in good health, live in households with a lower monthly income and earn a lower hourly wage when employed. Although there are no significant differences between individuals in good and poor health in the incidence of permanent employment among those employed, individuals in poor health are more likely to be in part-time employment (i.e. working less than 30 hours per week).

Table 3: Averages (Means) by type of health status

	General health			Physical health			Mental health			Physical and mental health			Alcohol and drugs		
	Good health status	Poor health status	Difference	Good health status	Poor health status	Difference	Good health status	Poor health status	Difference	Good health status	Poor health status	Difference	Good health status	Poor health status	Difference
Labour market status															
Employed	74.4%	42.4%	+ ***	75.4%	69.3%	+ ***	73.7%	49.3%	+ ***	73.4%	47.9%	+ ***	72.2%	34.2%	+ ***
Unemployed	4.6%	5.9%	– ***	4.7%	4.8%	0	4.5%	6.6%	0	4.6%	5.9%	– ***	4.6%	21%	– ***
Active	79.0%	48.4%	+ ***	80.1%	74.1%	+ ***	78.2%	55.9%	+ ***	78%	53.8%	+ ***	76.8%	55.2%	+ ***
Active (excl. long-term sick/ disabled from sample)	80.5%	69.0%	+ ***	80.5%	79.6%	+ ***	80.5%	70.8%	+ ***	80.4%	70.2%	+ ***	79.9%	81.4%	0
Socio-demographics															
Married	68.0%	67.9%	0	64.9%	71.2%	– ***	68.3%	63.7%	+ ***	68.2%	64.4%	+ ***	68.2%	40%	+ ***
Number of children	0.64	0.59	+ ***	0.67	0.60	– ***	0.64	0.63	0	0.64	0.60	+ ***	0.64	0.38	+ ***
Age	37.2	41.4	– ***	34.9	40.1	– ***	37.3	41	– ***	37.3	42.2	– ***	37.5	36.6	+ *
Household income per month (*in 2005 £*)	3032.2	2278.3	+ ***	3100.5	2850.7	+ ***	3020.6	2307.5	+ ***	3011.8	2268.7	+ ***	2978.3	1895.3	+ ***
Education															
Degree	14.5%	7.2%	+ ***	15.0%	12.8%	+ ***	14.2%	10.5%	+ ***	14.1%	10.3%	+ ***	13.9%	10.2%	+ ***
Further education	27.3%	24.2%	+ ***	26.6%	27.5%	– ***	27.2%	25.7%	+ ***	27.2%	25.7%	+ **	27.1%	22.1%	+ ***
A-levels	14.4%	11.7%	+ ***	15.7%	12.9%	+ ***	14.4%	10.8%	+ ***	14.4%	10.2%	+ ***	14.2%	13.1%	0
GCSEs and/or O-levels	21.2%	17.6%	+ ***	22.1%	19.9%	+ ***	21.1%	18.1%	+ ***	21.1%	17.6%	+ ***	20.9%	20.9%	0
Other qualifications	8.5%	10.1%	– ***	8.3%	9.0%	– ***	8.5%	10.1%	– ***	8.6%	9.6%	– ***	8.6%	7.7%	0
No qualifications	14.2%	29.3%	– ***	12.3%	18.0%	– ***	14.5%	24.9%	– ***	14.6%	26.6%	– ***	15.2%	26%	– ***
Among employed only															
Full-time	80.4%	76.6%	+ ***	82.3%	78.7%	+ ***	80.8%	68.6%	+ ***	80.7%	68.3%	+ ***	80.3%	80.2%	0
Normal weekly working hours	36.1	34.9	+ ***	36.6	35.6	+ ***	36.2	32.9	+ ***	36.1%	33%	+ ***	36%	36.3%	0
Among employees only															
Permanent	94.4%	94.4%	0	94.4%	94.4%	0	94.5%	93.5%	+ **	94.5%	93.7%	0	94.5%	80.2%	+ ***
Hourly wage (*in 2005 £*)	9.4	8.2	+ ***	9.4	9.2	+ ***	9.3	8.4	+ ***	9.3	8.5	+ ***	9.3	8.7	0

Notes: + indicates a positive difference, – a negative one, 0 a not statistically different from zero difference. Asterisks refer to results from two-tailed *t*-tests of the null hypothesis that the difference between the two means is equal to zero (* H0 rejected at the 10% significance level; ** at 5%; *** at 1%).
Source: BHPS 1991–2008 and authors' calculations.

There is an association between education and poor health across all health indicators, with individuals in poor health being more likely to have lower educational credentials. Relative to those in good health, individuals in poor health are also more likely to have other qualifications and are much more likely to have no qualifications.

The gap in employment propensity is smallest for those with and without good physical health (75.4 per cent vs. 69.3 per cent); a similar observation can be made concerning the average monthly household income. Contrary to the general health measure, having poor physical health has no significant associations with being in unemployment or in permanent employment given that the individual is employed, and the hourly wage penalty is much smaller.

The labour market disadvantage associated with poor mental health is more pronounced than for poor physical health, and having poor mental health is associated with a larger penalty on employment status (49.3 per cent vs. 73.7 per cent). As with general health, individuals reporting good mental health often achieve higher educational credentials, while individuals with poor mental health are associated with a greater likelihood of having no qualifications (24.9 per cent vs. 14.5 per cent). The associations between earnings and poor mental health are similar to the associations for poor general health, with average monthly household income penalties of about £713 for those with poor mental health and an income penalty of about £754 for those with poor general health; similar penalties are experienced for hourly wages too.

The descriptive statistics for those who report poor physical *and* mental health are qualitatively very similar to those reporting poor mental health only. This suggests that having poor mental health may dominate the effect of having poor physical health in the labour market.

Finally, there seems to be a substantial labour market disadvantage for those reporting that they have poor alcohol/drug status. Those with poor alcohol/drug status have a 50 per cent lower employment incidence and a five-fold greater probability of being unemployed (21 per cent vs. 4.6 per cent). When they are employed, they are much less likely to be in permanent employment (80.2 per cent vs. 94.5 per cent). They live in households with relatively low monthly incomes (£1,895 pm vs. £2,978 pm), are more likely to have no qualifications and less likely to have qualifications above A-level relative to individuals with a good alcohol/drug status.

Section summary

This section presented a description of the employment and socio-demographic characteristics of the individuals in our sample, focusing on the differences among individuals with self-reported good and poor health statuses. Somewhat surprising was that 48 per cent of respondents who stated that they had poor physical health at a point in time. However, once we appreciate that this variable includes things like skin conditions, allergies and migraines then the percentage becomes intuitively reasonable.

People with poor health appear more disadvantaged in the labour market relative to people with good health, something that is particularly evident among people with poor mental health. Individuals self-reporting poor health are less likely to be employed, more likely to be unemployed, more likely to be inactive, more likely to work part-time, while they earn lower wages when employed.

With respect to demographic and job characteristics, people with poor health appear to differ substantially from people with good health. An

important difference is the lower educational qualifications of people with poor health.

In the cases of people with poor general or poor mental health, there is a growing body of evidence that their labour market experiences are characterised by unemployment and marginalisation in the labour market. The association between poor health and relatively poor labour market outcomes is supported through the descriptive analysis above. The next step in our analysis is to investigate the labour market transitions of individuals conditional on their health status.

5 HEALTH AND LABOUR MARKET TRANSITIONS

Using the longitudinal element of the BHPS this section examines the yearly transitions between different labour market states. The sample is split according to whether individuals self-report good or poor health, as measured by each of the five health variables used in the analysis. Specifically, the probability of transition between each employment state is estimated, and whether there is a statistically significant difference between individuals with good and poor health is identified.

The main question answered in this section is the following: given an individual's employment state in the previous period, what is the probability they will be in a specific employment state in the current period and how does this probability differ between people reporting good and poor health? A statistically significant difference is a first indication that health matters for labour market transitions and consistency in results across different statistical approaches is another.

Table 4 collates the main results. In this table each row is associated with a different health status. According to that specific health status, the first column presents the probability of transition for those in good health, the second column presents the probability of transition for those in poor health and the third column shows the gap in these probabilities. The final column identifies whether this gap is statistically significant at conventional significance levels (10 per cent, 5 per cent or 1 per cent).

At the end of this section, an additional table – Table 5 – presents an analysis of whether the differences between people with good and poor health still remain significant when their other socio-demographic characteristics are factored into the analysis.

Table 4: Probabilities of movements between labour market categories

	Good health (%)	Poor health (%)	Gap	Significance
Panel 1: Probability of staying in employment				
General health status	93.8	85.3	−8.5	***
Physical health status	94.2	92.9	−1.3	***
Mental health status	93.7	89.2	−4.5	***
Physical and mental status	93.7	89.2	−4.5	***
Alcohol or drugs status	93.5	83.3	−10.2	***
Panel 2: Probability of transition from employment to unemployment				
General health status	2.0	3.8	1.7	***
Physical health status	2.0	2.1	0.1	
Mental health status	2.0	3.4	1.4	***
Physical and mental status	2.0	3.5	1.5	***
Alcohol or drugs status	2.1	8.6	6.5	***
Panel 3: Probability of transition from unemployment to employment				
General health status	40.4	30.1	−10.2	***
Physical health status	43.4	35.9	−7.5	***
Mental health status	40.4	30.6	−9.8	***
Physical and mental status	40.2	30.3	−9.9	***
Alcohol or drugs status	39.7	26.1	−13.7	***
Panel 4: Probability of transition from unemployment to full-time employment				
General health status	29.6	19.9	−9.7	***
Physical health status	33.6	24.7	−8.9	***
Mental health status	30.0	18.4	−11.6	***
Physical and mental status	29.7	17.1	−12.6	***
Alcohol or drugs status	29.1	18.0	−11.1	**
Panel 5: Probability of transition from unemployment to permanent employment				
General health status	26.7	20.9	−5.8	***
Physical health status	28.8	24.0	−4.7	***
Mental health status	26.8	21.4	−5.4	***
Physical and mental status	26.6	22.2	−4.4	**
Alcohol or drugs status	26.6	14.4	−12.1	**
Panel 6: Probability of transition from temporary to permanent employment				
General health status	46.8	41.6	−5.2	
Physical health status	48.8	45.4	−3.3	**
Mental health status	47.0	45.0	−1.9	
Physical and mental status	47.2	39.1	−8.1	**
Alcohol or drugs status	46.8	[50]		
Panel 7: Probability of transition from permanent to temporary employment				
General health status	1.8	2.2	0.5	**
Physical health status	1.7	1.9	0.2	*
Mental health status	1.8	2.6	0.8	***
Physical and mental status	1.8	2.3	0.6	**
Alcohol or drugs status	1.8	2.7	0.9	

(continued)

Table 4: Probabilities of movements between labour market categories (continued)

	Good health (%)	Poor health (%)	Gap	Significance
Panel 8: Probability of transition from full-time to part-time employment				
General health status	2.9	4.0	1.0	***
Physical health status	2.8	3.1	0.3	**
Mental health status	2.9	5.5	2.6	***
Physical and mental status	2.9	4.9	2.0	***
Alcohol or drugs status	3.0	5.6	2.7	**
Panel 9: Probability of transition from part-time to full-time employment				
General health status	14.0	16.2	2.1	*
Physical health status	15.5	13.0	–2.5	***
Mental health status	14.2	13.3	–1.0	
Physical and mental status	14.3	12.5	–1.7	*
Alcohol or drugs status	14.1	[26.7]		
Panel 10: Probability of transition out of low-pay employment (employees only)				
General health status	32.8	30.4	–2.4	
Physical health status	34.3	31.0	–3.3	***
Mental health status	32.9	29.4	–3.5	**
Physical and mental status	32.9	29.1	–3.8	**
Alcohol or drugs status	32.7	[40.8]		
Panel 11: Probability of transition into low-pay employment (employees only)				
General health status	6.1	8.2	2.1	***
Physical health status	5.6	6.8	1.2	***
Mental health status	6.0	9.9	3.9	***
Physical and mental status	6.1	9.9	3.8	***
Alcohol or drugs status	6.2	12.0	5.8	**
Panel 12: Probability of transition from inactivity (excl. long-term sick/disabled) to activity				
General health status	25.4	18.1	–7.3	***
Physical health status	27.6	22.4	–5.2	***
Mental health status	25.5	17.1	–8.4	***
Physical and mental status	25.4	16.0	–9.4	***
Alcohol or drugs status	24.8	27.6	–2.8	
Panel 13: Probability of transition from activity to inactivity				
General health status	5.1	14.1	9.0	***
Physical health status	4.5	6.3	1.8	***
Mental health status	5.2	10.5	5.3	***
Physical and mental status	5.2	10.5	5.2	***
Alcohol or drugs status	5.4	12.8	7.4	***

Notes: Asterisks refer to results from one-tailed *t*-tests of the null hypothesis that the difference between the two probabilities is equal to zero (* H0 rejected at the 10% significance level; ** at 5%; *** at 1%). The probabilities in brackets are calculated from a very small sample (<30 observations). Numbers are rounded to the first decimal point.
Source: BHPS 1991–2008 and authors' calculations.

Staying in work

Panel 1 of Table 4 presents the probability that an individual will stay in employment given that they were in employment in the previous year. It can be seen that the probability of remaining in employment is high for those reporting good general health, with approximately 94 per cent of individuals remaining in employment. Given that an individual was in employment in the previous period, the second column of results shows a lower probability of being in employment in the following period for those individuals reporting a poor health status. In all cases, reporting poor health reduces the probability of staying in employment, and these results are consistently statistically significant at the 1 per cent level.

The effect of having poor health on employment transition varies according to the type of health status and the type of labour market transition. For instance, the probability of staying in employment is reduced by 1.3 percentage points if an individual reports poor physical health and it reduces by 4.5 percentage points for those with poor mental health. The largest gap is for those with a poor alcohol/drugs status, where the probability of remaining in employment is reduced by about 10 percentage points, relative to individuals with a good alcohol/drugs health status.

In the previous section, we documented that people with poor health are less likely to be employed and face a greater labour market disadvantage in general. The evidence here suggests another dimension of this disadvantage: once employed, people with poor health are less likely to remain in employment compared to people in good health. This holds irrespective of the health indicators we use.

Panel 2 presents an analysis of the transition to unemployment given that an individual was in employment in the previous year. The results illustrate that the probability of transitioning into unemployment from employment is quite small for those in good health, with an average of 2 per cent of individuals in employment transitioning into unemployment. Although it is interesting to note that individuals reporting poor physical health do not have a higher probability of becoming unemployed relative to those reporting good physical health, it is clear from panel 2 that having other categories of poor health is detrimental to employment status. For instance, there is a 3.8 per cent probability of moving from employment into unemployment for those reporting poor general health, a probability that is almost double that for people with good general health. The greatest transition gap by health status is for those with poor alcohol/drugs status: while people with good alcohol/drugs status have a 2.1 per cent probability of leaving employment for unemployment, this rises to 8.6 per cent for people with a poor alcohol/drugs status.

Taken together, panels 1 and 2 of Table 4 illustrate that remaining in employment is more of a challenge for individuals with poor health than it is for those with good health.

Getting into employment

Panel 3 presents the probabilities associated with leaving unemployment for employment. On average, the probability of transitioning into employment given that an individual is unemployed in the previous year is about 40 per cent if the individual reports good health; however, if an individual has poor health then this probability is significantly reduced. For instance, having poor mental health or poor general health reduces the transition probability by

approximately 10 percentage points; the greatest reduction is for those with poor alcohol/drugs status, where the probability of transition into employment is reduced by about a third.

Although some people with poor health may prefer more flexible forms of employment such as part-time work, it is interesting also to examine the transition probabilities from unemployment to full-time employment. Panel 4 presents corresponding numbers and shows that, on average, the probability of leaving unemployment for full-time employment is about 30 per cent lower for those reporting poor health. When a comparison is made between panels 3 and 4 in Table 4, it is also noticeable that the relevant numbers decrease by about 10 percentage points across the board, which implies that although the probability of transitioning into full-time employment is more difficult than transitioning into employment *per se*, the difficulty seems to be much greater for those with poor health. The probability of transitioning into full-time employment is only 18.4 per cent for those with poor mental health (a reduction of 40 per cent), which contrasts strongly with those in good physical health having a transition probability of almost 34 per cent.

The transition rates from unemployment to permanent employment are presented in panel 5. When panel 5 is compared with panel 3, we are able to identify that a small majority of transitions from unemployment are into permanent employment. Again, there is a significant gap in the probability of transition, with those who have poor health having significantly lower transition probabilities into permanent employment than those self-reporting being in good health.

Transitions within employment

The analysis also considered the likelihood of people making positive and negative transitions once in work. Panel 6 presents the transition probabilities between temporary and permanent employment and illustrates that about 47 per cent of the temporarily employed move into permanent employment each year on average. While in several cases reporting poor health does not affect this transition probability, there are two instances where there is a significant statistical difference in transitions between those reporting good and poor health. These apply to those with poor physical health, where the gap is 3.3 percentage points, and those with both poor physical and poor mental health, where the gap is 8.1 percentage points. The common element here is poor physical health, and having poor mental health seems to exacerbate its association with these transition probabilities.

The transition probabilities from permanent to temporary employment contracts are presented in panel 7. The results show that the vast majority of permanently employed individuals do not transition from permanent into temporary employment, with rates as low as 1.7 per cent for those reporting good physical health. If this change in contract type is due to personal preference only, then there would be little reason to expect a higher transition probability for those with poor health. However, the results illustrate a significantly greater chance of transitioning into temporary employment for those reporting poor health, albeit by a small but variable magnitude depending on the health variable. The gap is relatively big between those with good and poor mental health status (–0.8 percentage points), and this requires further research to identify the underlying causes.

Transition probabilities between full- and part-time employment are reported in panels 8 and 9. Panel 8 illustrates that only 3 in every 100 people who are in good health transition from being on a full-time contract

to being on a part-time one; this rate is significantly higher for those reporting poor health. The greatest gaps are encountered by those who state that they have poor mental health (2.6 percentage points) and for those who report poor alcohol/drugs status (2.7 percentage points).

The transitions the other way round, that is, from part-time to full-time employment, are reported in panel 9. These results can be split into two parts. First, individuals are 2.5 percentage points less likely to move from part-time to full-time employment if they report that they have poor physical health, and are 1.7 percentage points less likely to move from part-time to full-time employment if they report having poor physical *and* mental health; the smaller of these gaps may be because the transitions start from a lower base when in good health (i.e. 14.3 per cent vs. 15.5 per cent). Second, the results show that, on the contrary, having poor general health or poor alcohol/drugs status *increases* the probability of transitioning from part-time to full-time employment. Though significance levels are low here, these results seem counterintuitive; further investigation into these issues is warranted.

Transitions in and out of low-pay jobs are explored in panels 10 and 11. As noted in section 3, low-pay employment is defined as being paid an hourly wage that is lower than two-thirds of the median hourly wage in each year. The results for the transitions out of low-pay employment illustrate that about a third of employees move across this threshold. Several points are worth emphasising here. First, the probability of transition out of low-pay employment is significantly lower for those reporting poor physical and mental health. Second, the probability of transition into low-pay employment is significantly increased for people in poor health, irrespective of the measure of health. Third, the result for those with poor alcohol/drugs status is based on a small number of cases (only 27 observations for people with poor alcohol/drugs status) and should not be deemed reliable. However, having poor alcohol/drugs status has the strongest association with the transition into low-pay employment compared to the other health indicators. Putting together these results with those reported in section 4, we conclude that individuals reporting poor health not only suffer from a wage penalty when employed but are also more disadvantaged with respect to remaining in or finding a well-paid job compared to people reporting good health.

Inactivity: transitions in and out of inactivity

A final issue addressed in this section is transitions between activity and inactivity. The categorisation of the individuals in our sample as active or inactive is derived from their self-reported labour market status. Active people are those either in employment or unemployed and actively seeking work. Inactive people are those who are retired, those engaged in unpaid care work for a member of their family, long-term sick or disabled people, etc. When examining the transition from inactivity to activity, we exclude long-term sick or disabled people from the inactive sample in order to compare the transition probabilities for people in good health and people in poor health who have not formally acquired a long-term sickness status. The main inactivity categories in this case are retired people, those in full-time education and those caring for family members. Far fewer observations are classified as being on maternity leave, a government training scheme or other inactivity status. For the reverse transition, however, it makes more sense to include long-term sickness in the inactivity sample.

Panel 12 illustrates that the transition probabilities from inactivity to activity are smaller for those who report poor health. The gaps range between 5.2 per cent and 9.4 per cent. It is interesting to note that there is no significant gap for those with good and poor alcohol/drug status. Transitions the other way, that is, from activity to inactivity, are in general much more infrequent if a person has good health, as a comparison of panels 12 and 13 illustrates, but they are much more frequent for those with poor health, whichever health status variable is used. The gap is much smaller for those with and without poor physical health (1.8 percentage points), while it reaches 9 percentage points when the general health status measure is used.

Factoring in other characteristics: does the picture look the same?

The picture that has emerged up to now is clear: poor health is associated with less favourable labour market transitions than good health. However, section 4 indicated that people with good and poor health status are different in other respects too, for example their age and level of qualifications vary. Hence, it would be opportune to check if the above gaps remain large and significant once we control for socio-demographic characteristics. Controlling for such differences in a regression framework enables us to check if the different labour market experiences by health status can be attributed to other observable characteristics and are not the result of health *per se*.[8] The regression analysis controls for gender, age, marital status, number of children, region and educational qualifications. The numbers reported in Table 5 show the poor health–good health gap (as in Table 4), adjusted now for individual differences in the above measurable characteristics.

Table 5 focuses on three transitions: staying in employment, moving into low-pay employment and moving from activity to inactivity. The report concentrates on these three transitions, which showed particularly large and significant gaps in Table 4. However, this was not the case for all of the results. For some transitions within work – such as from a temporary to a permanent contract or transitioning out of low pay – the size of the gap between those reporting good health and those reporting poor health changes, and the statistical significance falls below conventional levels for some groups. However, in each of these cases the direction of the association – that those with poor health are associated with negative labour market outcomes – remains the same.

In the case of moving between part-time and full-time work, there are inconsistencies with regard to the direction of the associations in addition to statistical significance falling below conventional levels. These differences may be due to greater variations in behaviour or small sample bias, and means there is less confidence that these associations are not due to chance.

However, even in the areas where confidence in the results is reduced, some associations emerge as statistically significant for some groups. For example, those with either poor physical or mental health moving from permanent to temporary work, people with poor physical health being less likely to move out of low pay, and those with poor mental health being more likely to move from full-time to part-time work all remain statistically significant. A full set of results can be seen in Table A1 in the Appendix.

Panel 1 of Table 5 reveals the results for the models corresponding to the probability of staying in employment. Comparing these adjusted gaps with the unadjusted gaps of panel 1 in Table 4, it can be seen that controlling for

these other characteristics makes almost no difference to the relevant gap. For example, the gap for the general health status variable is 8.5 percentage points in panel 1 of Table 4 and 8.1 percentage points in panel 1 of Table 5. The same holds for the other health indicators.

The same picture emerges for the transition into a low-pay job, although a slight reduction can be discerned to the adjusted gaps relative to the unadjusted ones and for general health status the statistical confidence level is now lower than 10 per cent. Recall, however, that statistical significance is an indication of the likelihood that the estimate is significantly different from zero – due to the consistency in our average gap estimates, this reduction in statistical significance is likely to indicate a greater range of possible gap values, with a gap of zero being a possibility, rather than a total rejection of the existence of a gap. This greater range of gap estimates, illustrated by a drop in statistical significance but a relative consistency in the average gap estimate, may reflect the variety of responses to poor health that are associated with or mitigated by, for example, differences in educational attainment. For the rest of the health indicators the adjusted gap remains large and strongly significant, thereby suggesting a high level of stability in our results for this transition.

Finally, panel 3 of Table 5 shows the results for the activity to inactivity transition, and the comparator here is with panel 13 in Table 4. Again, our results suggest that controlling for socio-demographic characteristics causes almost no change to the estimated health-related gaps for this outcome. For example, the regression-adjusted gap when using the physical health indicator is 1.5 percentage points, while it is 1.8 in Table 4. In sum,

Table 5: Poor health–good health gap – results from multivariate regressions

	Poor health–good health gap	Significance
Panel 1: Probability of staying in employment		
General health status	–8.1	***
Physical health status	–1.2	***
Mental health status	–4.0	***
Physical and mental health status	–4.1	***
Alcohol or drugs status	–11.1	***
Panel 2: Probability of transition into low-pay employment (employees only)		
General health status	1.0	
Physical health status	0.9	***
Mental health status	3.0	***
Physical and mental health status	3.0	***
Alcohol or drugs status	5.8	
Panel 3: Probability of transition from activity to inactivity		
General health status	8.3	***
Physical health status	1.5	***
Mental health status	4.3	***
Physical and mental health status	4.3	***
Alcohol or drugs status	8.7	***

Notes: All models control for gender, age, marital status, number of children, region and educational qualifications. * significant at 10%, ** at 5%, *** at 1%. Numbers are rounded to the first decimal point.
Source: BHPS 1991–2008 and authors' calculations.

the difference in the probability of transitioning from activity to inactivity between people with good health and people with poor health remains large and significant even when other characteristics are taken into account.

Section summary

This chapter has presented estimates of the effect of self-reported poor health on the probabilities of transitioning between labour market states. It highlights the adverse relationships between poor health and these transitions. Initial analysis of longitudinal data shows that individuals who report poor health are significantly more likely to move from employment to unemployment, from permanent to temporary contracts, from full-time to part-time work and from activity to inactivity. Similarly, they are significantly less likely to stay in employment, to move from unemployment to employment, to move into a full-time job and to move into a permanent job. This section also presented evidence which highlights that individuals with poor health are less likely to move out of low-pay employment and are more likely to move into low-pay employment.

However, when the other characteristics of people reporting poor health are factored in to the analysis, the statistical significance of some of the results falls, although most of the gap estimates remain of a similar magnitude. Although this does not establish a causal relationship between poor health and labour market disadvantage, it is nevertheless informative and revealing about the importance of good health in relation to the labour market performance of individuals in Britain.

In general, reported poor mental health seems to be associated with more negative labour market transitions and outcomes. In most of the tables, the relationship between poor health and labour market disadvantage was stronger when the poor mental health indicator was used or the indicator capturing poor mental *and* physical health.

6 DIGGING DEEPER: SKILLS AND POOR HEALTH

The previous section documented that people with poor health face a greater disadvantage in the labour market than people with good health. In most instances, this was the case even after other socio-demographic characteristics are taken into account. This section digs deeper into the issues at hand by examining the combined role of poor health and skill accumulation in the labour market.

Specifically, this section concentrates on six of the main labour market transitions detailed in the previous section and calculates the transition probabilities for four groups of individuals: (1) unskilled people in good health, (2) skilled people in good health, (3) skilled people in poor health and (4) unskilled people in poor health. As defined in section 3, in this report skill is indicated by the existence or absence of *any formal educational qualifications*, and thus how health and skills interact and are associated with labour market performance is of interest.

In line with the whole report, the focus continues to be on labour market transition probabilities. The statistical significance of the difference of the probabilities of each of the three groups from the transition probability of the baseline 'no qualifications – good health' group is reported. In this way we examine in more detail the role and the relative importance of health and skills in the labour market. Estimates relative to a different baseline, this time 'any qualifications – good health' are presented in Appendix 2.

Panel 1 of Table 6 shows that around 92 per cent of individuals reporting good health and no qualifications will stay in employment between any two years. This probability is significantly improved by about 2 percentage points by having qualifications and remaining in good health. However, this probability is reduced significantly for people reporting poor health. Reporting poor general health while having no qualifications reduces the

Table 6: Probabilities of movements between labour market categories: health and skills

	No quals, good health (%)	Any quals, good health (%)	Any quals, poor health (%)	No quals, poor health (%)
Panel 1: Probability of staying in employment				
General health status	91.7	94.1***	85.9***	82.6***
Physical health status	92.8	94.4***	93.3	90.2***
Mental health status	91.5	94.0***	89.6***	86.9***
Physical and mental status	91.4	94.0***	89.5***	86.9***
Alcohol or drugs status	91.3	93.8***	82.2***	[87.5]
Panel 2: Probability of transition from unemployment to employment				
General health status	23.2	46.5***	36.2***	21.7
Physical health status	27.8	49.2***	42.8***	19.0***
Mental health status	23.0	46.8***	36.1***	21.8
Physical and mental status	23.3	46.4***	38.2***	18.9
Alcohol or drugs status	22.8	46.2***	25.0	26.7
Panel 3: Probability of transition from unemployment to full-time employment				
General health status	15.8	34.8***	24.4***	14.2
Physical health status	20.3	38.6***	29.9***	12.2***
Mental health status	16.4	35.2***	23.5**	9.8**
Physical and mental status	16.4	34.8***	22.8*	8.9**
Alcohol or drugs status	15.6	34.5***	15.8	[23.3]
Panel 4: Probability of transition from permanent to temporary employment				
General health status	1.5	1.8**	2.3**	1.9
Physical health status	1.4	1.7	1.9**	1.6
Mental health status	1.5	1.8*	2.7***	1.6
Physical and mental status	1.5	1.8*	2.5**	1.4
Alcohol or drugs status	1.5	1.8**	2.1	[6.7]
Panel 5: Probability of transition into low-pay employment (employees only)				
General health status	14.8	5.2***	6.8***	16.2
Physical health status	14.9	4.8***	5.9***	14.5
Mental health status	14.4	5.2***	8.2***	23.9***
Physical and mental status	14.4	5.2***	8.0***	25.4***
Alcohol or drugs status	14.8	5.3***	10.1	[33.3]
Panel 6: Probability of transition from activity to inactivity				
General health status	7.2	4.8***	12.7***	19.6***
Physical health status	5.3	4.4**	5.7	9.9***
Mental health status	7.4	4.9***	9.3***	15.2***
Physical and mental status	7.5	5.0***	9.2**	15.6***
Alcohol or drugs status	7.9	5.1***	12.8*	16.7

Notes: Asterisks denote the statistical significance of the difference of the respective probability from the one of the no qualifications, good health status category (* significant at 10%; ** at 5%; *** at 1%). The probabilities in brackets are calculated from a very small sample (<30 observations). Numbers are rounded to the first decimal point.
Source: BHPS 1991–2008 and authors' calculations.

probability of staying in employment to 82.6 per cent, which is a drop of 9.1 percentage points. Reporting poor physical health and no qualifications has the smallest reduction in the probability of staying in employment between any two years (2.6 percentage points). Reporting poor mental health and having no qualifications also reduces the probability of staying in employment between any two years by 4.6 percentage points.

It is interesting to know whether gaining qualifications counterbalances the effect of poor health, with the evidence shown in column 3 being mixed. For instance, there is no significant difference in the probability of staying in employment between a person with no qualifications who reports good physical health and a person reporting poor physical health and some qualifications. In other cases, it appears that having qualifications does not offset the adverse effect of poor health on the probability of staying in employment. Hence, it would seem that both health and qualifications matter for the probability of staying in employment.

The probability of finding a job this year while being unemployed in the previous year is reported in panel 2 of Table 6. Relative to having no qualifications and reporting good health, having no qualifications and reporting poor physical health reduces the probability of finding a job by 8.8 percentage points. It is particularly interesting to note that no other poor health indicator is associated with a reduction in the probability of moving into employment when in unemployment the previous year. This suggests that those with no qualifications are equally disadvantaged in the labour market regardless of their health status.

Panel 2 also emphasises that having some qualifications strongly increases the likelihood than an unemployed individual will find a job during the next 12 months. For those reporting good health, the likelihood of finding employment increased from around 23 per cent to around 46 per cent on average. However, having poor health mitigates this enhancing effect – by up to 10 percentage points for poor general health and poor mental health.

It appears here that the absence of any formal qualifications is more important than poor health status for transitioning out of unemployment. In other words, skilled people in poor health face a much smaller labour market disadvantage than individuals in good health but with no qualifications. This is the case irrespective of how the comparison is made, as highlighted in Table A2 in the Appendix where 'any qualification and good health' is used as the baseline for analysis.

A similar picture is presented in panel 3, which reports transition probabilities from unemployment to full-time employment. Here, individuals' transition probabilities are significantly lower if they report poor physical health and/or poor mental health and, as above, having qualifications enhances the probability of transitioning into full-time employment. It is interesting to note, however, that reporting poor health significantly reduces this probability. The increase in the transition probability associated with qualifications is halved if individuals have poor general or poor physical health, and it is reduced by more than 60 per cent if someone has poor mental health. The importance of mental health status for this transition was also reported in the previous section.

Turning now to the transitions between employment types, panel 4 presents the probabilities for the transitions from permanent to temporary employment. It is important to remember here that these transitions are in general rare in our sample; hence, the respective probabilities are very low. In general, the differences relative to the baseline group of no qualifications and good health (or qualifications and in good health in Table A2 in the Appendix)

are either weakly significant or not significant at all. There is some tentative evidence of a very small effect where individuals with qualifications could end up in temporary jobs. However, the main inference to draw from panel 4 is that the transition out of permanent and into temporary employment is significantly higher for those with any qualification and with poor health. Overall, the results do not show us a clear pattern concerning the relative importance of health and qualifications.

Panel 5 presents the transition probabilities into low-pay employment. It is apparent that qualifications can reduce this transition probability although it will not completely alleviate it, and having qualifications dominates the adverse effect of having poor health. This is also apparent from the results reported in Table A2 in the Appendix: in comparison to those with 'any qualifications – good health', people with no qualifications and good health are much more likely to experience such an unfavourable transition.

Another important conclusion from these results is, once again, the relatively unfavourable associations with the transition and having poor mental health. The chance of transitioning into low pay increases by up to 76 per cent for those with poor physical and mental health, again an effect that is dominated by having poor mental health. As shown in Table A2 in the Appendix, a person with poor mental health (either coupled with poor physical health or not) and a lack of skills is almost five times more likely to transition into low-pay job than a skilled person with no such health problems.

Finally, panel 6 presents the transitions between activity and inactivity. The differences between the 'no qualifications – good health' baseline and the other categories are significant in most cases. It can be seen that having poor health is strongly related to becoming inactive, whereas having qualifications reduces this probability. In this case, the health effect dominates the qualifications effect. Again, as in the majority of the transitions examined in this section (and in the previous one), mental health seems to be strongly related to more unfavourable labour market outcomes.

Section summary

A more sophisticated statistical investigation than the one presented here would be needed to investigate the causal impact of health and qualifications on the labour market performance of individuals. Nonetheless, the results reported here suggest that while having poor health is not the only issue associated with relatively unfavourable labour market transitions, it is a principal one, and a lack of qualifications exacerbates the problem. Putting it differently, having some formal qualifications can mitigate the adverse relationship between poor health and labour market performance. The evidence presented here suggests that for some labour market transitions (such as those involving movements from unemployment to different employment types) the lack of skills seems to be more important than poor health. However, for other transitions, such as for staying in employment, as well as for the passage from activity to inactivity, health seems to matter more than skill. However, no clear picture emerges from this analysis of whether qualifications or health status is more important for transitions into low-pay and into temporary work. One thing that can be said with a little more certainty is that the presence of qualifications seems to have a mediating effect on the negative labour market experiences associated with ill health. Also, as in the previous section, the results are stronger when mental health is used as the health indicator than when physical health status is used.

7 SUMMARY, CONCLUSIONS AND POLICY IMPLICATIONS

The evidence presented in this study demonstrates that individuals who self-report that they have a poor health status are more likely to have a lower employment propensity and employment status, as well as a greater propensity to be in low-paid employment. The association is particularly pronounced for those self-reporting poor mental health. This report contributes to an evidence base that describes an increased risk of being in poverty for people with poor health.

It is well known that individuals in poor health face inequalities in the labour market. This study demonstrates that those self-reporting poor health across a range of indicators are less likely to be in employment, more likely to have lower pay, and those who are employed are less likely to be in full-time employment. Across most self-reported indicators used here, the penalty associated with poor mental health is greater than that associated with reporting poor physical health.

The contribution of this report to the evidence base is in its analysis of transitions into and out of work and between different work statuses. It has used a large longitudinal dataset to measure the different experiences in the labour markets of individuals self-reporting poor and good health across a range of measures.

The analysis shows that in a 12 month period, people self-reporting poor health are less likely to remain in employment or to move from unemployment to employment, especially if it is full-time employment. They are less likely to transition from economic inactivity to activity, and more likely to make the reverse transition. Those reporting poor mental and/or physical health are also more likely to move into a low-paid job from a better

paying job. Moreover, once in employment, those reporting poor mental health are more likely than people in good mental health to move from permanent to temporary work and from full-time to part-time work.

Reporting poor mental health emerges as a key factor associated with labour market disadvantage in this study. Those reporting poor mental health are more likely to have lower wages, lower levels of educational attainment, a greater likelihood of having no qualifications, and a greater likelihood of being out of work when compared with people reporting good mental health. The gaps between those reporting good and poor mental health are particularly stark in some areas, most notably their far reduced likelihood of transitioning from unemployment to employment, increased likelihood of moving from full-time to part-time work, and reduced likelihood of moving out of low-pay work. It seems that people reporting poor mental health face particular disadvantages in the labour market.

People reporting poor alcohol and/or drugs status experienced a much lower propensity to move into more favourable contract types, particularly into permanent or full-time employment, and were significantly less likely to transition from unemployment into employment *per se*.

Initial analysis conducted as part of this study also suggests qualifications can play an important role in mitigating the negative impact of poor health on labour market transitions, but they cannot overcome them altogether. The presence of qualifications seems particularly important with regard to moving into work, and reducing the likelihood of moving into a low-pay job from a better paid job. However, further research is needed to look in more detail at the interplay between poor health and qualifications in labour market transitions.

Policy implications

The findings of this study suggest that policy needs to address both individual and structural barriers to employment. Policies that focus solely on the individual are unlikely to make a major impact on the disadvantages that have been identified, especially among people with poor mental health. Given the association between people reporting poor health and negative labour market experiences outlined above, policy that simply focuses on shifting people with poor health from unemployment and inactivity into activity and employment is likely to be insufficient in the context of the nature and scale of the inequalities indicated in this analysis.

Current government policies are based on comprehensive labour market activation and employability. Yet as Waddell and Aylward (2005) point out, work is generally good for physical and mental health if physical and psychosocial conditions are satisfactory and provide a decent human quality of work, and if work provides adequate financial reward and security. This analysis suggests that securing such work is harder for people experiencing poor health.

Policies that focus on work as a route out of poverty without due consideration for the quality of the work being undertaken are less likely to succeed in reducing poverty, particularly for those reporting poor health. This analysis seems to indicate that, in general, people reporting poor health are more likely to move out of work more frequently, and experience fewer positive transitions and more negative transitions once in work. There is also a positive association between poor health and part-time work, although this may in some cases reflect a self-defined capacity or preference for work by those experiencing poor health. This is clearly an issue that requires further

investigation and has potential implications for policies designed to assist people with poor health status to move into work.

Furthermore, although transitions in labour market status from inactive to active are not frequent among all workers, this analysis shows that they are even less likely for those with poor health. This indicates the considerable barriers faced by those moving from inactivity to activity, which need to be recognised in the support given to people as they seek to make this transition. In light of the on-going reform to the welfare system discussed in section 2, there are a number of lessons that can be drawn from this research.

- The more precarious work experiences of those with poor health may be mitigated, to some extent, by educational qualifications. Certainly those with poor health and no qualifications are particularly likely to be at a disadvantage in the labour market. For these individuals, training may be particularly important if they are to succeed in the labour market.

- Agencies concerned with assisting people with poor health into the labour market, in particular Work Programme providers, need to ensure that they have the capacity and capability to identify those with poor health, especially those with poor mental health. These individuals are likely to be more disadvantaged in the labour market and to require a greater level of support to find and sustain good-quality work. This is likely to encompass education initiatives, intensive work preparation and in-work support when an individual finds employment.

- This analysis does not simply point to the need for better supply-side interventions. Overall, those in poor health find it more difficult to stay in employment than people in good health. This suggests the need for measures to address retention once in work, with a particular focus on addressing the in-work experiences of people with poor physical and mental health. Such measures are likely to include working closely with employers to help them to understand and address the issues that arise in these circumstances. This will include the promotion of workplace adjustments support for both employers and employees, and flexible work policies to reduce the transitions of people experiencing poor health from employment to unemployment. There is a danger, however, that such measures are less likely to be available to those in poor health when they are not in permanent employment. There is a need to raise awareness among employers and Welfare to Work providers about how to identify those with poor health status, how to make reasonable adjustments and how to support transitions into work, and offer support once in work. This may entail greater access to occupational health information and greater recognition of the roles of GPs and mental health professionals in informing employer and government policies. Flexible working policies are also likely to be important.

NOTES

1 See: www.who.int/about/overview/en

2 Employment rates cover both employees and self-employed people. Respondents who experience multiple difficulties are asked to identify their main impairment. Respondents who report a current disability consistent with the Disability Discrimination Act (DDA) are defined as disabled. The non-disabled population refers to all those not classified as DDA disabled. From 1 October 2010, provisions in the Equality Act 2010 replaced the majority of provisions in the DDA. Note that the highest estimates are used in this figure, based on relatively small sample sizes, and are presented as ranges with confidence intervals at 95 per cent level.

3 However it should be noted that figures after 2010 are not directly comparable as a result of changes in the definition of disability used in the Labour Force Survey (2012).

4 This limited time period, due to data availability, ends at the start of the recent recession, therefore more research is necessary to identify the extent to which the results presented in this study also apply to the current time period.

5 The BHPS refers to these health issues as 'problems'. Our preference is to refer to them as conditions unless we are directly quoting the BHPS.

6 The study uses simple *t*-tests to do this.

7 It is important to note here that in this report we do not consider transitions in and out of poor health and how these are associated with employment outcomes. Here, we are interested in the short-term relationship between health and labour market outcomes, treating health as a fixed characteristic of each individual. This simplifies the empirical analysis and enables us to focus more directly on the questions of interest, leaving the issue of health dynamics for future research.

8 These regressions are estimated by ordinary least squares (OLS).

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APPENDIX

Table A1: Poor health–good health gap – results from regressions for all transitions

	Poor health–good health gap	Significance
Panel 1: Probability of staying in employment		
General health status	–8.1	***
Physical health status	–1.2	***
Mental health status	–4.0	***
Physical and mental health status	–4.1	***
Alcohol or drugs status	–11.1	***
Panel 2: Probability of transition from employment to unemployment		
General health status	1.7	***
Physical health status	0.3	**
Mental health status	1.6	***
Physical and mental health status	1.6	***
Alcohol or drugs status	5.5	**
Panel 3: Probability of transition from unemployment to employment		
General health status	–4.8	**
Physical health status	–4.4	***
Mental health status	–8.5	***
Physical and mental health status	–7.1	**
Alcohol or drugs status	–14.4	**
Panel 4: Probability of transition from unemployment to full-time employment		
General health status	–3.4	
Physical health status	–4.7	***
Mental health status	–8.2	***
Physical and mental health status	–7.6	***
Alcohol or drugs status	–11.7	**
Panel 5: Probability of transition from unemployment to permanent employment		
General health status	–2.7	
Physical health status	–2.7	*
Mental health status	–4.3	*
Physical and mental health status	–2.2	
Alcohol or drugs status	–11.3	***

(continued)

Table A1: Poor health–good health gap – results from regressions for all transitions (continued)

	Poor health–good health gap	Significance
Panel 6: Probability of transition from temporary to permanent employment		
General health status	–5.5	
Physical health status	–1.8	
Mental health status	–1.9	
Physical and mental health status	–7.4	
Alcohol or drugs status[a]		
Panel 7: Probability of transition from permanent to temporary employment		
General health status	0.5	
Physical health status	0.3	**
Mental health status	0.7	**
Physical and mental health status	0.5	
Alcohol or drugs status	0.7	
Panel 8: Probability of transition from full-time to part-time employment		
General health status	0.6	
Physical health status	–0.1	
Mental health status	1.5	***
Physical and mental health status	1.0	*
Alcohol or drugs status	2.6	
Panel 9: Probability of transition from part-time to full-time employment		
General health status	3.3	***
Physical health status	–0.8	
Mental health status	0.4	
Physical and mental health status	–0.1	
Alcohol or drugs status	–1.0	
Panel 10: Probability of transition out of low-pay employment (employees only)		
General health status	–1.3	
Physical health status	–2.6	**
Mental health status	–1.5	
Physical and mental health status	–2.0	
Alcohol or drugs status	–0.1	
Panel 11: Probability of transition into low-pay employment (employees only)		
General health status	1.0	
Physical health status	0.9	***
Mental health status	3.0	***
Physical and mental health status	3.0	***
Alcohol or drugs status	5.8	
Panel 12: Probability of transition from inactivity (excl. long-term sick/disabled) to activity		
General health status	–3.3	***
Physical health status	–0.7	
Mental health status	–5.0	***
Physical and mental health status	–4.7	***
Alcohol or drugs status	1.7	

(continued)

Table A1: Poor health–good health gap – results from regressions for all transitions (continued)

	Poor health–good health gap	Significance
Panel 13: Probability of transition from activity to inactivity		
General health status	8.3	***
Physical health status	1.5	***
Mental health status	4.3	***
Physical and mental health status	4.3	***
Alcohol or drugs status	8.7	***

Notes: All models control for gender, age, marital status, number of children, region and educational qualifications. *, ** and *** imply statistical significance at the 10%, 5% and 1% levels respectively. Numbers are rounded to the first decimal point.
[a] As in Table 4, this estimate is excluded due to the potential for small sample bias, where the number of individuals with poor alcohol or drugs status is equal to 27.
Source: BHPS 1991–2008 and authors' calculations.

Table A2: Probabilities of movements with 'any qualifications – good health' as baseline

	Any quals, good health (%)	No quals, good health (%)	Any quals, poor health (%)	No quals, poor health (%)
Panel 1: Probability of staying in employment				
General health status	94.1	91.7***	85.9***	82.6***
Physical health status	94.4	92.8***	93.3***	90.2***
Mental health status	94.0	91.5***	89.6***	86.9***
Physical and mental status	94.0	91.4***	89.5***	86.9***
Alcohol or drugs status	93.8	91.3***	82.2***	[87.5]
Panel 2: Probability of transition from unemployment to employment				
General health status	46.5	23.2***	36.2***	21.7***
Physical health status	49.2	27.8***	42.8***	19.0***
Mental health status	46.8	23.0***	36.1***	21.8***
Physical and mental status	46.4	23.3***	38.2***	18.9***
Alcohol or drugs status	46.2	22.8***	25.0***	26.7**
Panel 3: Probability of transition from unemployment to full-time employment				
General health status	34.7	15.8***	24.4***	14.2***
Physical health status	38.6	20.3***	29.9***	12.2***
Mental health status	35.2	16.4***	23.5***	9.8***
Physical and mental status	34.8	16.4***	22.8***	8.9***
Alcohol or drugs status	34.4	15.6***	15.8***	[23.3]
Panel 4: Probability of transition from permanent to temporary employment				
General health status	1.8	1.5**	2.3	1.9
Physical health status	1.7	1.4	1.9	1.6
Mental health status	1.8	1.5*	2.7***	1.6
Physical and mental status	1.8	1.5*	2.5*	1.4
Alcohol or drugs status	1.8	1.5**	2.1	[6.7]
Panel 5: Probability of transition from into low-pay employment (employees only)				
General health status	5.2	14.8***	6.8***	16.2***
Physical health status	4.8	14.9***	5.9***	14.5***
Mental health status	5.2	14.4***	8.2***	23.9***
Physical and mental status	5.2	14.4***	8.0***	25.4***
Alcohol or drugs status	5.3	14.8***	10.1	[33.3]
Panel 6: Probability of transition from activity to inactivity				
General health status	4.8	7.2***	12.7***	19.6***
Physical health status	4.4	5.3**	5.7***	9.9***
Mental health status	4.9	7.4***	9.3***	15.2***
Physical and mental status	5.0	7.5***	9.2***	15.6***
Alcohol or drugs status	5.1	7.9***	12.8***	16.7**

Notes: Asterisks denote the statistical significance of the difference of the respective probability from that of the 'any qualifications – good health' status category (* significant at 10%; ** at 5%; *** at 1%). Numbers are rounded to the first decimal point.
Source: BHPS 1991–2008 and authors' calculations.

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