

Does educational level modify the effect of involuntary job loss on well-being?

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PRELIMINARY DRAFT VERSION

Abstract

We use the first 17 (1991-2007) waves of the British Household Panel Study to examine the effect of involuntary job loss on well-being. More specifically, we study whether the level of educational attainment modifies the effect of involuntary job loss on the short (1st year after job loss) and long term (4 to 6 years). We hypothesize that higher educated people suffer less from an involuntary job loss on the short term because they experience fewer direct stressful effects of job loss and they have higher re-employment chances. The stress of job loss may be moderated by educational level because higher educated individuals have more social, psychological, and economic resources. As the higher educated are more likely to find re-employment after involuntary job loss, they do not suffer the negative effects of unemployment (loss of income, status, meaningful activity, purpose).

For the impact of job loss on well-being on the longer term, two competing hypotheses were derived. On the one hand, better educated individuals have more resources and are more likely to find re-employment (which simply extends the first hypothesis). On the other hand, it may be harder for higher educated individuals to find suitable re-employment because they lose better jobs and have higher aspirations. Thus, involuntary job loss may put the higher educated at a greater risk of downward mobility and therefore reduce their well-being. In addition, lower aspirations and higher unemployment among peers may lead lower educated individuals to better adapt to being unemployed than higher educated individuals.

Preliminary results (fixed effects regression analyses) indicate that higher education decreases the effect of involuntary job loss on the short term (first year), whereas on the longer term (4 to 6 years) the opposing effects may cancel each other out as we no longer find a modifying effect of education.

Does educational level modify the effect of involuntary job loss on well-being?

Introduction

The involuntary loss of a job is one of the most stressful events that can happen in life (Paul and Moser, 2009). Involuntary job loss is often the start of a spell of unemployment, and can have long term negative effects ("scarring") on a person's labor market career (Mooi-Reci). Also a person's health and well-being seem to be negatively affected by involuntary job loss. Previous research into the relationship between job loss/unemployment and health has mainly treated job loss as a homogeneous event (Paul & Moser, 2009) and focused on whether job loss causes health decline (causation) and/or health predicts job loss (social drift/ health selection). Research from longitudinal studies and factory closure studies all point in the direction that job loss causes declines in mental health and well-being (Paul & Moser, 2009). In this paper, we consider the effect of involuntary job loss on well-being. In particular, we study whether involuntary job loss has a similar effect for higher and lower educated people.

To what extent are individual responses to job loss socially patterned? A number of cross-sectional and longitudinal studies of job loss and unemployment report findings pertaining to this issue (Strully, 2009; Andersen, 2009; Gallo, Bradley, Dubin, Jones, Falba, Teng et al., 2006; Clark, Georgellis, & Sanfey, 2001; Turner, 1995; Whelan, 1994) but few make it the focus of research. More research is warranted as these studies show conflicting findings. Longer unemployment was worse for higher educated men in the GSOEP panel (Clark, Georgellis, & Sanfey, 2001) and Whelan (1994) reports similar findings for men from higher social classes using cross-sectional Irish data. But Andersen (2009) using the BHPS panel finds that unemployment was worst for men from the middle classes. Two longitudinal studies pertain to effects of job loss. Gallo, et al (2006) find that in the USA the effects of job loss for older workers (over 50 as it used the Health and Retirement Survey) depended on prior wealth levels; More wealth meant less bad effects. In a recent paper in *Demography*, Strully (2009) finds no differences between blue collar and white collar workers in the effect of job loss on self-rated health and on the number of likely health conditions, but she does find that fired/laid off blue collar workers are more likely to have fair/poor health than white collar workers.

The literature on socio-economic differences in the impact of job loss and unemployment is limited in scope, but the views differ widely, especially if we consider differences in long term effects of job loss. On the short term, it is argued that a higher social

position confers psychological, social and financial resources that may buffer the stressful direct impact of job loss (e.g. more wealthier people can cope with a period without a regular income flow). In addition, higher educated people may be more likely to find re-employment after job loss. They are therefore less exposed to detrimental effects of unemployment. On the longer term, the views diverge. On the one hand, those with higher SES have more resources that may allow them find re-employment and that may buffer negative effects of experiencing unemployment. On the other hand, involuntary job loss may be the catalyst for downward mobility. And higher SES people have more attachment to work and therefore not having the right job may hurt more.

In this study, we investigate whether the impact of involuntary job loss depends on educational level. We aim to answer the following questions: To what extent do the effects of involuntary job loss on well-being differ between lower and higher educated people? And secondly, do these differ between the short and long term? We focus on educational level because it is a prime indicator of human capital and of one's social position. Furthermore, educational level is an asset that is not lost with job loss, as other indicators of social position, such as social class and income, may be.

We will study the impact of involuntary job loss with the first 17 waves of the British Household Panel Study (BHPS). The BHPS is a large representative annual household survey of the United Kingdom that started in 1991.

We aim to improve upon previous research in the following four respects: First, a number of studies investigate whether the effect of unemployment differs by socio-economic status (Andersen, 2009; Clark, Georgellis, & Sanfey, 2001; Turner, 1995; Whelan, 1994), only two studies we are aware of report whether job loss differs by a measure of socio-economic status (Gallo, Bradley, Dubin et al., 2006; Strully, 2009). We argue that it is better to focus on job loss than on unemployment because focusing on involuntary job loss may rule out an important source of selection bias. Unemployment is *an* outcome of involuntary job loss, which becomes less likely with increasing educational level. Those individuals who remain unemployed long enough to be observed in a survey may differ in important respects from the people who were *ever* unemployed (due to jobloss). Especially those with higher levels of education who remain unemployment are more likely to form a select group that may differ on unobserved characteristics that both affect their chances of re-employment and well-being (e.g. low motivation to work). Those who become unemployed form a subset of people who involuntarily lost their jobs. If one aims to study buffering effects one has to take a broader view and consider everyone who was exposed to the stressor.

Second, most studies do not explicitly focus on differences in the experience of involuntary job loss/ unemployment. Most studies are primarily occupied with investigating the link between job loss/ unemployment and health. In case studies have a large enough number of people who experience involuntary job loss to allow statistical comparisons by socio-economic status they may report interactions (e.g.: Clark et al., 2001), but such comparisons are performed on an ad hoc basis and are not informed by theory. (What is more, it may be that more comparisons are carried out that go unreported because the results are not significant). We improve on the literature by deriving competing hypotheses about the moderating effect of educational level.

Third, we will study the impact of job loss on the short and on the long term. Most previous research examines the effects of job loss on the short term, very few look at effects on the longer term.

Fourth, the BHPS includes information on the reason for job loss and rich details of the previous job. This allows good controls for the reason of job loss, thus allowing to largely exclude health selection as a competing explanation. Previous research does not differentiate between social status of the lost job and characteristics of the person who loses the job. We argue that educational level is strongly associated with the type of job that one loses. Higher educated lose better jobs, as such they may lose more compared to lower educated individuals and they run a higher risk of downward mobility. Our analysis offers insights on how different dimensions of social status interact.

Theory & hypotheses

The event of job loss may have instantaneous and long term repercussions for well-being. Involuntary job loss is an unwanted event and often a major setback in one's career (Burgard, Brand, & House, 2007; Strully, 2009). We argue that there are at least three ways in which involuntary job loss affects well-being: first through stress of involuntarily losing one's job, second through effects related to being out of employment for those who do not (directly) find re-employment, and third for those who find re-employment the new job may be of less quality than the lost job (Burgard, Brand, & House, 2007; Dooley, Prause, & Ham-Rowbottom, 2000). We therefore expect that involuntary job loss may have negative effects on well-being on the short and longer term (hypothesis 1). See figure 1 for a schematic overview. Now we will discuss these links with well-being in more detail. In a second step,

we discuss why educational attainment may influence the effects of involuntary job loss (dashed arrows in figure 1).

First, the process of involuntary job loss is inherently stressful (blow to self-esteem) and the uncertainty for the future surrounding involuntary job loss may lead to stress. In addition, people lose job specific investments and contacts with their (former) colleagues. We suppose that the direct stressful impact of job loss mainly influences well-being on the short term. With the passage of time negative emotions related to the job loss may diminish and possible stressful circumstances related to change in status after job loss become more important (e.g. being unemployed).

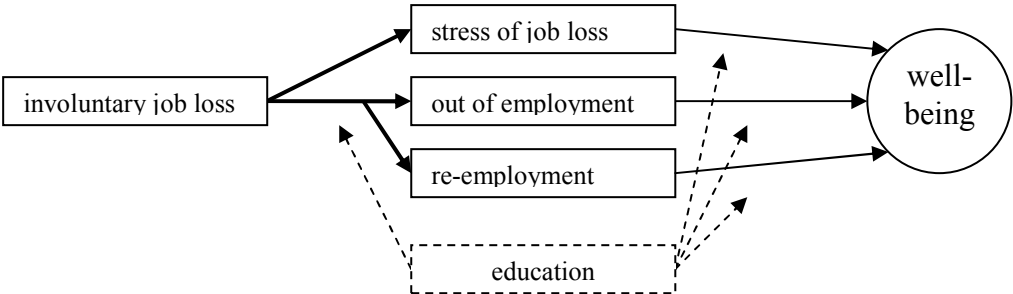
Second, the effects of involuntary job loss may depend on the employment situation after job loss. In case people do not directly find a new job they become unemployed or leave the labor force. There is an extensive literature on the effects of unemployment on well-being (Hanisch, 1999; Paul & Moser, 2009). The unemployed have a low societal status, and perhaps most importantly those who become unemployed suffer a drop in income. In addition, the unemployed lose the positive functions for well-being that work may provide: work connects people with society at large, gives a sense of purpose, lets people share in collective goals, and provides a way to structure time (Hanisch, 1999; Jahoda, 1982; Paul & Moser, 2009). Those that leave the labor force all together may share the negative effects of the unemployed on well-being too (drop in income and status, but perhaps new satisfying activities will be undertaken, such as education, that may take the place of work). Those that leave the labor force may still suffer a decrease in well-being, as their job loss was involuntary and as such they may stay orientated towards employment.

Meta-analyses show that in general re-employment nullifies the negative effects of unemployment/job loss on well-being (Hanisch, 1999; Paul & Moser, 2009). Re-employed individuals regain the positive functions of work for well-being. However, the quality of the new job may be worse than before (Burgard, Brand, & House, 2007; Dooley, Prause, & Ham-Rowbottom, 2000). They may suffer a loss in income and/or status compared to the job they lost, which may negatively impact their well-being. In other respects a new job may be of lower quality too, such as less satisfying work, increased commuting time, or fewer working hours than desired.

Most people will eventually find re-employment; even so there are a number of reasons to expect long term effects of involuntary job loss on well-being. We suppose that people will quickly start looking for a new job after job loss. Most people will soon find a job. But as time passes by the pressure to take up *a job* instead of the *ideal job* increases, and

people may find themselves in a less desired job than the job they involuntarily lost. In terms of lost career potential, the new job may be worse than the job they would have had by now, had they not lost their job. As a consequence, even the people who find re-employment may experience reduced levels of well-being on the longer term, depending on the kind of job they find. Based on the economic literature it can be argued that the involuntary loss of a job may mean more than a (temporary) career setback, as there may be a ‘scarring’ effect of unemployment on the future career (Clark, Georgellis, & Sanfey, 2001; Mooi-Reci, preliminary version). A period of unemployment may act as a red flag for potential employers; they are less likely to hire such a person because a period of unemployment is considered as a sign of lower productivity. Those who lose their jobs may be affected by this scarring either because they become unemployed for a period of time and/or because employers regard involuntary job loss as a sign of lower productivity too. Besides the diminished chances of successful re-employment, the effects of being unemployed may worsen over time. The income drop may be more hard felt, as people may have used up savings and durable goods may need replacement.

Figure 1. Conceptual framework



Education buffer

We argue that the outlined effects of involuntary job loss may depend on the level of educational attainment (dashed arrows in figure 1). Education may decrease the effects of the direct stress of involuntary job loss. Education increases the chances of re-employment after job loss, it affects the type of job one finds, and education influences the impact of unemployment on well-being. Next we discuss the effects of education in more detail.

Higher educated individuals are better able to deal with stress. This may be so because they have higher levels of psychological resources (locus of control etc.) (Schieman & Plickert, 2008), because they have higher levels of social support (Ross & Wu, 1995), and

because they have higher socio-economic resources (Ross & Wu, 1995). In particular, they are more likely to save and have investments, which may ease life and reduces worries in a period of financial crisis, such as involuntary job loss. The jobs of higher educated people have better job protection; such jobs more often offer financial compensations and exit-schemes for people who lose their jobs (e.g. “golden handshakes”). As discussed above, we suppose that the direct stressful effects of involuntary job loss are limited to the short term. These mechanisms lead us to expect that education buffers the negative effects of involuntary job loss on well-being on the short term (hypothesis 2).

On the longer term the effects of education are more complicated. On the one hand, education may reduce the effects of job loss. The better educated have more human capital and may be more likely to find a new job (and a good job) after involuntary job loss, thus avoiding the negative consequences of unemployment. Gallo et al. (2006) suggest that a higher financial buffer (which the higher educated tend to have) allows individuals more time to find suitable re-employment. In case they do become unemployed the negative consequences may be less severe because they have more savings and so the income drop may be less hard felt (at least on the short term), they are better able to deal with stress (more psychological resources, more social support), they are more likely to use active coping strategies (Christensen, Schmidt, Kriegbaum, Hougaard, & Holstein, 2006), and the higher educated have more alternative options to find purpose in life (besides work). It may be more accepted for them to start doing volunteer work and so they can avoid the negative effects of idleness (loss of daily routine etc) that the unemployed may face. These mechanisms lead us to expect that education buffers the negative effects of involuntary job loss on well-being on the long term (hypothesis 3a).

On the other hand, the higher educated have a better position on the labor market and a involuntary job loss is therefore more likely to lead to a sharper drop in income and in status, which may result in a larger drop in well-being. The drop will be highest for those who become unemployment, but also for the higher educated who find a new job the income and status drop may be severe. It may be hard and take time for them to find a job on the same level as before. It could be that the scarring effects of job loss are worse for the higher educated than for the lower educated, as employers may see a period of unemployment or involuntary job loss as more of a spot on the résumés of higher educated than for lower educated (interrupted careers being more common in lower segments of the labor market (Bradley, Crouchley, & Oskrochi, 2003)). In addition, higher educated people have higher aspirations (Turner, 1995), it may therefore perhaps be harder for them to accept that they are

unemployed or that they found a new job on a lower level. Other findings suggest that being underemployment, that is unfavorable re-employment, may have similar detrimental effects on well-being as unemployment (Dooley, Prause, & Ham-Rowbottom, 2000). Furthermore, among people with lower levels of education it may be more accepted not to work, so the stigma of unemployment may be less hard felt for them. Findings with the German GSOEP data are in line with such a process, as they show that over time the lower educated adapt to unemployment but the higher educated do not (Clark, Georgellis, & Sanfey, 2001). These mechanisms would lead to a contrary hypothesis, namely that education increases the negative effects of involuntary job loss on the long term (hypothesis 3b).

To summarize, we expect short and long term negative effects of involuntary job loss on well-being (hypotheses 1). We expect that education reduces the impact of job loss on the short term (hypothesis 2) and for effects on the long term we derived two opposing hypotheses on the moderating role of educational level (hypotheses 3a and 3b).

Last job characteristics & age

We argued that educational level is strongly associated with the type of job that one loses. Higher educated lose better jobs, as such they may lose more compared to lower educated individuals, but they run a higher risk of downward mobility. As we are primarily interested in the effect of education, we control for the type of job lost.

Data

We use data from the first 17 waves of the BHPS (British Household Panel Survey). The BHPS is an annual household panel: all individuals over 16 in the household are interviewed separately. Individuals are allowed to enter and leave the panel (as households change in composition over time) and so the BHPS is an *unbalanced panel*. The BHPS started in 1991 with approximately 10,000 individuals in 5,500 households. In 1999 1,500 households in each of Scotland and Wales were added and in 2001 2,000 households were added for Northern Ireland. Between wave 7 and wave 11 the BHPS includes an additional subsample to make the BHPS compatible with the European Community Household Panel household. This subsample was excluded as these people are followed for too short a period to study long-term effects of job loss.

The analysis covers individuals between 18-54. Observations of individuals younger than 26 and still in full-time education were excluded, to avoid problems with temporary jobs for students. The upper age cap was put at 54 to steer clear off (involuntary) early retirement as an alternative form of involuntary job loss. This produces 156,557 observations of 20,408 (9,784 male; 10,624 female) individuals with face-to-face interviews (we discarded proxy and phone interviews).

We further apply some restrictions guided by our desire to study the impact of involuntary job loss. We follow individuals who are employed (or on maternity leave) at baseline and those who become employed in later waves as only these people run the risk of involuntary job loss. Individuals are included if they have at least two consecutive observations of which the first was in employment. Individuals are followed even though their employment status may change after the first wave (they can take up different jobs or leave employment) as long as they are observed consecutively. Individuals exit the observation window if they are not interviewed (observed) for one or more waves. These exits may be temporary as respondents may be observed in later waves again and if they then satisfy the inclusion criteria (employed in a wave and with a second consecutive observation) they will re-enter the study. Individuals can exit permanently if in all further waves they do not satisfy the inclusion criteria, or once they turn 55 or once they leave the BHPS due to attrition. This resulted in 126,363 observations of 13,804 individuals (men and women).

In the analyses we limited ourselves to observations with full information (listwise deletion). In these preliminary analyses we limited the study to men only (45,903 observations of 6,170 men).

Operationalisation

GHQ-36

The self-completion questionnaire incorporates the shortened GHQ-12 (General Household Questionnaire). The GHQ was originally developed as a screening instrument for psychiatric illness and versions of the GHQ are often used as general measures of well-being (e.g. Thomas, Benzeval, & Stansfeld, 2005). The shortened GHQ includes six negatively and six positively worded statements about how people have been feeling the last few weeks. Examples of negatively worded items are: “lost much sleep over worry”, “felt constantly under strain”, examples of positively worded items are “been able to concentrate on whatever

you're doing“ and “been able to face up to problems”. Responses are given on a 4-point scale ranging from 0 to 3, with 0 being the best score, for example “not at all” for a negatively worded item, and “more so than usual” for a positively worded item. Cronbachs’ alpha is .89. We created a scale ranging from 0 to 36 by summing the individual items.

Job loss

The BHPS collects information on labor market behavior in two ways. Respondents report on their current labor market status and in each annual wave respondents are asked to report on employment, self-employment, and non-employment spells from the 1st of September in the previous year to the present. Interviews with respondents are conducted from August in the present year to May in the next year, so these job histories go 13 (for those interviewed in August) to 20 (May) months back. The job histories also contain information why people left their jobs. We adapted the Stata programs written by Maré (2006) to clean the job histories (fix missing dates etc.).

We consider a job ending as involuntary if the reason was stated as “made redundant”, “dismissed or sacked” or “temporary job ended” and the job lasted at least 6 months. The BHPS offers as an alternative reason for job loss “health reasons”. Respondents who lost their jobs because of health problems are likely to pick this option, so health selection may be less of a problem in this study (Burgard, Brand, & House, 2007). We decided to only consider the first reported involuntary job loss for conceptual and practical reasons. Conceptually, we suppose that involuntary job loss may influence the risk of future job loss, people that lost their jobs involuntarily may be more likely to experience it again because they end up in less secure jobs and/or they are inherently more likely to lose their jobs. If we would model the effect of both job losses on well-being we would underestimate the effect of the first job loss. Practically speaking, in the BHPS the job histories in part overlap with previous waves (yearly waves, histories of 13 to 20 months). In two consecutive waves respondents may therefore report in each wave that *a* job ended, even though in reality just one job ended. For the researcher it is difficult to decide whether respondents experienced two job losses or just one. It is nearly impossible to come up with good decision rules that on the one hand are not too rigid (i.e. that do justice to complicated reality) and on the other hand are not too ad hoc assignments. To keep things simple we decided to only consider the first job loss and ignore subsequent job losses. In addition, job endings occurring before the first wave of observation were not considered (i.e. reported in the first observation wave).

The analyses control for the type of involuntary job loss (interactions with dismissed/sacked and temporary job loss) to account for the possibility that the effects of involuntary job loss on well-being differ by the type of involuntary job loss.

Educational level prior to job loss

We distinguish five levels of academic educational attainment: (1) no qualification; (2) up to O-level or equivalent; (3) A-level or equivalent; (4) higher qualifications; (5) degree or higher than degree. Educational prior to job loss is interacted with job loss (educational level in the wave before job loss). In a fixed effects model the main effects of educational level reveal the effects of a change in educational level for an individual. Educational level hardly changes in adulthood and we are not interested in its effects, so we do not include the main effect of educational level.

Lost job characteristics

We control for two aspects of the lost job: whether it was a low paid job and whether the job was a professional, managerial or technical job. Low pay was defined as below 2/3 of the median income level. The median was the within sample median (gross) income level for those who worked and who were between 18-65 in a given year (e.g. in 1991 2/3 of the median was at 567 pounds, in 2007 at 1002 pounds). Professional/ managerial/ technical status of a job is determined following the classification of the British Registrars General Office (social class 1 and 2).

Controls

We control for the number of health problems respondents report (anxiety, depression and alcohol/drug problems were excluded), as deteriorations in (physical) health may affect labor market opportunities as well as well-being (Mandemakers & Monden, working paper 2009). We employ an additional control for leaving the labor force due to health problems, as we control whether people are currently out of the labor force due to a long term illness. For the first wave of observation this dummy is always equal to 1 as our sample selection criteria required that people are employed or on maternity leave in the first wave (i.e. not long term ill). Relationship status is controlled for with a set of dummy variables (cohabitation, divorce, separated, single, marriage is the reference category) as relationships affect well-being. We control for the income in the household that is not derived from the income of the respondent, because respondents in more affluent households may be less affected by involuntary job loss.

We take the total gross income of the household and deduct the respondent's income from the lost job. The resulting income is equivalized using the McClements scale (see appendix). The analyses include ages (years since 18th) and its square, as labor market career as well as well-being depend on age. We included dummies for regions in the UK, and year of interview (grouped) to take spatial and time variation in labor market opportunities into account. See table 3 for descriptives of the variables used in the analyses. Table 4 shows characteristics of the jobs that were involuntarily lost and of the educational level of people who lost a job.

We use an unbalanced panel design (people can leave and re-enter the observation window). To find out whether leaving and re-entering matters, we incorporate a dummy for the waves that indicates whether people left and have re-entered.

Model

**NOTE: THE ANALYSES ARE PRELIMINARY.
WORK IN PROGRESS**

We use fixed effect models to model the effect of involuntary job loss on well-being. We use fixed effect models because these control for unobserved differences between people that may affect their chance of involuntary job loss and their level of well-being (e.g. the motivation to work). Those that involuntarily lose a job may be more likely to be unhappy in the first place. By looking at changes within an individual we control for such differences between people.

In these preliminary analyses we limited the study to men only because the labor market careers of women are more complicated (women have more alternatives for work than men). We plan to carry out analyses for women in the future.

We limit our study of the impact of job loss to the short term effects (limited to the wave in which the job loss was reported, i.e. at most 1 year after the job loss) and to the long term effects (the 3 to 5 waves after the wave in which the job loss was reported, i.e. 4-6 years after the job loss). The analysis of medium term effects will be included in future versions of the paper. We use two sets of observations: For the analysis of short term effects we use all the observations of people who do not experience job loss and all the observations before first job loss and the first wave of job loss for the respondents who experience job loss (i.e. we discarded the 2nd and further waves after first job loss). We discarded these medium and long

term observations for now because they would complicate the models (sample is 38,962 of observations of 6,170 men). For the analysis of long term effects we only use the people who never experienced job loss and the people who experience job loss for which we have long term observations (at least 1 wave of year 4-6). Again we discarded observations after the period of interest for now because they would complicate the models (sample is 40,119 of observations of 5,659 men).

We noticed that well-being deteriorates 1 wave before job loss is reported, so we incorporated a dummy to indicate the wave before job loss. In models where we leave out this dummy the effect of job loss was attenuated (as the fixed effects regressor compares the well-being score after job loss, with the overall individual well-being score, the pre-job loss wave inflates the overall mean if we do not control for it). The fewer pre-job loss waves present for an individual the larger this problem is.

We use interaction terms of involuntary job loss with the type of job loss (redundancy, dismissal, temporary job ending), educational level, and in further steps with characteristics of the previous job, namely whether it was low paid, and whether it was in high social class (professional, managerial and/or technical job) to uncover whether these moderate the impact of involuntary job loss on well-being.

Further additions

We plan to carry out a number of additional analyses. First, we aim to investigate whether the effect of involuntary job loss differs if we ignore temporary job losses. Second, we need to better investigate to what extent our results are influenced by the panel inclusion criteria (entry and re-entry criteria). Third, we did not use weights, even though a person in Northern Ireland has a much higher chance of being included in the BHPS compared to a person in England, as the sample sizes are not proportional to population size. We also plan to employ controls for the age at which job loss occurs because re-employment chances diminish with age and because older cohorts have achieved lower levels of educational attainment than newer cohorts (due to educational expansion, see table 7 in appendix).

minor planned changes:

- reverse GHQ score, so that higher scores indicate higher well-being
- divide age squared by 100

Results WORK IN PROGRESS AS THE ANALYSES WILL CHANGE

Descriptive

For those who never experience job loss the mean GHQ level is 10.14, this is somewhat smaller than the pre-job loss level of those who experience job loss but not significantly different. The waves post job loss do show significantly lowered levels of well-being (higher GHQ) compared to pre job loss and also compared to people who do not experience job loss. These results indicate that involuntary job loss hurts well-being. Table 4 shows that 1,391 respondents experience a first involuntary job loss in the course of the panel. The table shows further how these are distributed by the reason of job loss (mostly redundancies almost 70%), by educational level of respondents (19% has no qualifications, 15% a degree or higher), and by characteristics of the job (50% was low paid and 30% was a professional/managerial/technical job).

Figure 2 shows the mean within individual changes in well-being following job loss over time by educational level. In the first year there appears to be a sharp increase in GHQ (decrease in well-being). On the short term a higher education seems to buffer the stress increasing effects of job loss, as the effects clearly diverge by educational level. Those with no qualification or just O-level suffer the most, followed by A-level and higher qualifications. Those with a degree or higher experience the smallest effect of job loss. In the second and third year the differences between the educational levels decreases. In the fourth to sixth year the differences between the educational levels decrease even further, with the exception of respondents with higher qualifications. Table 4 shows that there are relatively few observations of respondents with higher qualifications so that could be a noisy result. These descriptive results would lend support to our first hypothesis that involuntary job loss hurts on the short and long term, and to our second hypothesis that education buffers the effect of job loss on the short term. For the long term effects, these results show a consistent positive or negative buffer of educational level as the two opposing hypotheses (hypotheses 3 and 4) predict. These effects, however, reflect the mean within individual changes, but they do not take control variables into account. For more sophisticated analyses we turn to fixed effects models. First, we investigate the short term effects. Second, we turn to the long term effects.

Short term impact

Table 2 shows four models of the short term effect of job loss in increasing order of complexity. The first model just includes dummy variables for the waves pre job loss and the

wave in which job loss was reported. As mentioned before, subsequent post job loss waves were excluded from the analyses. Furthermore, we differentiate between reasons of job loss with indicators for dismissals and for temporary job endings. Redundancies were the reference category. The main effect of job loss therefore reflects the effect for becoming redundant. The model shows that job loss increases the GHQ score by about 1 point in the first wave that job loss was reported (i.e. first year of job loss). In the wave before job loss the GHQ is also significantly elevated. The effect of job loss on the short term does not significantly differ by the reason of job loss because the two indicators for reason of job loss are both not significant.

The second model adds controls to the basic model. The short term effect of job loss and the effect losing a job in the next wave are both reduced but remain significant. For the control variables the health controls appear to be especially important. Being long term ill increases the GHQ score by about 4 points, and each reported health problem increases the score by .4 points. A number of relationship dummy variables are significant, and show unsurprising effects (e.g. separation decreases well-being). The models indicate that there is a curvilinear effect of age with well-being, it decreases first to about age 50 (maximum GHQ is at $\text{age} = 18 + .14/(-2*-.0022)=49.4$) and then increases. Respondents who re-entered the BHPS appear to have lower GHQ scores than before they left. The region and year dummies are not displayed in the tables to save space. These indicators are all not significant. The control variables show very consistent effects across all the models.

The third model investigates whether education buffers the effect of job loss on the short term. The main effect of job loss now indicates the effect of becoming redundant for respondents with no qualifications. The significant negative effects of A-level and degree and higher shows that those with a higher educational level suffer less from job loss than those with lower levels of educational level. These results lend support to our second hypothesis: education buffers the effects of job loss on well-being.

Characteristics of the job that was lost regarding pay and type of work are added in the fourth model. Adding these effects does not really change the buffering effects of educational level. Losing a low paid job seems to be especially bad compared to better paid jobs; an effect of about 1.2 points in GHQ. The type of work does not matter, higher social class white collar jobs do not significantly differ from other jobs. The main effect of job loss disappears once we control for job characteristics, probably because the effect of losing a low paid job is a very strong effect and people with no qualifications are more likely to lose low paid jobs and to lose jobs in redundancies. Even if we control for characteristics of the lost job it still

appears that a higher educational level shields people from the stressful effects of job loss on the short term.

Long term impact

We investigate the long term impact of job loss by investigating the effect on well-being after 4 to 6 years. The first model just models the job loss trajectory. It includes dummy variables for the wave before job loss, the wave in which job loss was reported (year 1), for the second and third year, and for the fourth to sixth year. Our prime interest lies with this last long term effect. As mentioned before, subsequent post job loss waves were excluded from the analyses. Furthermore, we differentiate between reasons of job loss with indicators for dismissals and for temporary job endings for the effect of the fourth to sixth year. Redundancies were the reference category. The main effect of job loss in the fourth to sixth year therefore reflects the effect for becoming redundant. The model shows that job loss increases the GHQ score by about .9 point in the first wave that job loss was reported (i.e. first year of job loss). This differs from the models in table 5 because we excluded respondents who do not have a fourth to sixth year of job loss observation. In the wave before job loss the GHQ is also significantly elevated. In the second and third year the effect of job loss diminishes to just .6 point. In the fourth to sixth year the effect decreases even further to just about .4. The effect of job loss on the long term (4-6 years) does differ significantly by the reason of job loss. Those who lost a temporary job 4-6 years ago appear to do worse by an additional .8 points than those who became redundant or dismissed.

The second model adds controls to the basic model. The long term effect of job loss and the effect of losing a job in the next wave are both reduced but remain significant. The medium term (2 and 3 years) and long term (4 to 6 years) effects of job loss disappear. The effect of having lost a temporary job 4-6 jobs remains though. Interestingly, the long term effect of job loss is limited to temporary job losses.

The third model investigates whether education buffers the effect of job loss on the long term. The coefficients of education are negative but they not significant. Only the effect of higher qualifications is negative and significant. That effect, however, may be due to random noise as there are few job losses of people with higher qualifications and the effect does not fit with the other education effects.

Characteristics of the job that was lost regarding pay and type of work are added in the fourth model. Adding these effects does not really change the buffering effects of educational level. Contrary to the short term effect of losing a low paid job it now seems that those who

lost a low paid suffer less from job loss on the long term; an effect of about .7 lowered on the GHQ. The type of work does not matter, higher social class white collar jobs do not significantly differ from other jobs.

Conclusion & discussion

We supposed that involuntary job loss reduces well-being on the short and long term. Furthermore, we set out to uncover whether education buffers the effects of job loss on the short and long term. For the short term, we hypothesized that a better education decrease the effect of involuntary job loss. For the long term we had two competing hypotheses: one saying that better educated people suffer less, the other that they suffer more.

Preliminary results (fixed effects regression analyses) indicates that involuntary job loss decreases well-being on the short term, for the longer term we only found that those who lost a temporary job suffered from involuntary job loss. Regarding the moderating effects of education we found that a higher education decreases the effect of involuntary job loss on the short term (first year), whereas on the longer term (4 to 6 years) the opposing effects may cancel each other out as we no longer find a modifying effect of education. We plan to further investigate why temporary jobs are bad on the long term but job losses for other reasons are not. Furthermore, we want to find out whether the opposing effects of education indeed (as it seems to appear now) cancel each other out on the long term.

We further find that the type of job is important for the effect of involuntary job loss on well-being on the short and long term. Jobs that are badly paid make up about half of the involuntary job losses. On the short term, having lost such a job increases the level of stress, but on the longer term we find an opposite effect. Having lost a low paid job in the past (4-6 years ago) appears to be good, i.e. it decreases distress. We are unsure of how to interpret these contrasting findings and need to further investigate it.

TABLES AND FIGURES

Table 1. Panel out-flow: whether present at next wave and present in four waves from current wave.

	next wave %	four waves %
follow-up	84.4	47.7
temporary exit	0.9	2.8
permanent exit by design (55+ or last wave)	8.1	9.0
attrition	6.6	40.5

Table 2. mean GHQ-36

	mean GHQ level	N individuals	N waves
never lost a job	10.14 b	4,779	32,292
ever lost a job	pre- first job loss	1,391	5,279
	post first job loss	1,391	8,332
overall	10.25	6,170	45,903

means that share a or b differ significantly

Figure 2. predicted change in GHQ-36 (higher=worse) after job loss by educational level. (Note years since job loss is 1 in wave of reported job loss).

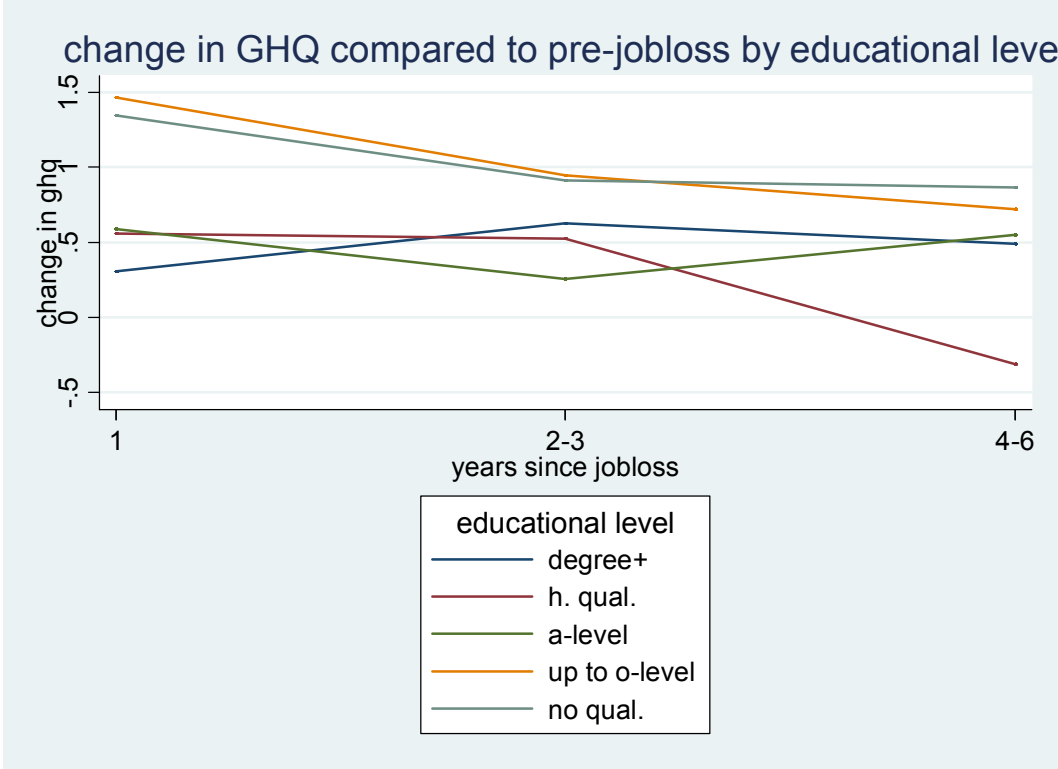


Table 3. Descriptives (*N* respondents = 6,170, *N* observations = 45,903).

Variable	Mean	Std. dev.	Min	Max
GHQ 36 (0-36)	10.25	4.86	0	36
1 wave before job loss	.030		0	1
job loss, wave reported, year 1	.030		0	1
job loss, year 2-3	.046		0	1
job loss, year 4-6	.049		0	1
long term illness	.012		0	1
number of health problems	.601	.86	0	8
married (ref.)	-		-	-
cohabitation	.158		0	1
widow	.003		0	1
divorce	.034		0	1
separated	.014		0	1
single	.230		0	1
number of children	.779	1.02	0	7
log eq. household income	2.76	.75	0	4.66
age (age -18)	18.3	9.79	0	36
age squared (age - 18)	431	372	0	1296
re-entered	.045		0	1
Greater London (ref.)	-		-	-
South & East Anglia	.251		0	1
Midlands	.139		0	1
Manchester, Mersey's & North West	.084		0	1
Yorkshire & North	.125		0	1
Wales	.117		0	1
Scotland	.152		0	1
Northern Ireland	.061		0	1
1991-1993 (ref.)	-		-	-
1994-1996	.140		0	1
1997-1999	.150		0	1
2000-2002	.228		0	1
2003-2005	.222		0	1
2006-2008	.136		0	1

Table 4. Well-being, reason job loss, education level, characteristics of lost jobs for lost job observations.

variable (range)	short term (year 1)		long term (year 4-5-6)	
	Mean	Std. dev.	Mean	Std. dev.
GHQ 36 (0-36)	10.95	5.65	10.52	5.26
<i>type of job loss:</i>				
redundancy/lay-off (ref.) (0-1)	.675		.709	
dismissal (0-1)	.139		.138	
temporary job ended (0-1)	.178		.153	
<i>educational level respondent:</i>				
no qualifications (0-1)	.186		.169	
O-level (0-1)	.350		.360	
A-level (0-1)	.242		.258	
higher qualifications (0-1)	.066		.059	
degree and higher (0-1)	.145		.147	
<i>characteristics previous job:</i>				
low pay job (0-1)	.500		.491	
high social class (professional, managerial, technical) (0-1)	.297		.294	
<i>N</i> respondents	1,391		880	
<i>N</i> observations	1,391		2,252	

Table 5. Fixed effects model of short term effects of involuntary job loss on well-being (job loss reported in current wave, at most 1 year ago).

	model 1: job loss process	model 2: controls added	model 3: educational level added	model 4: job char. added
<i>job loss process:</i>				
>1 wave before job loss (ref.)	-	-	-	-
1 wave before job loss	.70***	.48***	.49***	.52***
job loss, wave reported, year 1	1.04***	.71***	1.14***	.51
<i>interactions with job loss:</i>				
<i>type of job loss:</i>				
redundancy/lay-off (ref.)	-	-	-	-
dismissal	.60	.60	.46	.29
temporary job ended	-.12	-.12	.06	-.00
<i>educational level respondent:</i>				
no qualifications (ref.)			-	-
O- level			-.03	-.05
A- level			-.80*	-.85*
higher qualifications degree or higher			-.93 -1.12*	-.97 -1.21*
<i>characteristics previous job:</i>				
low pay job (> 2/3 of median)				1.19***
high social class (professional, managerial, technical)				.49
<i>controls:</i>				
long term illness		3.87***	3.87***	3.86***
number of health problems		.39***	.39***	.39***
married (ref.)		-	-	-
cohabitation		-.28**	-.29**	-.29**
widow		1.16	1.16	1.16
divorce		.31	.31	.30
separated		2.10***	2.09***	2.07***
single		-.10	-.11	-.12
number of children		.01	.01	.01
log eq. household income		.01	.01	.00
age (-18)		.14***	.14***	.14***
age squared (age -18)		-.00***	-.00***	-.00***
re-entered		-.49**	-.50**	-.49**
region and year dummies	no	yes	yes	yes
constant	10.13***	7.91***	7.90***	7.96***
<i>N</i> respondents	6,170	6,170	6,170	6,170
<i>N</i> observations	38,962	38,962	38,962	38,962
average observations per respondent	6.31	6.31	6.31	6.31

Note: region & year dummies omitted from table (used as controls in models 2, 3 and 4).

* p<0.05; ** p<0.01; *** p<0.001

Table 6. Fixed effects model of long term effects of involuntary job loss (wave 3-5 since job loss reported, 4-6 years since job loss) for respondents who never experienced or who have at least a long term observation after job loss.

	model 1: job loss process	model 2: controls added	model 3: educational level added	model 4: job char. added
<i>job loss process:</i>				
>1 wave before job loss (ref.)	-	-	-	-
1 wave before job loss	.68***	.46**	.47**	.44**
job loss, wave reported, year 1	.88***	.58***	.59***	.57***
job loss, year 2-3	.61***	.18	.19	.16
job loss, year 4-6	.44**	-.17	.06	.44
<i>interactions with job loss year 4-6:</i>				
<i>type of job loss:</i>				
redundancy/lay-off (ref.)	-	-	-	-
dismissal	-.01	-.14	-.15	-.03
temporary job ended	.82**	.87**	.94**	1.00***
<i>educational level respondent:</i>				
no qualifications (ref.)			-	-
O- level			-.27	-.30
A- level			-.07	-.10
higher qualifications degree or higher			-1.13*	-1.19*
			-.33	-.37
<i>characteristics previous job:</i>				
low pay job (> 2/3 of median)				-.74***
high social class (professional, managerial, technical)				-.14
<i>controls:</i>				
long term illness		3.78***	3.79***	3.81***
number of health problems		.43***	.43***	.43***
married (ref.)		-	-	-
cohabitation		-.29**	-.29**	-.29**
widow		1.53*	1.53*	1.54*
divorce		.26	.27	.27
separated		2.07***	2.08***	2.07***
single		.08	.08	.07
number of children		.03	.04	.03
log eq. household income		.01	.01	.01
age (-18)		.16***	.16***	.16***
age squared (age -18)		-.00***	-.00***	-.00***
re-entered		-.52**	-.52**	-.53**
region and year dummies	no	yes	yes	yes
constant	10.11***	6.32***	6.31***	6.36***
<i>N</i> respondents	5,659	5,659	5,659	5,659
<i>N</i> observations	40,119	40,119	40,119	40,119
average observations per respondent	7.09	7.09	7.09	7.09

Note: region & year dummies omitted from table (used as controls in models 2, 3 and 4).

* p<0.05; ** p<0.01; *** p<0.001

Appendix:

Table 7. Educational expansion in the BHPS (observations of men & women, that fit age criteria).

age at date of interview	highest academic qualification					Total
	1 degree+	2 higher	3 a-level	4 up to O	5 no qual	
18-24	1,718 9.76	722 8.95	4,310 18.81	6,009 16.49	916 5.73	13,675 13.54
25-29	3,265 18.55	1,254 15.54	3,888 16.97	5,210 14.30	874 5.46	14,491 14.35
30-35	3,158 17.95	1,476 18.30	3,751 16.37	6,292 17.27	1,331 8.32	16,008 15.85
35-39	2,961 16.83	1,338 16.59	3,535 15.43	6,320 17.35	2,118 13.24	16,272 16.11
40-44	2,637 14.99	1,236 15.32	3,055 13.33	5,388 14.79	2,923 18.27	15,239 15.09
45-49	2,235 12.70	1,097 13.60	2,463 10.75	4,173 11.45	3,681 23.01	13,649 13.51
50-54	1,623 9.22	944 11.70	1,911 8.34	3,045 8.36	4,156 25.98	11,679 11.56
Total	17,597 100.00	8,067 100.00	22,913 100.00	36,437 100.00	15,999 100.00	101,013 100.00

Figure 3. McClements Equivalence scale:

wFIEQFCB wFIEQFCB contains a conversion factor to allow for the effects of household size and composition on needs in making income comparisons. The equivalence scale used in this variable is the McClements scale, as used in publications such as 'Households Below Average Income' (Department of Social Security, 1992). wFIEQFCB is based on the scale to be used with income before housing costs are deducted. (see Table 29) Uses wHGR2R wAGE wDEPCHL on Record wINDALL.

Table 29 McClements Equivalence Scales

	Before housing costs	After housing costs
Head	0.61	0.55
Spouse	0.39	0.45
Other second adult	0.46	0.45
Third adult	0.42	0.45
Further adult	0.36	0.40
Dependent child aged:		
0-1	0.09	0.07
2-4	0.18	0.18
5-7	0.21	0.21
8-10	0.23	0.23
11-12	0.25	0.26
13-15	0.27	0.28
16+	0.36	0.38

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