



Unpacking the misery multiplier: How employability modifies the impacts of unemployment and job insecurity on life satisfaction and mental health

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ABSTRACT

Employability strongly moderates the effects of unemployment and of job insecurity on life satisfaction and mental health. Using nationally representative panel data from Australia, I find that an increase in employability from zero to 100% cancels around three quarters, in some cases more, of the detrimental effect of unemployment. Employability also matters for employees: an increase in men's employability from zero to 100% reduces the detrimental effect of job insecurity by more than half. The effects of extreme job insecurity and of unemployment are large and of comparable magnitudes. The findings are used to compute estimates of the well-being trade-off between increases in job insecurity and increases in employability, relevant to the support of "flexicurity" policies, and of the "misery multiplier", the extent to which the effect of a rise in aggregate unemployment on those becoming unemployed is supplemented by the effects on others' insecurity and employability.

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1. Introduction

Luiz Felipe Scolari has shrugged off the pressure mounting on him at Chelsea and declared that another managerial position would always be around the corner for him. "If I lose my job, I have another job Maybe tomorrow, maybe after one year or two years. I have worked for 25 years." (Guardian, 14 January, 2009).

It has been firmly established, in a wide range of empirical studies at individual and country levels, that unemployment is detrimental for health and well-being, both in itself and because it entails a loss of income. At the same time, a large number of psychological studies and a few in economics have found that job insecurity itself also generates substantial losses in well-being. Within both literatures, some studies have uncovered heterogeneous effects associated with scarring and social norms, or across different socio-economic groups. The issue which I address in this paper is that an important reason for heterogeneity in the effects

of unemployment and job insecurity is rarely recognised in theory or empirically investigated: namely, that employability matters. The Guardian quotation illustrates one instance of this proposition: Chelsea coach Scolari was reported to be unconcerned by his job being at risk because he felt he was very employable. More generally, the effects on well-being of being unemployed or of the fear of job loss are each potentially mitigated if there are good prospects of finding another job: the question is, how much?

The broad term "employability" refers to the ability of an individual to find and sustain employment. A characteristic of the individual in context, employability is indicated by the probability of obtaining employment, though often proxied by measures of its determinants (skills, adaptability and so on). In this paper I develop a simple conceptualisation of the roles of employment insecurity and employability, with two central features. First, it allows for the uncertainty surrounding unemployment and employment to affect well-being both directly and indirectly through its impact on expected income. The direct effects are justified in psychological and social theory, while the indirect effects are economic. Second, the framework allows for the interaction between unemployment and employability, and between job insecurity and the employability of the employed. To empirically implement this framework, the three key variables – employability of the unemployed, job loss

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risk, and the employability of the employed – are directly measured by the subjective expectations of the probabilities of future employment transitions.

An understanding of the role of employability in modifying the detrimental impacts of unemployment and job insecurity is greatly relevant to the formation of unemployment and employment policies. European debate, for example, in recent years has focused on “flexicurity”, a strategy to devise employment and welfare legislation that will optimise the ability of employers to redeploy labour (thereby, other things equal, raising job insecurity) while at the same time providing generous support and training for the unemployed (European Commission, 2007). “Flexicurity” policies are argued, not only to be efficient, but also to provide a political compromise by protecting the welfare of the unemployed. There is, however, no empirical evidence through which the impacts of job insecurity and of employability could be compared, and any trade-off evaluated from the perspective of the well-being of workers.

My findings provide new estimates of the impact of unemployment and of job insecurity, in the context of a model that takes account of the effects of the interacting transition risks. These findings are gleaned using fixed effects estimation on panel data, and are therefore more confidently interpreted as causal than in the many cross-section studies in the literature. I examine how the magnitude of the effects of insecurity among employees compares with the effects of being unemployed.

It turns out that, as predicted, unemployed people with little hope of finding a job enjoy the least well-being by a considerable margin, while employed people who are both highly employable and in a secure job enjoy the most. In between there is substantial differentiation according to employability, job insecurity and their interaction. The estimates imply that there are considerable gains from raising the employability of an unemployed person. Meanwhile, high job insecurity substantially lowers subjective well-being, but less so if the employee is more employable. Relative to a secure job the deleterious effects of a high level of job insecurity are comparable in magnitude with the effects of unemployment. I compute crude estimates of the “misery multiplier” ranging between 3.2 and 3.5 – this being the ratio of the total impact of a rise in unemployment on well-being to the impact on just those made unemployed. It is this broader impact of unemployment, deriving from its extended impact on job insecurity and employability, that accounts for the society-wide impact of recessions. The estimates also allow the trade-off between greater job insecurity and improved employability to be computed, thus providing a first step for a potential evaluation of “flexicurity” policy.

The paper proceeds as follows. Section 2 overviews the two literatures on unemployment and job insecurity, and sets up the simple framework and specification that takes account of the interactions among the uncertainties. Section 3 describes the data and Section 4 my findings, and I conclude in Section 5 with the policy implications.

2. Theory and literature

Whether or not they have a job workers face uncertainty: in any given period employees might lose their jobs, while the unemployed might find one. This uncertainty affects well-being both directly, in that it is uncertain whether they will experience the well-being associated with having a job *per se*, and indirectly through its impact on expected income. The aim of this section is to develop a simple framework that allows the separate and interactive effects on well-being of the different elements of this uncertainty to be distinguished.

The welfare-reducing uncertainty surrounding employment is what is typically referred to as employment insecurity. The narrower focus of most studies, however, is on the lack of continuity of the current job, i.e. job insecurity, commonly conceived as the probability of involuntary job loss.¹ The broader concept of employment insecurity also encompasses uncertainty over future prospects in the labour market. Although employment insecurity is an objective concept, it also has an important affective dimension defined by how people perceive the uncertainty. The antecedents and consequences of job insecurity perceptions have received a great deal of attention in psychological studies. By contrast, the economics literature has largely been dominated by studies of objective ex-post indicators, such as redundancy or job loss (e.g. Nickell et al., 2002). Only quite recently has it been established that perceptions of job insecurity are quite well correlated with subsequent job loss frequencies (Campbell et al., 2007; Stephens, 2004; Dickerson and Green, 2009), in effect bridging two literatures.

A robust finding from the psychological literature is that job insecurity is a source of lower health and well-being (for good overviews see Burchell, 1994; Nolan et al., 2000; Wichert, 2002; Cheng and Chan, 2008). This effect holds for a variety of indicators of job insecurity, including the form of employment contract (Kompier et al., 2009). The main rationalisation in psychological theory is the argument that job insecurity is a stressor, leading to work strain. Loss of control over one’s work and life situation is at the heart of this process, and the strain may be exacerbated by inability even to assess the chance of job loss. The impact is also interpreted as contributing to a repudiation of the implicit “psychological contract” between worker and employer (Mauno et al., 2005), and the effect of rising insecurity on health has also been seen as part of a shift in power relations (Scott, 2004). The economic rationale, namely that greater job insecurity entails a loss of expected income, is also found in some of the psychological theory, though with less prominence.

It is recognised that the impact of perceived job insecurity on well-being varies both among individuals (Sverke and Hellgren, 2002), and across socio-economic categories, though there are few firmly established regularities across many studies (Nolan et al., 2000). Cheng and Chan (2008) find robust evidence that health outcomes were more severe for older than for younger employees. Mauno et al. (2005) and De Cuyper and De Witte (2007) find that the impact on job satisfaction is notably greater for permanent than for temporary contract workers. An important underlying explanation for these apparent regularities is the perspective from psychology, holding that the impact of insecurity is moderated by an individual’s dependency on the current job, which is governed by alternative economic security and the degree of occupational mobility (Greenhalgh and Rosenblatt, 1984). This “dependency perspective” can also be seen as an economic interpretation: it proposes that job loss (hence also job insecurity) has greater effect for individuals who possess fewer transferable skills and are hence less employable. Dependency on one’s job is also affected by institutional factors: it has been found that employees in countries with high levels of employment protection legislation (EPL) express lower satisfaction with security (Clark and Postel-Vinay, 2009). The latter finding is interpreted as EPL reducing outflows from unemployment, thereby raising the cost of job loss. Thus, the same risk of job loss has different well-being implications across differing institutional environments.

These findings about the effects of employment insecurity complement others from economics and psychology that unem-

¹ Job insecurity can also involve uncertainty over valued job features within the current job, including fears over promotion/demotion and relocation.

ployment itself is also associated with very substantial reductions in subjective well-being (among others, Warr, 1987; Clark and Oswald, 1994; Bjorklund and Eriksson, 1998; Theodossiou, 1998; Winkelmann and Winkelmann, 1998; Clark et al., 2001; Clark, 2003; Cooper et al., 2008; Kassenboehmer and Haisken-DeNew, 2009). Dolan et al. (2008) provide a good overview of economic studies. The negative impact of unemployment holds even after one controls for the lower income that is associated with being out of work. It is not hard to rationalise the disutility as resulting from the disruption of structured activity, and from the social stigma and loss of identity.²

The aggregate detrimental impact of a higher unemployment rate on subjective well-being is found to be especially large, and is explained as deriving partly from the increased numbers of unemployed people, but to a much greater extent from the inferred greater job insecurity of employees (Di Tella et al., 2001, 2003; Luechinger et al., 2008). There is also evidence of some differentiation in the psychological impact of unemployment. For example, the effect of individual unemployment is less pronounced in areas of high unemployment (especially for those unemployed with poor prospects of employment), which is interpreted as a social norm effect (Clark, 2003; Shields and Wheatley-Price, 2005; Stutzer and Lalive, 2004; Powdthavee, 2007; Clark et al., 2010). Unemployment is thought to act as less of a stigma, and less of a threat to one's identity, when others around are also out of work.

Unemployment might also hurt a lot less, however, if there were a good chance of escaping from it soon. Yet the uncertainty aspect of the impact of unemployment on well-being has only barely been touched upon in research. The broad term “employability” refers to the ability of an individual to find and sustain employment. A characteristic of the individual in context, employability is indicated by the probability of obtaining employment, though often proxied by measures of its determinants. The extent to which an unemployed person is employable will affect well-being, again both directly and indirectly because it raises expected income. The direct impact of increased employability derives from the purpose and hope that accompanies job search activities and from the anticipation of the future identity and activities attached to employment. Knabe and Rätzel (2008) report that better job prospects are a source of greater life satisfaction in an analysis of the German Socioeconomic Panel, and in so doing question whether the conclusions of Clark et al. (2001) concerning the impact of past unemployment on well-being are robust once one allows for the impact of future employment prospects.

In a parallel manner, little is known about the impact of employability on well-being among employed people. Employability might matter directly for the employed because it delivers greater control over one's career, or because it could be part of a “new psychological contract” in which the employer helps employees to acquire employment security even if they have less job security (De Cuyper et al., 2008). Lack of employability could also cause employees to become stuck in jobs they do not like, even if those jobs are secure. In support, De Cuyper et al. find a cross-sectional positive association between employability and well-being among Belgian workers. Berntson and Marklund (2007) find a positive association between some indirect employability

indicators of employed individuals and mental well-being one year later. However, neither of these studies adequately captures the economic rationale through which employability potentially affects expected income, since they do not allow for any interaction between the impacts of job insecurity and of re-employment difficulty. Moreover, these studies do not control for time-invariant fixed effects which have been found to bias estimates in previous well-being studies (Ferrer-i-Carbonell and Frijters, 2004).

The central objective here, therefore, is to consider two issues:

- i. for the employed, how far the ill effects of job insecurity are added to, and compounded by, lack of employability;
- ii. how far employability is also important for mitigating the impact of unemployment on well-being.

In addition the aim is to add confirmation to previous findings on the effects of job insecurity and unemployment, but in the context of a broader model which controls for employment insecurity and employability. A subsidiary aim is to consider whether there is a predictable differentiation in the effects of unemployment, employability and insecurity, on well-being across social or economic groups, according to their capacity to cope with the adverse shock of job loss.

The essence of the model, which builds on the literatures described above, views well-being as depending on expected income, job status, employability and employment insecurity. Since expected income itself depends on job status, employability and employment insecurity, these latter three variables affect well-being both directly and indirectly. The form of the impact of uncertainty depends on the current status, whether unemployed or employed. If unemployed, there is uncertainty over whether a job can be found; a greater perceived chance (more employability) increases well-being. If employed, there is a risk of job loss in the current period and, conditional on that, uncertainty over whether the job will be replaced by another job that is as good.

To simplify I assume that well-being can be well enough approximated by a linear function, and that individuals are in either one of two labour market states, employed or unemployed. In each state they form a subjective assessment of the chance of transmission to the other. I assume that the unemployed, other than searching for jobs which they do, can do nothing additional to affect the transition probability. Similarly the employed, other than working diligently which they do, cannot alter the risk of job loss. If they do lose their job, they may get another job giving the same wage as the previous one. But they might not obtain another job this period or, if they do, might have to settle for one with a lower wage.

Thus well-being, Y , is given by:

$$Y = U \cdot \{ \eta E + \alpha[\eta w_r + (1 - \eta)B + OH] \} + (1 - U) \cdot \{ I(1 - \rho) - \delta(1 - \mu) + \alpha[(1 - \rho)w + \rho[\mu w + (1 - \mu)\theta] + OH] \} \quad (1)$$

Here: U is a 0/1 dummy for employed/unemployed; η is employability for the unemployed, i.e. the probability when unemployed of gaining a job at the reservation wage w_r ; E is the well-being attached by the unemployed to the prospect of being employed *per se*; α is the weight attached to the monetary component of well-being; B is unemployment benefits; OH is other household income; I is the well-being attached by employees to their current employment³; ρ is the risk of involuntary loss; μ is the probability of regaining as good a job as the previous one and is a measure of

² These papers also complement the parallel literature that examines the effects of unemployment or of job loss on objective indicators of health (Sullivan and Wachter, 2009, is a recent example). By contrast, according to Knabe et al. (2010), experienced utility, measured using day reconstruction methods and integrated over a full week, is not reduced by unemployment: even though in similar activities unemployed people are less happy, they are able to spend more time on non-work activities which are more conducive to positive well-being.

³ I and E are closely related; the difference is that whereas I is the well-being from employment for the employed, E is the prospective well-being from employment for the unemployed.

employability for the employed, and δ is the direct weight attached to employability; w is wages; and θ is the income from benefits and/or a lower quality job, if no equivalent post-displacement job is found.

The first expression is the well-being of someone who is unemployed but might gain a job in the current period at the reservation wage. If she fails to get a job she receives an unemployment benefit as well as other household income; but if she is successful she gains both the wage and the non-pecuniary well-being associated with getting a job *per se*. The second expression is the well-being of an employed person who might lose her job, comprising both direct utility benefits from the work that may be reduced by job insecurity and lack of employability, and indirect benefits deriving from expected income which is also reduced by insecurity.

One advantage of this formulation is that it shows the interaction between the probabilities that an employee faces. Eq. (1) can be re-arranged as follows, in a way which brings out this interaction and generates a model that can be suitably tested with data on the perceived transition probabilities, η , ρ and μ :

$$Y = (1 - U)I + U \cdot \eta(\alpha w_r - \alpha B + E) - (1 - U) \cdot \rho I - (1 - U) \cdot \rho(1 - \mu)\alpha(w - \theta) - \delta(1 - U)(1 - \mu) + \alpha H \quad (2)$$

where H is total household income (including, in addition to other household income, wages if employed, benefits if unemployed).

The fourth expression is the additional loss of well-being from potential job termination arising from the possibility that the post-displacement job is of lower quality or that no new job is found. In the empirical analysis that follows a question arises as to how to include $(w - \theta)$ the potential income loss, since no data items capture this. For the present I simply include this as part of the parameter to be estimated, but I consider an alternative assumption below.

Allowing for other observed and unobserved determinants of well-being, this gives an estimating equation:

$$Y_{it} = aU_{it} + bU_{it}\eta_{it} + c \cdot (1 - U_{it}) \cdot \rho_{it} + d \cdot (1 - U_{it}) \cdot \rho_{it}(1 - \mu_{it}) + e \cdot (1 - U_{it}) \cdot (1 - \mu_{it}) + f \cdot H_{it} + g \cdot Z_{it} + u_i + \varepsilon_{it} \quad (3)$$

where Z_{it} is a vector of other observed personal characteristics typically found to be related to well-being in previous studies, u_i is an unobserved fixed effect, ε_{it} white noise. The expectations are that: $\hat{a} < 0$, $\hat{b} > 0$, $\hat{c} < 0$, $\hat{d} < 0$, $\hat{e} < 0$, $\hat{f} > 0$.

The existing empirical literature summarised above can be interpreted as confirming the hypotheses that $\hat{a} < 0$ and that $\hat{c} < 0$ in many different countries and settings, and $\hat{f} > 0$ is usually supported though sometimes the impact of income on well-being is weak. Beyond adding further confirmation for those hypotheses, this paper's primary new contributions are to provide estimates for the key parameters which can then inform unemployment and insecurity policies, and specifically to test the three hypotheses for which the evidence cited above is slim or non-existent:⁴

- that well-being is increased by greater employability if unemployed ($\hat{b} > 0$);
- that well-being is diminished by lack of employability among the employed ($\hat{e} < 0$);
- that the negative impact of job insecurity on well-being is made worse by lack of employability ($\hat{d} < 0$).

⁴ The hypothesis that $\hat{b} > 0$ has been supported with panel data in the case of Germany (Knabe and Rätzel, 2008; Clark et al., 2010) though the magnitude of the marginal effects of an increase in the probability of finding employment are not available. The hypothesis $\hat{e} < 0$ is examined as a cross-section association (De Cuyper et al., 2008).

3. Data

Eq. (3) was estimated using panel data from the first seven annual waves of the Household, Income and Labour Dynamics in Australia Survey (HILDA).⁵ The survey began with a national probability sample of 7682 households in 2001. All adult household panel members undertake a personal interview and fill in a self-completion questionnaire.⁶

As outcome measures I use two alternative indicators of subjective well-being: life satisfaction and subjective mental health. Life satisfaction is measured through the item in the personal interview: "All things considered, how satisfied are you with your life?". Responses are given on an unanchored scale from 0 to 10, with a sample mean score of 7.84. Within the self-completion questionnaire mental health is computed from five "Short-Form Health Survey" (SF-36) items, which capture feelings in the previous four weeks. The questions ask how much of the time "Have you been a nervous person?"; "Have you felt so down in the dumps that nothing could cheer you up?"; "Have you felt calm and peaceful?"; "Have you felt down?"; "Have you been a happy person?". Responses are on a 6-pt scale from "All of the time" to "None of the time". An additive index is created, with negative items counted negatively, and the score is transformed to a 0–100 scale.⁷ Within the sample used the mean value is 74.6 and the standard deviation 16.1.

A distinctive feature of the HILDA data is that it includes direct measures of individuals' perceived probabilities of transition (each way) between employment and unemployment. To capture employability for the unemployed, respondents with this status were asked: "I would like you to think about your employment prospects over the next 12 months. What do you think is the per cent chance you will find a suitable job during the next 12 months?"⁸ In seeking answers on a percent scale, HILDA is consistent with the recommendations of Manski (2004). To capture the probability of job loss, ρ , employees were asked: "I would like you to think about your employment prospects over the next 12 months. What do you think is the percent chance that you will lose your job during the next 12 months? By loss of job, I mean getting fired, being laid off or retrenched, being made redundant, or having your contract not renewed." Dickerson and Green (2009) show that the distribution of responses, though overly pessimistic and spiked in places, is reliable in that the perceptions are good predictors of subsequent job loss. The survey also asked employees to report directly on Re-employment Difficulty: "If you were to lose your job during the next 12 months, what is the percent chance that the job you eventually find and accept would be at least as good as your current job, in terms of wages and benefits?" Responses on this scale are slightly optimistic relative to subsequent outcomes, but are also significant predictors of subsequent employment in a good job.

⁵ The HILDA Survey Project was initiated and is funded by the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs and is managed by the Melbourne Institute of Applied Economic and Social Research. The findings and views reported in this paper, however, are those of the author and should not be attributed to any of the aforementioned organisations.

⁶ Full details are given on the panel website: <http://melbourneinstitute.com/hilda/>; last accessed 20/4/10.

⁷ The SF-36 is validated and widely used for use in clinical practice, policy evaluations and surveys. The scales were computed by HILDA staff using Ware et al. (2000), and have been additionally validated for use in Australian populations (Butterworth and Crosier, 2004). In accordance with the manual, a person-specific raw score was estimated for any scale on which there were valid responses on greater than or equal to half the items, the average being calculated and applied to missing data.

⁸ The reference to a "suitable" job is set against immediately prior questions on the reservation wage and preferred hours.

Table 1
Descriptives.

	All		Men		Women	
	Mean	sd	Mean	sd	Mean	sd
Life Satisfaction	7.84	1.41	7.81	1.43	7.86	1.4
Subjective mental health	74.58	16.12	75.78	15.66	73.4	16.47
Unemployed	0.06	0.25	0.07	0.25	0.06	0.24
Employability (of the unemployed)	0.66	0.3	0.66	0.31	0.66	0.3
Probability of job loss	0.1	0.21	0.11	0.21	0.09	0.2
Probability of not finding as good a job	0.35	0.33	0.37	0.34	0.33	0.33
Probability of both the above	0.04	0.10	0.04	0.11	0.03	0.10
Pay (gross weekly, A\$)	719.83	586.07	869.01	674.16	567.7	429.49
HH Income (A\$000s) ^a	23.06	23.24	27.38	26.61	18.65	18.17
Age	36.11	12.79	36.08	12.88	36.15	12.69
Age squared	1467.66	968.29	1467.74	986.01	1467.59	949.9
Married	0.6	0.49	0.61	0.49	0.59	0.49
No. of children ≤ 14	0.7	1.05	0.67	0.99	0.68	1.02
Regional Australia	0.33	0.47	0.32	0.47	0.33	0.47
Remote Australia	0.02	0.14	0.02	0.14	0.02	0.14
Long-term health condition or disability	0.13	0.34	0.13	0.34	0.13	0.34
Other adult present at interview	0.34	0.47	0.37	0.48	0.31	0.46

Note: The sample is that used for the analyses in Table 3 below, with 49,147 person-year observations. It is not representative of the Australian population in any one year. The means are unweighted.

^a Equivalised per capita annual household income.

Since only employees are asked the employment insecurity questions the sample is comprised of an unbalanced panel of individuals who are either employees or unemployed. I treat males and females separately, and descriptive statistics on both the outcome variables and all explanatory variables are provided in Table 1. As can be seen, among the unemployed the average expected probability of gaining a suitable job within a year is two thirds. Among employees, the probability of job loss averages out at 1 in 10, and if job loss happens the probability of failing to find as good a job averages at just over a third.

4. Findings

4.1. Core findings

Estimations of life satisfaction depend on whether it is treated as an ordinally comparable variable or as a cardinal variable. There is a trade-off between the possible disadvantage of making the stronger assumption that it is cardinal, and the benefits of being able to allow for unobserved fixed factors that may be correlated with outcomes of interest. Ferrer-i-Carbonell and Frijters (2004) show that it makes little difference in practice whether one assumes cardinal or ordinal responses to life satisfaction questions, and advance possible reasons why; but that it makes a large difference being able to remove the bias associated with unobserved fixed effects, in some cases reversing the signs of coefficients. Added to the presentational advantage that marginal effects are transparent in regression models but in ordinal models need careful interpretation, this paper therefore uses the cardinal assumption. The main findings are presented in Tables 2 and 3, for the two outcomes life satisfaction and for mental health, respectively. In each table, columns (1) and (4) present the random effects estimates of the impacts of employability and employment insecurity on life satisfaction/mental health.

As can be seen, all the hypotheses about the impact on well-being are supported. First, it is confirmed that $\hat{\alpha} < 0$, for both males and females. Second, as predicted in Eq. (1) employability for the unemployed has a strong positive impact on well-being ($\hat{b} > 0$). At the average employability of 0.66 for both sexes, these two results mean that the average impact of unemployment on well-being is negative (and significant at $p=0.01$), in confirmation of previ-

ous studies.⁹ Third, also in confirmation of earlier work, the risk of job loss is a direct source of loss of life satisfaction and mental health ($\hat{c} < 0$). Fourth, there is the predicted interaction between the probability of job loss and re-employment difficulty ($\hat{d} < 0$); though in the case of males the estimated effect on mental health is not significantly different from zero. In other words, the impact of job insecurity is greater where an employee perceives a lower chance of regaining as good a job. Fifth, the estimates of the separate effects of re-employment difficulty, independent of job insecurity, are all negative as predicted ($\hat{e} < 0$). Finally, the effect of household income on well-being is positive though relatively small, as has been found in previous work, and in the case of males the impact on life satisfaction is not statistically significant.

The control variables have been included in the equation following a range of other studies of life satisfaction and mental health (e.g. Blanchflower and Oswald, 2008; Wooden et al., 2009). Consistent with these, it is found that life satisfaction and mental health both follow a U-shape with age, are greater for those who are married or co-habiting than for the single, and decrease with a long-term health condition or disability. Those who live in regional Australia (and for women also those who live in a remote Australian region) have higher life satisfaction and mental health than those in the major Australian cities. Men's life satisfaction increases with the number of their dependent children, but not women's. Finally, I included a variable to control for whether another adult is present during the interview, since previous research has found that their presence is liable to generate a social desirability bias. The proposition is that some respondents may not like to reveal their low well-being before their family. There is an upward effect on life satisfaction and also, for males only, an upward effect on reported mental health.¹⁰

While these controls perform as expected, as in earlier studies only a small proportion of the overall variation of life satisfaction is explained by the variables. There are many other factors that impact on employees' well-being. The effects shown in the table would be biased if excluded factors were correlated with the unemployment and insecurity variables. It is also possible that there is

⁹ $-0.964 + 0.752 \cdot 0.66 = -0.496$ for men; $-0.743 + 0.543 \cdot 0.66 = -0.385$ for women.

¹⁰ This effect on mental health is notable in that the data come from the self-completion questionnaire.

Table 2
Employability, employment security and life satisfaction.

	(1)	(2)	(3)	(4)	(5)	(6)
	Males			Females		
	re	re	fe	re	re	fe
Unemployed	−0.964*** (0.0790)	−0.932*** (0.0932)	−0.771*** (0.0967)	−0.743*** (0.0795)	−0.517*** (0.0924)	−0.568*** (0.0972)
Employability if unemployed	0.752*** (0.101)	0.755*** (0.119)	0.573*** (0.119)	0.543*** (0.103)	0.348*** (0.120)	0.445*** (0.121)
Probability of job loss	−0.319*** (0.0515)	−0.190*** (0.0565)	−0.232*** (0.0552)	−0.350*** (0.0529)	−0.344*** (0.0595)	−0.247*** (0.0567)
INTER ^a	−0.363*** (0.103)	−0.471*** (0.111)	−0.284*** (0.110)	−0.224** (0.114)	−0.193 (0.126)	−0.149 (0.123)
Re-employment difficulty ^b	−0.122*** (0.0287)	−0.0870*** (0.0311)	−0.119*** (0.0317)	−0.0731*** (0.0281)	−0.0863** (0.0306)	−0.0525* (0.0311)
HH income (\$000s) ^c	0.000508 (0.000399)	0.000666 (0.000415)	0.000312 (0.000472)	0.00128** (0.000608)	0.00125* (0.000658)	0.00142* (0.000736)
Age	−0.136*** (0.00601)	−0.125*** (0.00688)	−0.149*** (0.0125)	−0.0922*** (0.00613)	−0.0863*** (0.00704)	−0.100*** (0.0128)
Age squared	0.00167*** (7.66e−05)	0.00150*** (8.51e−05)	0.00147*** (0.000153)	0.00117*** (8.06e−05)	0.00103*** (9.06e−05)	0.00108*** (0.000156)
Highest education level		−0.0218*** (0.00654)			−0.0162*** (0.00574)	
Extroversion		0.126*** (0.0170)			0.0627*** (0.0149)	
Agreeableness		0.185*** (0.0201)			0.134*** (0.0210)	
Conscientiousness		0.0927*** (0.0183)			0.0587*** (0.0167)	
Emotional stability		0.161*** (0.0171)			0.204*** (0.0168)	
Openness to experience		−0.0973*** (0.0182)			−0.0567*** (0.0167)	
Married/co-habiting	0.442*** (0.0264)	0.394*** (0.0297)	0.392*** (0.0335)	0.367*** (0.0245)	0.363*** (0.0275)	0.279*** (0.0330)
No. of children ≤ 14	0.0446*** (0.0113)	0.0453*** (0.0123)	0.0559*** (0.0151)	0.0111 (0.0120)	−0.00301 (0.0132)	0.0155 (0.0169)
Regional Australia ^d	0.129*** (0.0269)	0.104*** (0.0298)	0.0786* (0.0448)	0.174*** (0.0269)	0.159*** (0.0295)	0.0835* (0.0476)
Remote Australia ^d	0.115 (0.0792)	0.0587 (0.0884)	−0.0348 (0.112)	0.208** (0.0819)	0.188** (0.0940)	−0.0274 (0.124)
Long-term health condition	−0.126*** (0.0234)	−0.104*** (0.0251)	−0.0839*** (0.0256)	−0.175*** (0.0243)	−0.147*** (0.0263)	−0.0696** (0.0270)
Others present in interview	0.0413*** (0.0160)	0.0378** (0.0174)	0.0277 (0.0172)	0.0621*** (0.0167)	0.0419** (0.0184)	0.0426** (0.0180)
Observations	24813	18610	24813	24334	19009	24334
Number of individuals	6417	3831	6417	6464	4183	6464
R ² within	0.0259	0.0263	0.0266	0.0133	0.0120	0.0140
R ² between	0.0751	0.138	0.0278	0.0609	0.110	0.0311
R ² overall	0.0986	0.202	0.0374	0.0844	0.156	0.0354

The regressions also include a constant and year dummies.

^a Product of “probability of job loss” and “If job lost, probability of not regaining as good a job”.

^b If job lost, probability of not regaining as good a job.

^c Equivalised per capita annual household income.

^d Reference category: major city.

* Indicates 10% statistical significance.

** Indicates 5% statistical significance.

*** Indicates 1% statistical significance.

reverse causation, with lower well-being affecting both employment participation and insecurity.

An employee's personality is one factor that could have an impact on perceptions of employability and insecurity, as well as on life satisfaction. In Wave 5 of the Panel, respondents' personalities were assessed using multiple items from which were derived the “Big 5” personality scales: extroversion, agreeableness, conscientiousness, emotional stability and openness to experience. To see whether personality could be a factor accounting for the observed effects of employability and insecurity, these five indices were introduced in the model, assuming that personality did not change over time. At the same time, another largely time-invariant factor is introduced, namely highest education level. The results

are shown in columns (2) and (5). Note that, for this estimation, the sample size is reduced as it can apply only to those who were respondents in Wave 5. As can be seen, each of the five personality dimensions has a significant effect on both expressed life satisfaction and mental health, all positive with the exception of openness to experience. Despite this, the estimated effects of unemployment, employability and the probability of job loss, and the interaction with the difficulty of re-employment, remain highly significant in the expected direction, and are not greatly changed from their values derived from columns (1) and (4). One difference, however, is that in the case of mental health the major part of the difficulty of re-employment effect comes through its interaction with the probability of job loss, instead of directly.

Table 3
Employability, employment security and subjective mental health.

	(1) re Males	(2) re	(3) fe	(4) re Females	(5) re	(6) fe
Unemployed	−8.037*** (0.934)	−5.955*** (1.063)	−5.021*** (1.156)	−8.422*** (0.991)	−6.927*** (1.108)	−4.963*** (1.228)
Employability if unemployed	4.537*** (1.190)	3.306*** (1.362)	2.556* (1.427)	5.914*** (1.279)	5.097*** (1.441)	4.100*** (1.528)
Probability of job loss	−5.113*** (0.603)	−4.043*** (0.652)	−3.934*** (0.645)	−3.137*** (0.645)	−1.729** (0.709)	−1.329* (0.691)
INTER ^a	−1.205 (1.201)	−2.250* (1.282)	−0.297 (1.281)	−2.641* (1.385)	−4.167*** (1.494)	−2.481* (1.494)
Re-employment difficulty ^b	−0.808** (0.334)	−0.213 (0.356)	−0.00369 (0.371)	−0.599* (0.341)	−0.130 (0.364)	0.142 (0.378)
HH income (\$000s) ^c	0.0202*** (0.00488)	0.0156*** (0.00505)	0.00592 (0.00592)	0.0325*** (0.00735)	0.0212*** (0.00776)	0.00569 (0.00889)
Age	−0.624*** (0.0686)	−0.536*** (0.0745)	−0.387*** (0.147)	−0.218*** (0.0739)	−0.281*** (0.0817)	0.0228 (0.156)
Age squared	0.00842*** (0.000870)	0.00675*** (0.000920)	0.00486*** (0.00178)	0.00422*** (0.000971)	0.00367*** (0.00105)	0.00107 (0.00190)
Highest education level		0.00148 (0.0703)			0.104 (0.0665)	
Extroversion		1.873*** (0.178)			1.335*** (0.171)	
Agreeableness		1.063*** (0.210)			0.532** (0.241)	
Conscientiousness		1.102** (0.191)			0.693*** (0.192)	
Emotional stability		4.303*** (0.180)			4.753*** (0.192)	
Openness to experience		−0.689*** (0.191)			−0.728*** (0.192)	
Married/co-habiting	2.664*** (0.309)	2.279*** (0.334)	1.874*** (0.401)	1.609*** (0.299)	1.631*** (0.324)	0.740* (0.407)
No. of children ≤ 14	0.114 (0.130)	0.123 (0.137)	0.216 (0.177)	0.0697 (0.146)	−0.154 (0.155)	−0.0848 (0.208)
Regional Australia ^d	0.548* (0.308)	0.547* (0.325)	−0.0351 (0.531)	1.851*** (0.325)	1.849*** (0.343)	1.536*** (0.585)
Remote Australia ^d	0.840 (0.931)	−0.0220 (0.989)	0.367 (1.362)	2.534** (1.025)	1.709 (1.107)	1.782 (1.584)
Long-term health condition	−2.342*** (0.270)	−2.243*** (0.286)	−0.931*** (0.296)	−3.364*** (0.294)	−3.285*** (0.311)	−1.503*** (0.327)
Others present in interview	0.731*** (0.186)	0.674*** (0.200)	0.804*** (0.200)	0.331 (0.202)	0.418* (0.218)	0.329 (0.218)
Observations	22091	17615	22091	22329	18165	22329
Number of individuals	6012	3804	6012	6202	4150	6202
R ² within	0.0101	0.0103	0.0111	0.00495	0.00564	0.00548
R ² between	0.0813	0.288	0.0679	0.0873	0.260	0.0600
R ² overall	0.0603	0.198	0.0507	0.0578	0.176	0.0415

The regressions also include a constant and year dummies.

^a Product of “probability of job loss” and “If job lost, probability of not regaining as good a job”.

^b If job lost, probability of not regaining as good a job.

^c Equivalised per capita annual household income.

^d Reference category: major city.

* Indicates 10% statistical significance.

** Indicates 5% statistical significance.

*** Indicates 1% statistical significance.

There may, however, be other unobserved time invariant factors correlated both with the employability and insecurity variables and with life satisfaction or mental health, in which case the random effects estimator will be inconsistent. Accordingly, columns (3) and (6) present fixed effects panel estimates. These fixed effects estimates are consistent, under the assumption that there are no omitted time-varying factors that are also correlated with the employability and insecurity variables. The point estimates are, in some but not all cases, somewhat lower, than in the random effects model. A Hausman test rejects the hypothesis that the difference in coefficients is unsystematic, and accordingly the fixed effects estimates are preferred.¹¹ It should be noted, however, that while

time-invariant effects have been controlled for it is always possible that there are other time-varying variables associated with both expectations and well-being. There might also be some reverse causation whereby other unobserved sources of changing well-being induce both unemployment and subjective expectations of labour market transitions. Endogenous selection into labour market states could be a further source of bias. To address these issues one would need available some robust instrumental variables, unrelated to well-being, which affect the subjective expectations and the labour market states. In their absence, one has to take the associations shown in the results as highly supportive of the model proposed in Section 2, without definitively proving that the process is causal. With the fixed effects estimates, the broad pattern of findings remains unchanged in that all the core hypotheses are still accepted in the case of life satisfaction, though for mental health

¹¹ The χ^2 statistic was 105.6 ($p=0.000$) for men, and 190.6 for women.

the role of re-employment difficulty is significant only for women, through its interaction with the probability of job loss.

How large are the relative effects of unemployment, employability and job insecurity? Consider, first, a male “no-hoper”, an unemployed man who perceives that the chance of getting a job in the coming year is zero. (About 1 in 10 of the unemployed think this chance is less than 10%.) Using the preferred fixed effects estimates, such a man’s life satisfaction is lower by 0.77, compared with if he were in a secure job with no perceived risk of job loss and highly employable. This is more than one half of the standard deviation of life satisfaction (see Table 1).¹² Consider, what happens if his employability is raised from zero to 100%. His predicted life satisfaction is now only 0.20 (= 0.77 – 0.57) lower than if he were in a secure job¹³. For women, the story is similar. The unemployed no-hoper’s well-being is estimated to be 0.57 lower than if she were in a secure job, but if she could expect definitely to get a job within a year, the loss in well-being is reduced by more than three quarters to 0.12. The mitigating effects of employability on mental health are also large. Compared with being in a secure job mental health for “no-hoppers” is lowered by 5.02 for men and 4.96 for women, in each case just under a third of the standard deviation of mental health. But for those 100% confident of finding a job within a year the lowering of mental health is 2.47 (=5.021 – 2.556) for men and only a statistically insignificant 0.86 for women. In short, the potential penalty of unemployment is very large, as other studies have found; however, when circumstances allow a person to have complete confidence in gaining a job the adverse effects of unemployment are more than three quarters mitigated.

The effects of insecurity, and the potential mitigating effects of employability, are also substantial. As illustration consider the downward impact of a 10 percentage point rise in job insecurity. For men’s life satisfaction the effect would be reduced by more than half from 0.0516 (=0.0232 + 0.0284) to 0.023 when employability for the employed is raised from zero to 100%; for women the impact would be reduced from 0.034 to 0.025. For mental health, the downward impact would be reduced from 0.038 to 0.013 for women; but for men only from 0.423 to 0.394.

Some previous studies have found that the detrimental effects of unemployment or insecurity are greater for men than for women (e.g. Clark, 2003; Theodossiou, 1998). Here, it may be observed, for example, that the point estimate for the negative impact on mental health of unemployment, at the mean level of employability is 3.33 for men and 2.26 for women. However, this gender difference is not statistically significant at conventional levels, and the same holds for life satisfaction, and for the estimates of the impact of job insecurity at the mean level of the difficulty of re-employment. Thus, in contrast with the previous studies, one cannot reject the hypothesis that women and men in Australia with the average level of employability react in the same way to unemployment and insecurity.

Previous studies have commented that job insecurity can be as detrimental for life satisfaction as actually becoming unemployed (Wichert, 2002; Sverke and Hellgren, 2002), and indeed Burchell (1994) finds that men going from unemployment to insecure jobs did not improve their psychological well-being. Can this observation be confirmed here in the case of Australia? The size of the impact of job insecurity depends a great deal on the perceived probability of being able to regain another job as good as the current one. In the baseline case, those who expect to do so with 100% probability – one might dub this the “Scolari case” – the impact of

a 100% fear of job loss is just 0.23 and 0.25 for men and women, respectively. But, to take the opposite extreme, where respondents expect that there is no chance of replacing a lost job with one just as good, their life satisfaction is reduced by 0.64 for men and 0.45 for women. These estimates of the extreme downside of insecurity and employability are not far short of the worst unemployment effects. This case would be exemplified by an “insider” threatened with job loss in an insider-outsider segmented labour market.

The most informative comparisons might be made between very insecure employees (for whom $\rho = 1$) of average employability and unemployed people with average employability. Using the descriptives from Table 1, the very insecure male employee’s life satisfaction is 0.38 below that of someone in a secure job with no perceived risk of job loss¹⁴ (0.32 for women), whereas the unemployed man with average employability has 0.39 (0.27 for women) less life satisfaction.¹⁵ The comparison for mental health outcomes is similar. Relative to a highly employable man in a secure job, the unemployment man with average employability has 3.33 lower mental health (2.26 for a woman); while the 100% job insecure man with average employability has 4.05 lower mental health (2.10 for a woman). It seems that, when insecurity is extreme, it can be as bad as unemployment in its effects on either life satisfaction or mental health. It should be recalled, however, that only a small proportion of employees report this extreme of job insecurity. Among those who have a positive expectation of job loss, the modal subjective probability is just 10%, and the detrimental impact on well-being of job loss fear at this level is, unsurprisingly, substantially less than that of being unemployed.

4.2. Robustness tests

The broad consistency between the estimates for the two types of outcome in itself should add some confidence in the hypotheses, since the source of the data for mental health is the self-completion questionnaire, while that for life satisfaction comes from the face-to-face interview. In addition to the three models presented above, I carried out several types of sensitivity analysis on the core findings.

First, I included those who were economically inactive in the estimation, this constraining the other variables to have the same impact for all employment and non-employment groups. This showed that, as expected, being inactive is associated with lower well-being relative to being in employment (more so for men than for women), though greater well-being relative to being unemployed. However, the effects of employability and of insecurity among the economically active were close to those reported in Tables 2 and 3. Second, I estimated separate models for employed and unemployed people, allowing the control variable parameters to take on different values. This produced broadly the same conclusions as in the full model, in most cases with only small alterations in the estimates. Third, I added industry dummy variables to the controls. These were found to be largely insignificant, and to make no substantive difference to the core parameter estimates. Fourth, in deriving the estimating model it was in effect assumed that the cost of job loss for those failing to replace with an equivalent job was the same across individuals. However, in practice it will differ, even though we have no direct measures of how. An alternative assumption might be that this cost is proportional to wages, that is, that the potential cost of job loss is greater for those on higher wages.

¹² The marginal impact of becoming unemployed would be less if the job lost carried lower job security.

¹³ This difference is statistically significant at the 1% level.

¹⁴ To illustrate the computation, the men’s figure is calculated as $0.232 + 0.37 \times (0.284 + 0.119)$.

¹⁵ Computed in the case of men as $0.771 + 0.66 \times 0.573$.

Table 4
Well-being effects, by wealth and education.

	Males			Females		
	Low education	High Education	Difference	Low education	High education	Difference
Life satisfaction						
Education						
Unemployed	−0.939*** (0.140)	−0.548*** (0.140)	−0.391 (0.198)	−0.568*** (0.129)	−0.377** (0.163)	0.191 (0.208)
Employability if unemployed	0.806*** (0.170)	0.252 (0.175)	−0.554 (0.244)	0.523*** (0.161)	0.0870 (0.203)	−0.436* (0.259)
Employment Insecurity: Impact of job insecurity (at mean employment difficulty)	−0.443*** (0.065)	−0.253*** (0.050)	−0.190 (0.082)	−0.186*** (0.064)	−0.369*** (0.055)	−0.183** (0.085)
Impact of employment difficulty (at mean job insecurity)	−0.171*** (0.047)	−0.128*** (0.038)	−0.043 (0.060)	−0.027 (0.044)	−0.114*** (0.040)	−0.087 (0.059)
Observations	11057	13750		12047	12286	
	Below median	Above median	Difference	Below median	Above median	Difference
Wealth						
Unemployed	−0.974*** (0.131)	−0.552*** (0.179)	0.422* (0.222)	−0.765*** (0.132)	−0.442*** (0.170)	0.323 (0.215)
Employability if unemployed	0.802*** (0.161)	0.452** (0.221)	−0.350 (0.273)	0.595*** (0.166)	0.446** (0.211)	−0.149 (0.268)
Employment insecurity: Impact of job insecurity (at mean employment difficulty)	−0.366*** (0.060)	−0.284*** (0.055)	0.082 (0.082)	−0.312*** (0.065)	−0.302*** (0.056)	0.011 (0.086)
Impact of employment difficulty (at mean job insecurity)	−0.155*** (0.046)	−0.133*** (0.039)	0.022 (0.061)	−0.090* (0.047)	−0.050 (0.038)	0.040 (0.061)
Observations	11907	11220		11140	11590	
	Low Education	High education	Difference	Low education	High education	Difference
Mental health						
Education						
Unemployed	−4.933*** (1.629)	−5.286*** (1.706)	−0.353 (2.359)	−6.469*** (1.606)	−3.184 (2.041)	3.285 (2.597)
Employability if unemployed	2.806 (1.986)	2.015 (2.131)	−0.791 (2.913)	6.539*** (1.993)	0.727 (2.551)	−5.812* (3.237)
Employment insecurity: Impact of job insecurity (at mean employment difficulty)	−4.351*** (0.737)	−3.908*** (0.602)	0.443 (0.951)	−3.021*** (0.769)	−1.710*** (0.683)	1.310 (1.028)
Impact of employment difficulty (at mean job insecurity)	−0.550 (0.536)	0.309 (0.455)	0.860 (0.703)	0.078 (0.525)	−0.281 (0.490)	−0.360 (0.718)
Observations	9603	12485		10976	11353	
	Below median	Above median	Difference	Below median	Above median	Difference
Wealth						
Unemployed	−4.449*** (1.457)	−6.091*** (2.277)	−1.642* (2.703)	−6.182*** (1.611)	−5.627** (2.267)	0.555 (2.781)
Employability if unemployed	0.984 (1.810)	5.277* (2.811)	4.293 (3.343)	5.255*** (2.002)	5.193* (2.837)	−0.062 (3.472)
Employment insecurity: Impact of job insecurity (at mean employment difficulty)	−4.376*** (0.670)	−3.757*** (0.687)	0.619 (0.960)	−2.094 (0.764)	−2.241 (0.725)	−0.147 (1.053)
Impact of employment difficulty (at mean job insecurity)	0.079 (0.520)	−0.193*** (0.483)	−0.272 (0.710)	0.136 (0.555)	−0.616 (0.492)	−0.751 (0.742)
Observations	10408	10342		10132	10829	

* Indicates 10% statistical significance.

** Indicates 5% statistical significance.

*** Indicates 1% statistical significance.

With this the interaction term is derived to be a 3-way product of the probability of job loss, the probability of not regaining as good a job, and pay. With this derivation, it is found that the findings on most variables are not substantially changed. The estimated coefficient of the newly defined interaction term is negative as predicted in all cases, but in some cases is not statistically significant.¹⁶

4.3. Extensions

Other than by gender, variation across other socio-economic groups in the effects of employment insecurity might occur if the groups systematically differed in the well-being they obtain from employment, or in their attitudes to uncertainty, or in their capacity to cope with the event of job loss. In the case of the latter, the HILDA data afforded two indicators which might be argued to afford more support and greater capacity to deal with the events surrounding job loss, and hence less of a detrimental impact on well-being. First, it might be argued that those with greater education can respond better to being unemployed, having more self-confidence and a greater facility to pursue and gain fulfilment from alternative activities. Certainly, differentiation in the effects of unemployment and insecurity have been found in respect of prior education levels (Clark and Oswald, 1994; Sverke and Hellgren, 2002). Second, those with greater household wealth should be less affected by the loss of resources attendant upon unemployment than those with fewer assets – though there is no reason to expect that the psychic costs of unemployment and insecurity should differ systematically between high and low wealth groups.

Table 4 explores the possibility of this differentiation, in respect of both well-being outcomes, life satisfaction and mental health. The reported coefficients derive from the preferred fixed effects specifications, with the same controls as in Tables 2 and 3.

In the first part of each panel, the sample is divided up according to whether highest education was less than, or at least, Year 12. For both sexes the unemployment coefficient on life satisfaction is more negative for the low-educated group, and for males the effect of unemployment is significantly worse than for the high-educated group. However, this difference is compensated by the greater impact of employability among the low-educated. So, it does seem that more education moderates the detrimental effects of being unemployed, and that being employable is very important for the low-educated. By contrast, among the employed there are inconsistent differences across education groups in the effects of employment insecurity. In the case of mental health outcomes, with the exception that among females' employability is more important for the low-educated, most of the differences between the two groups are statistically insignificant. In short, there is some albeit weak evidence of differential effects according to education group, consistent with the idea that more education affords greater capacity to respond to adverse effects.

The lower half of each panel investigates whether differential physical and financial wealth matters. The sample is divided up according to whether household wealth is below or above the median. As can be seen, for males the size of the estimated unemployment effect on life satisfaction at zero employability levels is greater among the low-wealth group; but the opposite is true for the effect on mental health. However, at mean employability levels there are no significant differences according to wealth; and the same holds for all other coefficients. I conclude that, though wealth might in principle provide a material shield against employment insecurity in financial terms, because of the non-pecuniary

factors the detrimental effects of unemployment respect no class distinctions on the basis of wealth.¹⁷

5. Conclusions and implications

Football management is a precarious job, but this did not seem to concern Scolari, even though he may have been feeling quite insecure while his team's performances were below expectations.¹⁸ Scolari's lack of worry appears to exemplify one of my key findings, namely that employability modifies the impact of job insecurity and unemployment. The estimates imply that:

- i. Previous studies showing a negative effect on life satisfaction and on subjective mental health of becoming unemployed are confirmed, each by substantial fractions of the respective standard deviations.
- ii. However, employability does matter for the unemployed: an increase in employability from zero to 100% cancels more than three quarters of the detrimental effect of unemployment.
- iii. Previous studies showing a substantial negative impact of job insecurity on both life satisfaction and mental health are confirmed.
- iv. However, employability also matters for employees: for example, an increase in men's employability from zero to 100% reduces the detrimental effect of job insecurity by more than half. Even where there is no job insecurity, more employable persons have greater life satisfaction, though there is no significant effect on mental health in this circumstance.
- v. The effects of extreme job insecurity and of unemployment are large and of comparable magnitudes. For example, for someone with average employability, 100% job insecurity lowers life satisfaction to the same extent as unemployment itself. The impact is more than one quarter of the standard deviation of life satisfaction.
- vi. There is some evidence that the detrimental effects of unemployment on life satisfaction, and the mitigating effects of employability, are each greater for lower educated workers.

Two main implications follow from these findings. First, they provide an explanation for the phenomenon that I have termed, above, the "misery multiplier", the fact that an increase in unemployment lowers well-being by far more than can be accounted for solely by the increasing distress of those actually unemployed. Di Tella et al. (2003) report a ratio of 4.8 between the total loss of life satisfaction and the loss incurred just by those becoming unemployed. They conjectured that the difference is due to fear of job loss among the employed being raised when the unemployment rate increases.¹⁹ In support it is known that perceptions of job

¹⁷ Other studies have reported that unemployment has less of an impact on well-being among younger workers (Pichler, 2006; Clark and Oswald, 1994); and that insecurity has a stronger effect on older employees (Cheng and Chan, 2008). It could also be suggested that personality, in particular emotional stability, might affect the response to insecurity. In further results not shown, however, I find that there are no systematic differences according to age or personality.

¹⁸ Scolari did lose his job at Chelsea Football Club a month after expressing this sentiment, but within a further few months was appointed as coach for Uzbekistan league and cup champions Bunyodkor, backed by leading regional oil and gas company Zeromax, with a reported salary making him the world's then highest paid manager. He left Bunyodkor in May 2010 and signed as coach for Brazilian club Palmeiras two weeks later.

¹⁹ Beveridge made a similar point more than half a century ago: "The three million or so unemployed of 1932 means three million lives being wasted in idleness, growing despair and numbing indifference... Beyond the men and women actually unemployed at any moment, are the millions more at work at that moment but never knowing how long that work or any work for them may last." (Beveridge, 1944: 247–248).

¹⁶ A log file of all these results is available on request.

insecurity and employability loosely follow aggregate unemployment rates over the long term and across countries (Green, 2006, 2009). My findings here confirm the conjecture of Di Tella et al., but add the point that a greater aggregate unemployment rate also lowers employability for all citizens. For each additional man made unemployed who was previously in a job with average security and employability, Table 2 estimate implies that life satisfaction falls by 0.32 if he has average employability when unemployed. Suppose that unemployment rises from 5% to 6%, so that out of 100 men, one loses his job, the 5 already unemployed have reduced employability, and the remaining 94 employed men experiencing reduced employment security. A crude estimate of the misery multiplier is obtained by regressing the employability and insecurity indicators against the regional unemployment rate. Using fixed effects estimates, a 1 percentage point rise in the regional unemployment rate is associated with the following effects: -1.04 (0.89) on the perceived percent chance of finding employment (s.e. in parenthesis), 1.34 (0.12) on the perceived probability of job loss, 0.67 (0.06) on the re-employment difficulty, and 1.16 (0.16) on their interaction. Using these figures and Table 2 estimates, the total loss of well-being amounts to 0.95, giving a misery multiplier of 2.99. The equivalent calculation gives 3.23 for women. The misery multiplier in respect of mental health is 2.80 for both sexes. In practice the threats posed by growing aggregate unemployment do not fall equally upon all economically active citizens; yet these sorts of magnitudes help to explain why recessions have such a major impact: a macroeconomic downturn lowers well-being for those thrown into unemployment, but also breeds further employment insecurity which is felt much more broadly.

The second implication concerns contemporary responses to unemployment, in particular “flexicurity” and similar policies around the world in which the aim is to boost the efficiency of the labour market by, on the one hand, removing protections against job loss and, on the other hand, improving support for the unemployed to get back into work and with lower cost. In the framework here, one can think of these policies as raising ρ (the probability of job loss) while also raising η (the probability for the unemployed of finding a job) and μ (the probability of regaining an equivalent-quality job). The policies thus increase the well-being of outsiders, but the impact on that of insiders depends on the relative changes in the transition probabilities and on the parameters. In a general equilibrium, a rise in the probability of job loss would affect the employability of both the unemployed and the employed, as well as the unemployment rate itself. To compute the full effects these inter-dependencies would need to be modelled. Nevertheless, it is informative to deduce the terms of a partial-equilibrium trade-off between higher ρ and higher η and μ , using the fixed effects estimates of the impact on life satisfaction from Table 2. I make the assumptions that the unemployment rate is 10%, and that the mean values of ρ and μ are as given in Table 1, and ask: what increase in both η and μ would be required to “compensate”, in the sense of leaving aggregate well-being unchanged, for raising the perceived probability of job loss ρ from 0.10 to 0.11, i.e. by one percentage point? The answers, in percentage points, are: 1.5 (2.5) for men (women) in the case of life satisfaction, and 12.7 (2.5) in the case of mental health.²⁰ In other words, from the perspective of life satisfaction, the necessary trade-off seems feasible. This conclusion comes from the large impacts of employability on life satisfaction.

²⁰ To illustrate for males and life satisfaction: the rise in job insecurity lowers total well-being by $\{0.9 \times 0.232 \times 0.01 + 0.9 \times 0.33 \times 0.284 \times 0.01\}$; while increasing employability raises well-being by $\{0.1 \times 0.573z + 0.9 \times 0.10 \times 0.284z + 0.9 \times 0.119z\}$ where z is the increase in employability for both employed and unemployed. Equating these two gives the trade-off value of z necessary to leave well-being unchanged.

The trade-off would be yet more attractive if the policy succeeds in lowering unemployment itself. In terms of mental health, though, the trade-off in employability required for men is quite large; this stems from the relatively low impact of employability on the mental health of employed men relative to the high detrimental impact of job insecurity. However, the estimates here are not very precisely determined.

Future research based on the same model of interacting transition risks could investigate the magnitude of the effects of insecurity and employability on consumer spending, marital dissolution and other outcomes. There are also certain limitations to the analysis here that could be addressed in future research. The potential impact of failing to find another job has not been modelled precisely, owing to lack of suitable data; nor has the impact of variable benefit support during a period of unemployment. The indicators of uncertainty could be supplemented by measures of the confidence with which expectations are held, and the consequences of uncertainty might be linked to an individual's degree of risk aversion; and it is also possible that other indicators of insecurity, apart from subjective transition probabilities, might better capture the psychological effects.

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