

**The dispersed welfare costs of unemployment:  
Risk, insurance and perceptions of job insecurity**

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**Abstract**

Despite the plenitude of relevant research on the well-being costs of unemployment and perceived job insecurity on the individual level, the question of whether and how these are disseminated among the continuously employed received less attention. The few existing studies find that increases in the local unemployment rate have strong negative impacts on the well-being of the employed. In this paper, we address the same question but make several important departures from the existing literature in order to cover a wide range of European countries, to make more nuanced assertions as regards the relative importance of the main risk and insurance components, and to better identify the main mechanism and the role of different factors at play. In particular, using semi-aggregated data compiled from the European Union Statistics on Income and Living Conditions (EU-SILC) and the European Social Survey (ESS), we find that (1) re-employment opportunities matter more from a welfare point-of-view than the risk of becoming unemployed, that (2) unemployment insurance can considerably mitigate the ill-effects of unemployment, and that (3) much of the well-being effect of higher unemployment can indeed be attributed to perceived differences in job insecurity.

## 1. Introduction

The efficient reallocation of labour across firms and sectors is crucial for economic growth, even though the continuous process of job reallocation entails important adjustment costs on the part of the workers and may give rise to a feeling of anxiety, insecurity or increased stress. Indeed, when workers are asked to state their preferences with respect to different aspects of work – as is done, for example, in the European Social Survey (ESS) or the International Social Survey Programme (ISSP) – employment and job security consistently rank as the most important economic resources (Green, 2009; OECD 2011). Starting with the seminal paper by Easterlin (1974), a growing body of literature now uses data on subjective well-being to study macroeconomic determinants of life quality and to guide the policy discussions of such ambiguous issues. For example, Di Tella et al. (2001) estimates the unemployment-inflation trade-off using self-reported life satisfaction from Euro-barometer surveys and finds that the welfare cost of unemployment greatly exceeds that of inflation.

To explain society's aversion to unemployment, many scholars have focused on the individual level and documented the large well-being gap between the employed and the unemployed (Anderson and Pontusson, 2007; De Cuyper et al., 2008; Green, 2011). From a slightly different perspective, there are also several studies showing that job security is both important for individual well-being and health (Nolan et al., 2000; Wichert, 2002) and has considerable predictive power over future job-losing and job-finding probabilities (Campbell et al., 2007; Dickerson and Green, 2012). Despite the plenitude of relevant research, the question of whether and how the effects of higher unemployment and ensuing job insecurity may go beyond the well-being of individual workers received less attention so far. One notable exception is Helliwell and Huang (2011) who find that, in the US, labour market performance matters also for those who remain employed: each percentage point increase in local unemployment has a strong negative impact on their well-being, roughly equivalent to the effect of a four percent decline in household income. While this effect can stem equally from reduced worker motivation, increasing work-related stress or even empathy with the unemployed, job insecurity is their purported channel.

In this paper, we maintain the same focus but make several important departures in order to extend the validity of these results and better understand the mechanisms as to how higher unemployment translates into lower well-being for the employed. First, instead of focusing on a single country, we take a cross-country perspective and analyse a large number of European countries. This certainly comes at a cost (from a data quality point of view), but allows us to explore the issue of public insurance and institutions. It also implies that instead of exploiting variation in the level of unemployment between smaller regions, we focus on differences in labour market insecurity across socio-economic groups. Second, we propose a much richer measurement framework to take account

of both risk and insurance components that might influence the likelihood, duration and severity of potential unemployment spells individuals can reasonably feel exposed to. This means making explicit use of individual labour market histories in order to delineate the well-being effect of changing job-finding and job-losing rates as well as effective unemployment insurance. Third, exploiting survey information on perceived job security and job stress enables us to better identify the main mechanism and the role of different factors at play.

The empirical analysis is carried out on a semi-aggregated dataset that we construct by merging two international surveys of a large number of European economies. The first of these is the European Union Statistics on Income and Living Conditions (EU-SILC) which contains extensive information on individuals' income conditions and labour market status in a revolving panel setting. We use it to obtain monthly transition rates in and out of employment as well as the degree of unemployment-driven, year-to-year income losses across various income categories by socioeconomic group for the 2005-2010 period. The second survey we rely on is the bi-annual European Social Survey (ESS) that contains a wide range of self-reported subjective well-being measures for 2006, 2008 and 2010. Importantly, the 2010 round of the ESS contains detailed information on subjective preferences and perceptions related to one's work. Creating homogeneous cells comprising individuals of the same sex, age and educational background in a given country and year allows us to merge these two types of information and generate a novel data structure to address some of the main questions in the relevant literature.

Our findings are numerous. First, they show that a considerable part of the variation in self-reported life satisfaction scores, both across countries, years and socioeconomic groups, is driven by differences in the objective unemployment risk. This implies that the "macroeconomics of happiness" is at work and not even the employed are not isolated from the consequences of economic downturns. Second, we find that the importance of job-losing and job-finding in driving subjective well-being is not the same: the rate job-finding is more closely related to reported well-being, which has far reaching consequences as regards how risk should adequately measured. As for unemployment insurance, we find that it can greatly reduce the ill-effects of unemployment as long as it is adequately captured – this latter is not easy to do, because effective insurance rely both on eligibility and take up and can be quite different from those calculated using official replacement rates and duration stipulations. Third, our results show that much of the well-being effect of higher unemployment can be attributed to perceived differences in risk and an increased sense of job insecurity.

The paper is structured as follows. Section 2 reviews the literature. Section 3 describes the data and presents the empirical strategy. Section 4 discusses the baseline regression results, while Section 5

exploits a richer set of information to make more reliable inferences about the main transmission channels. Section 6 concludes.

## **2. Literature review**

To be done.

## **3. Description of the data**

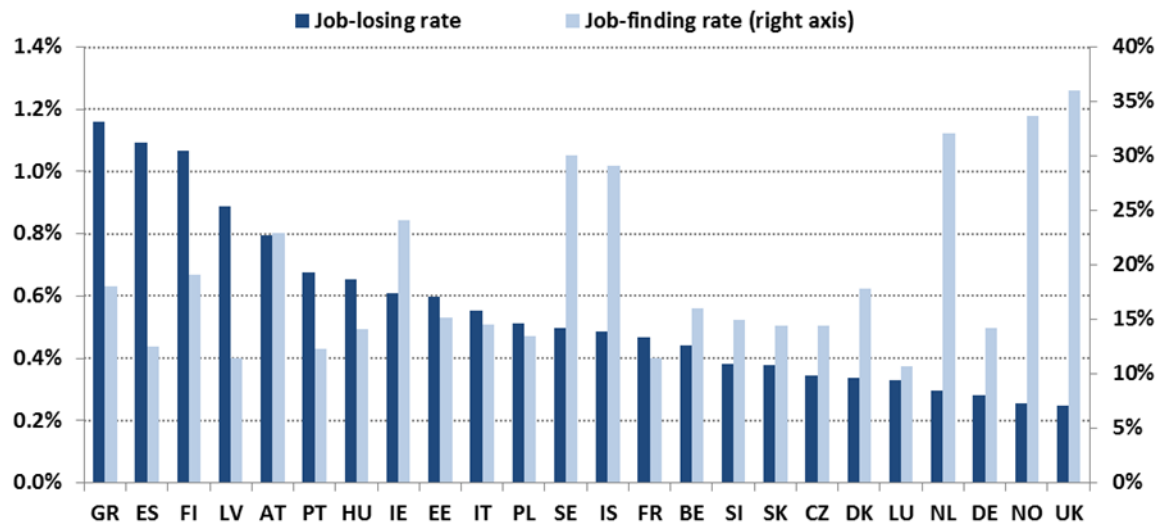
The starting point for the current analysis is that concerns about job security reflect not only the probability of job loss but also its expected costs, as emphasized by several previous studies (Anderson and Pontusson, 2007; De Cuyper et al., 2008; Green, 2011). From a theoretical perspective, the expected cost of job loss can be described as a function of five factors: i) the value of the current job; ii) the probability of losing one's job; iii) the value of not having a job, i.e. insurance; iv) the probability of finding a new job; v) the expected value of the new job (OECD, 1997). For the present purposes, it is assumed that the expected value of the new job equals that of the current job. While this involves ignoring a potentially important component of earnings losses due to job displacement (Jacobson et al., 1993), estimating the wages losses due to job displacement is not a trivial exercise and beyond the scope of this paper. Moreover, previous evidence suggests that unemployment tends to account for the bulk of the cost of job displacement (Kuhn, 2002; OECD, 2013). We therefore focus on the expected costs of unemployment, which depend, respectively, on the combination of unemployment risk in terms of the probability of becoming and staying unemployed and unemployment insurance.

### *Unemployment risk*

We measure unemployment risk by its objective components related to both job security and employability. Job security is measured by the job-losing rate, i.e. the probability of moving from employment into unemployment in a given month. Employability is measured by the job-finding rate, i.e. the probability of moving from unemployment to employment in a given month. Figure 1 documents these components across selected European countries for the 2005-2010 period and reveals considerable cross-country variation both in terms of overall magnitudes as well as the role of job security and employability as separate drivers of unemployment risk. Average monthly job-losing rates fluctuate between around 0.2 and 1.2 percent across countries, while the incidence of finding a job among the unemployed ranges from around 10 to 35 percent. These large variations tend to

accumulate into a higher overall risk of unemployment as indicated by the negative (albeit weak) relationship between job security and employability across countries.

Figure 1. Average job-losing and job-finding rates across countries in the 2005-2010 period

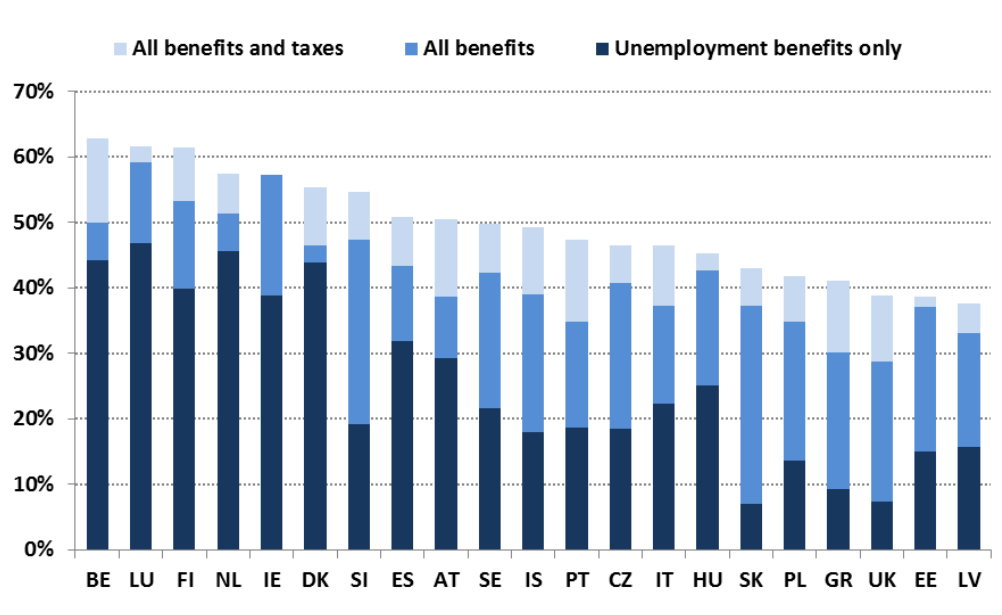


### *Unemployment insurance*

Existing studies that investigate the role of insurance in mitigating the well-being consequences of unemployment rely typically on country-level indicators of the stated generosity of unemployment benefits in order to measure insurance (Di Tella et al., 2003; Helliwell and Huang, 2011; Sjoeborg, 2010; Young, 2012). However, country-level measures of unemployment insurance have limited variation which makes it hard to identify robust relationships in the data. Moreover, the stated generosity of unemployment insurance may be very different from its actual potential to offset income losses due to eligibility and coverage issues as well as its dependence on household income and composition. We therefore take a different and rather innovative approach and measure insurance in terms of the effective level of risk absorption that takes place through the tax-and-benefits system. Effective insurance is a very rich concept and depends equally on the accessibility, generosity and duration of unemployment benefits and other welfare benefits, the progressivity of income taxes as well as the prevalence and largeness of mandated severance pay. Effective public insurance is measured as the degree to which the income loss associated with unemployment is absorbed by the tax and benefit system for each socio-economic group in a given country. This requires using detailed information on the various components of household income. Specifically, we differentiate between the role of the personal unemployment benefits only, all personal and household benefits and all benefits and taxes as three independent margins of insurance.

Figure 2 documents the degree of effective public insurance across selected European countries and shows considerable cross-country variation both in terms of the overall level of insurance as well as the relative importance of its sub-components. The main source of insurance in countries with the most effective overall systems of unemployment compensation (e.g. Belgium, Denmark, Finland, Luxembourg, The Netherlands) are unemployment benefits, while auxiliary social benefits absorb much of income losses associated with unemployment in many of the low-insurance countries (e.g. Greece, Slovakia and the United Kingdom). The role of taxes in mitigating income shocks associated with unemployment is rather limited in all countries in the sample.

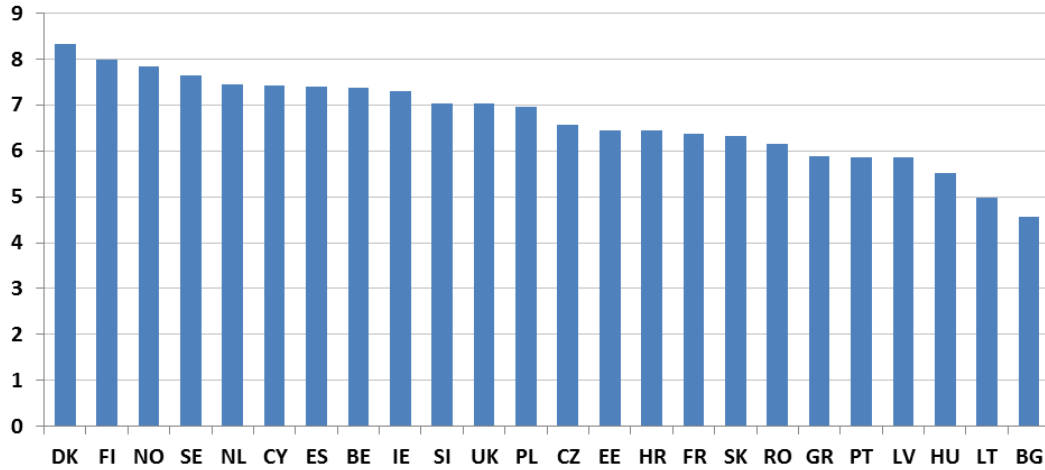
Figure 2. The degree and composition of effective unemployment insurance across countries



*Subjective well-being*

To be completed.

Figure 3. Average reported life satisfaction scores across countries in the active working-age population



#### 4. Regression results

In order to analyse the role of unemployment risk and insurance for subjective well-being, we have constructed a semi-aggregated dataset that consists of homogeneous cells defined by gender, age, education, country and year. Specifically, we distinguish between three age categories (15-29, 30-49, 50-64) and three education levels (lower secondary, upper secondary, tertiary). We then merge information on labour market performance (unemployment rates and flows, income information, insurance levels) from the European Union Statistics on Income and Living Conditions (EU-SILC) with measures on subjective well-being from the European Social Survey (ESS). This way, it becomes possible to analyse the relationship between objective unemployment risk and insurance as derived from individual labour market histories and various self-reported subjective well-being indicators for a wide range of countries. The resulting semi-aggregated dataset covers almost 30 European countries for the 2005-2010 period.

In order to empirically analyse the role of unemployment risk and insurance for subjective well-being, the following linear regression model is estimated:

$$y_{it} = \alpha_1 RISK_{it} + \alpha_2 INSURANCE_{it} + \alpha_3 RISK_{it} * INSURANCE_{it} + \alpha_4 Z_{it} + \varepsilon_{it}$$

where subscript i refers to a combination of socio-economic group and country and subscript t year. The dependent variable y stands for subjective well-being and is measured by the standardized score of life satisfaction. The right-hand side of the equation above features one or several measures of unemployment RISK (unemployment rate, log job losing rate, log job finding rate), one of several

measures of public INSURANCE (gross or net unemployment insurance) and a set of control variables  $Z$  which includes log household labour income, as well as age, education, country and time dummies. The model also contains an interaction term between RISK and INSURANCE that captures the potential compensating effect of insurance against the impact of the risk of unemployment on well-being.  $\varepsilon$  represents a random disturbance term.

We estimate this model with OLS using the respective labour force shares within countries as weights. Unemployment risk is measured both through the unemployment rate and the (logarithms of the) job-finding and job-losing hazard rates. Similarly, all three insurance margins are considered. Results of the baseline specification are reported below in Table 1.



Table 1. Baseline regression results

	DIFFERENT INSURANCE MARGINS					
	Unemployment benefits		All benefits		All benefits and taxes	
	(1)	(2)	(3)	(4)	(5)	(6)
<b>Gross household labour income</b>	0.473*** (0.147)	0.503*** (0.147)	0.526*** (0.152)	0.601*** (0.146)	0.431*** (0.149)	0.552*** (0.148)
<b>Insurance rate</b>	-0.607 (0.821)	-0.394** (0.188)	-0.641 (0.983)	-0.517** (0.203)	-2.191** (1.073)	-0.121 (0.220)
<b>Job-losing rate</b>	-0.155*** (0.045)		-0.163** (0.072)		-0.092 (0.088)	
<b>Insurance rate * Job-losing rate</b>	0.106 (0.139)		0.122 (0.163)		-0.084 (0.173)	
<b>Job-finding rate</b>	0.195*** (0.061)		0.212** (0.099)		0.450*** (0.121)	
<b>Insurance rate * Job-finding rate</b>	-0.430*** (0.141)		-0.396* (0.213)		-0.680*** (0.201)	
<b>Unemployment rate</b>		-1.774*** (0.493)		-1.659** (0.750)		-1.553* (0.83)
<b>Insurance * Unemployment rate</b>		3.064*** (1.241)		1.930 (1.620)		1.296 (1.499)
<b>Country dummies</b>	YES	YES	YES	YES	YES	YES
<b>Year dummies</b>	YES	YES	YES	YES	YES	YES
<b>Group controls</b>	YES	YES	YES	YES	YES	YES
<b>Observations</b>	257	257	257	257	257	257
<b>R-squared</b>	0.844	0.837	0.842	0.838	0.845	0.833

### *The role of job security and employability*

As odd columns of Table 1 suggest, the job-losing and job-finding rates both matter for subjective well-being, with the effect the job-finding being more pronounced. This suggests that employed workers are concerned not only about becoming unemployed but also, and possibly even more, about not being able to find a new job when unemployed.<sup>1</sup> In the absence of insurance, a 10% increase in the job-losing rate is associated with a 0.9 – 1.6 percent reduction in the standardized score of life satisfaction, while the partial effect of a 10% decrease in the job-finding rate is generally twice as high. The considerable difference in the size of the estimated effect of the job-finding and job-losing rate on reported life satisfaction may help rationalise previous findings in the literature on the positive association between the level of employment protection and perceived job insecurity or job strain (Postel-Vinay and Saint-Martin, 2005; Wasmer, 2006; Clark and Postel-Vinay, 2009; Salvatori, 2010). The dominant role of the job-finding rate in driving changes in well-being could indicate that the positive impact of employment protection in reducing the job-losing rate might well be outweighed by its negative consequences in terms of prolonged unemployment spells, even if the overall level of unemployment remains unaffected. This suggests that more emphasis may need to be

<sup>1</sup> This also suggests that employees tend to care about working in general rather than working in a specific job or for a specific firm.

given to the use active labour market policies and work-to-work schemes that can help to reduce the duration of unemployment and improve access to good quality jobs rather than to measures which seek to contain the risk of job loss.

### *The overall risk of unemployment.*

Given the close theoretical and empirical link between the inflow and outflow rates, on the one hand, and the unemployment rate, on the other, the unemployment rate should provide a succinct measure of the risk of unemployment for those currently employed. The even numbered columns of Table 1 show that increases in the unemployment rate are indeed associated with large and statistically significant reductions in life satisfaction. A 1 percentage point increase in the unemployment rate reduces (standardized) life satisfaction by between 1.5 and 1.7 percent in the absence of insurance. The effect of the unemployment rate on the life satisfaction of the employed is equivalent to the effect of a reduction in household income of more than 3%. Interestingly, this effect is considerably larger than the pure income effect associated with unemployment since this would imply an elasticity of one with respect to each percentage-point increase in the unemployment rate.<sup>2</sup> Luechinger et al. (2010) present similar findings using data for the United States, Germany and several other European countries and suggest that this indeed reflects individual perceptions of higher risk and fewer opportunities.

### *Effective public insurance.*

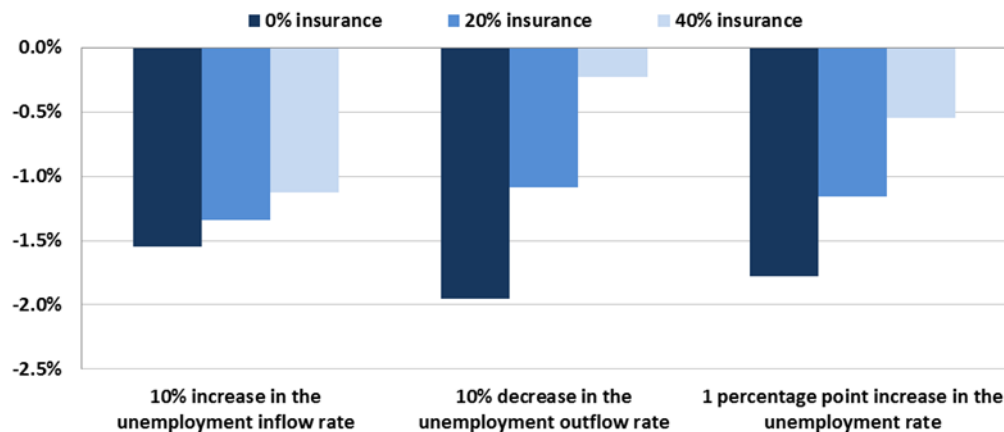
Table 1 also shows that the adverse consequences of the risk of unemployment among those currently employed on well-being are partially offset by insurance. The estimated well-being effect of insurance appears to come about predominantly through the job-finding rate, while the (partial) well-being effect of the job-losing rate remains more or less unaltered by the degree of insurance. Note that this implies that while the degree of insurance does not reduce the well-being cost associated with the prospect of becoming unemployed, it makes quite a difference about how bearable unemployment seems and how much displaced workers should care about re-employment. Similarly to the differentiated stand-alone effect of risk components, this might help to better understand the role of unemployment insurance from a social welfare point of view. Indeed, while most previous studies have concentrated on the direct effects of unemployment insurance on the well-being gap between the employed and the unemployed, differences in unemployment turnover can greatly influence the social value of any unemployment insurance scheme even at same insurance generosity and unemployment rate. Figure 3 shows this differentiated well-being response to insurance when the latter is evaluated at

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<sup>2</sup> This may indicate that the cost of unemployment is considerably larger than the loss of income or that workers are risk averse. However, it may also reflect a general deterioration in social conditions that may be associated with increased unemployment or reduced career prospects.

the median (around 20%) and its 90% percentiles (around 40%). As you can see, the adverse effects of unemployment risk are substantially reduced but not fully undone, and the reduction is strongest in relation to the job-finding rate.

Figure 3. Estimated effects of unemployment risk on (standardized life satisfaction) as a function of effective unemployment insurance



## 5. Understanding the mechanism

To be completed.

## 6. Conclusions

To be completed.

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