

Lücke, Christine

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# How much does others' protection matter? Employment protection and well-being

- Preliminary Version -

Christine Lücke

Otto von Guericke University Magdeburg  
39016 Magdeburg, Germany  
christine.luecke@ovgu.de

Workers' well-being depends crucially on the legal framework and its statutes regulating the level of protection. While it seems obvious that a worker's level of satisfaction is directly affected by the level of protection she receives, this paper argues that the level of protection other workers receive constitutes in integral part as well. I add to the literature by examining how the effects on well-being are mediated by the perceived risk of a job loss and the perceived chances of finding a new job. A structural model is applied to data from the third wave of the European Quality of Life Survey combined with summary indicators from the OECD Employment Protection Database. While employment protection for permanent workers is a Janus-faced institution for permanent workers, it is negatively related to fixed-term workers' chances of finding a new job. Fixed-term workers also show a strong negative direct effect. Permanent workers and fixed-term workers show higher chances of finding a new job the stricter the laws on contract duration and number of renewals of fixed-term contracts are.

Keywords: *Employment Protection, Well-being, Structural Model*

## 1. Introduction

Workers' well-being depends crucially on the legal framework and its statutes regulating the level of protection. While it seems obvious that a worker's level of satisfaction is directly affected by the level of protection she receives, this paper argues that the level of protection other workers receive constitutes in integral part as well. A worker's level of satisfaction is influenced by her perspectives after a job loss occurred. The easier a worker expects to find an equivalent job after a job loss occurred, i.e. the better her perspectives after a job loss are, the higher will be level of satisfaction (Silla et al. 2008). The likelihood of finding a new job in turn depends on the level of employment protection for different groups. The rationale becomes apparent for the example of a fixed-term worker. When a fixed-term worker loses her job, she may search for another fixed-term job. Preferably, however, she will start looking for a permanent job. In this case, the protection for permanent workers is even more important than the level of protection for her current type of contract, i.e. fixed-term contracts. Employment protection for any of these types of jobs will work as a barrier to enter that form of employment. Thus, the higher the level of employment protection for any of the two groups, the smaller is the probability to find a new job if the worker loses her current job, the smaller is the expected level of satisfaction. Which is more important – own protection or others protection – depends on the type of contract a worker is looking for. Next to the probability of finding a new job, employment protection directly influences the probability of losing one's job by setting rules on unfair dismissals, regulating severance payments and the length of notice periods which influence a firm's decision whom to dismiss. Yet, there are also instances in which a worker's probability of losing her job is affected by other group's level of protection. For example, firms will exploit existing margins to substitute stronger regulated regular jobs for less regulated fixed-term job or temporary agency jobs. Additionally, psychological effects from feeling unjustly treated can lead to cross-effects between protection for different groups and their level of well-being.

Salvatori (2010) shows how protection for permanent workers and fixed-term workers each affect both groups' well-being. My paper helps advancing the literature by analysing how the probability to lose one's job and the probability to find a new job mediate the effects on well-being. De Cuyper et al. (2009) analyse how perceived job

insecurity and self-reported employability are related to workers' satisfaction. They, however, do not analyse how EPL regulation influences these outcomes and how workers' satisfaction is influenced by other groups' level of employment protection.

In order to analyse the different channels through which EPL operates, a structural equation model is applied. Using survey data from the third wave of the European Quality of Life Survey combined with summary indicators from the OECD Employment Protection Database shows that employment protection for regular workers is a Janus-faced institution for regular workers. While it is associated with a lower risk of a job loss, it is also associated with lower chances of finding a new job, leaving the overall effect on their satisfaction ambiguous. For workers on fixed-term contracts, protection for regular jobs is also clearly negatively associated with satisfaction. Stronger protection for regular jobs goes hand in hand with a lower probability to find a new job after a job loss occurred, decreasing life satisfaction. For fixed-term workers, protection for permanent contracts seems to have a bigger impact than their own level of protection. Protection for fixed-term workers aims to shield workers from being trapped in atypical employment. Along the way, stricter protection on the length and number of renewals of fixed-term contracts increases turnover of fixed-term jobs. The analysis shows that for both open-end and fixed-term workers stricter regulation on the length and number of renewals of fixed-term contracts is associated with a higher probability to find a new job.

## **2. Literature**

The literature examining the effects of EPL on workers' well-being can be divided in different strands. Several papers compare the level of well-being/job satisfaction of permanent workers to the well-being of workers on atypical contracts. These papers approximate the level of protection by the type of contract. They do not allow for interactions between the level of protection for one type of contract and the well-being of workers with a different type of contract. The evidence is mixed. Some papers do not find a significant difference in the level of job satisfaction between fixed-term and permanent workers (Bardasi and Francesconi 2004, D'Addio et al. 2007, de Graaf-Zijl 2012) while others find that fixed-term workers show lower levels of satisfaction than permanent workers (Clark and Oswald 1996, Booth et al. 2002, Hetschko and Chadi 2013).

In another strand of literature, the authors distinguish between actual and perceived job security. Origano and Pages (2009) show that the perceived level of job security is more important than the type of contract in determining the level of job satisfaction. The lower workers evaluate their level job protection the lower is their satisfaction with their job. Carr and Chung (2014) and Artz and Kaja (2014) also conclude that job satisfaction decreases with higher levels of perceived job insecurity. In a sophisticated analysis, Clark and Postel-Vinay (2009) show that higher “actual” employment protection is associated with higher satisfaction of job security.<sup>1</sup> These papers again do not allow evaluating how the protection of the different types of contract and the well-being of the two groups interact.

Eventually, there are two papers that use cross-country data to assess interplay between EPL and workers’ well-being. Ochsens and Welsch (2012) use repeated cross-section data from the Eurobarometer from 1975-2002. Their results, using least squares and ordered probit estimation show that higher EPL is related to higher levels of life satisfaction. The effect is mediated by gender (i.e. the effect is less pronounced for women), age (i.e. elder people profit less from EPL) and education (i.e. higher educated persons profit less from EPL). Those groups experience a more positive influence of the unemployment replacement rate on their life satisfaction. This is consistent with the notion that EPL is favoured by insiders whereas more generous unemployment benefits are favoured by outsiders. This study does not discriminate between different types of contracts. Salvatori (2010) is to my best knowledge the only paper that analyses how regulation for open-end workers and regulation for fixed-term workers affects both type of workers’ well-being. He uses cross-sectional data from the ECHP between 1994 and 2001. Applying a random effects ordered probit model, he finds only weak evidence that stronger protection for permanent workers increases their well-being. However, stricter protection for fixed-term workers reduces permanent workers’ well-being. Fixed-term workers’ well-being is reduced by stricter protection of fixed-term contract. Finally, he finds that fixed-term workers well-being is increased by stricter protection for permanent workers.

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<sup>1</sup> Clark and Postel-Vinay (2009) decompose job security in an objective and a subjective/individual part. The latter might be correlated with the job type. Clark and Postel-Vinay (2009) use a first-order Markov process to estimate individual state-to-state transition matrices. They use their estimates of the individual job security (one for each state) and regress them on the OECD EPL measure. They find that higher rates of EPL reduce the individually perceived job security.

Using only a country's overall level of employment protection neglects from asymmetries in regulation and cross dependencies between different groups of workers and may lead to imprecise and/or difficult to interpret results. Following Salvatori (2010), this paper uses submeasures of the OECD's measure of employment protection legislation, allowing for a more accurate evaluation. I add to the literature by explicitly modelling how these submeasures impact the perceived risk of losing one's job as well the perceived probability to find a new job. Those, in turn, affect the level of well-being. De Cuyper et al. (2009) analysed how job insecurity and employability affect job satisfaction using data from a Belgian cross-sectional survey. Applying a structural equation model they find that job insecurity is negatively related to job satisfaction of permanent and temporary agency workers while there is no effect for fixed-term workers. Astonishingly, they find a negative relation between employability and job satisfaction for fixed-term and temporary agency workers while there is no relation for permanent workers. My paper is similar to the paper by De Cuyper et al. (2009) by analysing how job insecurity/the probability of a job loss and employability/the probability of finding a new job affect workers' well-being. However, I estimate how the groups' level of employment protection and other groups' level of employment protection affect these outcomes. Thus, the paper helps to understand how and through which channels regulation influences workers' well-being.

### **3. Model and Hypotheses**

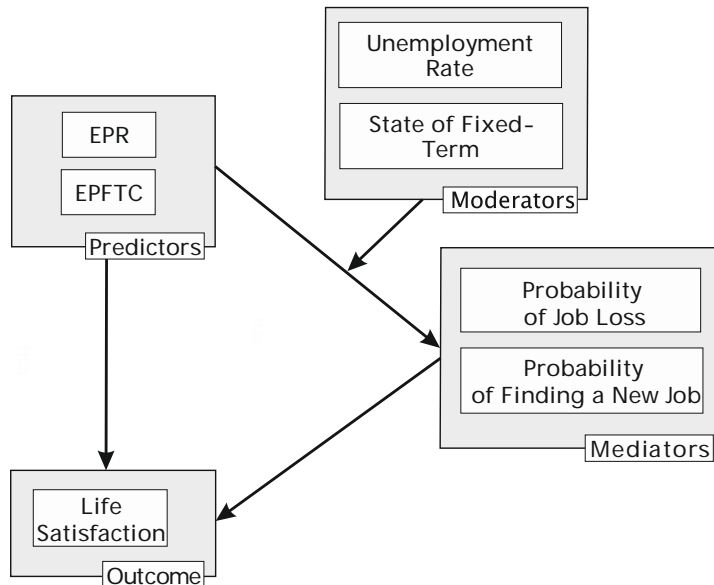
Employment protection affects workers' satisfaction through different channels. Stronger protection decreases the risk of a dismissal. It does, however, also decrease the chances to find a new after if a worker does lose her job, e.g. due insolvency of the firm. While the probability to lose one's job is mainly influenced by level of protection a worker experiences directly, the chances of finding a new job depend on the flexibility of all segments of the labour market.

To disentangle the effects through the two channels a structural equation model is applied. Figure 1 describes the model.

The model is a *Moderated Mediation Model*. In fact, the moderation itself is a *moderated moderation*. The effect of protection for permanent contracts and fixed-term

contracts is mediated by the probability to find a new job and by the probability of a job loss. These mediated paths are moderated by the unemployment rate and the share of fixed-term contracts in the country the individual lives in. The unemployment rate and the share of fixed-term workers in a country may weaken or strengthen the effect of employment protection. For example, the higher the unemployment rate is, the stronger is the protecting effect dismissal protection can yield. Correspondingly, when the share of fixed-term workers in a country is low, dismissal protection for permanent workers can have a stronger impact on the probability to find a new job as opposed to the case when it is hard to find a job anyways. I allow for a full interaction of the measures of employment protection and both moderators. The model is a *Moderated Mediation Model*, where in fact, the moderation itself is a *moderated moderation*.

**FIGURE 1:** Simplified depiction of the structural model



The effects on the mediators, i.e. the probability of a job loss and the probability of finding a new job, are estimated by probit estimation. The effect on life satisfaction is estimated by an ordered logit regression.

The model is a reduced form model. One can argue that instead of affecting well-being directly, the probability to lose one’s job rather affects job satisfaction which in turn affects well-being. Since I am not interested in the effects on job satisfaction but in the overall effect, I neglect this intermediate step.<sup>2</sup>

<sup>2</sup> I also ran a model including the path of job satisfaction. The results differ neither in magnitude nor statistical significance.

I allow the coefficients to vary between workers on an open-end contract and fixed-term workers, by estimating the model separately for the two groups. Table 1 discusses the hypotheses.



**TABLE 1:** Hypotheses

Hypothesis	Direct influence of	on	for permanent workers.	for fixed term workers.
H1	Probability of job loss	Well-being	<i>Negative</i>	
			Fear of losing one’s job constitutes stress for an individual (Chen et al. 2005, Heaney et al. 1994, De Cuyper et al. 2009). This will lead to lower levels of life and job satisfaction. A job loss is associated with financial loss. The higher an individual evaluates her risk to lose her job, the lower are the expected future earnings. Lower earnings are, again, associated with lower levels of satisfaction (Kahnemann and Deaton 2010).	
H1a	EPR		<i>Negative</i> Employment protection for workers on an open-end contract sets rules on the difficulty of dismissal. The more constraining the laws on fair dismissal are the lower will be an individual’s risk to lose her job.	<i>Positive only a small magnitude if at all.</i> Fixed-term workers are much less affected by dismissals. Usually, employers part from their fixed-term workers when the contract expires. Additionally, if a firm experiences a sudden need to dismiss workers, e.g. due to a negative shock in the business cycle, a high level of EPL protects workers on open-end contracts. The harder open-end workers are to dismiss, the higher is the probability of a job loss for fixed-term workers.
		Probability of job loss	<i>Positive only on a small magnitude if at all.</i> For workers on open-end contracts the risk of a job loss is mainly driven by their own level or protection EPR. Yet, if they fear that his job will be substituted by workers on flexible/atypical contracts, a higher protection for such contracts will restricts the risk of job loss.	<i>Positive</i> Employment protection for fixed-term workers regulates the length and number of allowed renewals of fixed-term contracts as well as the number of valid cases for the use of fixed-term work. The stricter the rules, in particular the fewer renewals and the shorter the allowed contract duration, the more likely it is that the contract will expire and will not be extended.
H1b	EPFTC			
H2	Probability to find a new job	Well-being	<i>Positive</i>	
			The easier a worker finds a new job in case of a job loss the less pressure she feels in her current job and thus, the higher is the level of satisfaction. (De Cuyper et al. 2009)	

**TABLE 1:** Hypotheses continued

Hypothesis	Direct influence of	on	for permanent workers.	for fixed term workers.
H2a	EPR	Probability to find a new job	Workers that lose their job will prefer to work in a regular rather than in an atypical job. Both types of workers will prefer to re-enter the market for regular employment. Stronger protection for regular jobs acts as a barrier to entry and thus decreases the probability to find a new job.	<i>Negative</i>
H2b	EPFTC		<i>Negative, if at all.</i> The stronger the protection for fixed-term contracts, the fewer valid cases for the use of such contracts there are. Thus, entering the labour market through fixed-term contracts is impeded. However, I expect those workers to focus on the market for regular jobs.	<i>Negative</i> The stronger the protection for fixed-term contracts, the fewer valid cases for the use of such contracts there are. Thus, entering the labour market through fixed-term contracts is impeded.
H3	EPR	Well-being	<i>Ambiguous</i> Stricter EPR is associated with higher severance payments. These act as financial cushion in case of a job loss. This should show up as a positive effect. Holding a permanent job acts as a signal to others (e.g. family members) and increases a person's social standing/is prestigious. This will increase well-being. Additionally, there might be utility from feeling more secure. On the other hand, firm might increase their monitoring in order to be able to justify a dismissal (Wasmer 2006). This can induce stress and will decrease well-being. Higher protection leads to stronger bargaining power, increasing well-being.	<i>Ambiguous</i> Holding only a fixed-term contracts rather than a permanent one decreases a worker's social standing, reducing well-being. On the other hand, if a worker expects to soon be promoted to a permanent job, the prospect of protection will increase the worker's well-being. Higher EPR reduces fixed-term workers' bargaining power, reducing well-being.
H4	EPFTC		<i>None</i> I do not expect permanent workers to have a direct utility or disutility from stricter regulation of fixed-term contracts.	<i>Positive</i> Stricter regulation on fixed-term contracts prevents workers to get stuck in a fixed-term trap and will increase their chances of being promoted to a permanent job.

#### 4. Data

The paper's main data source is the Third European Quality of Life Survey (EQLS). This survey is conducted by Eurofund. The study was conducted in 34 countries, with at least 1,000 participants per country. The individuals are randomly drawn, stratified by geographic region and degree of urbanization. Only one (randomly drawn) adult per household is interviewed. The interviews were conducted face-to-face.

The main variable of interest is the level of life satisfaction. Participants to the survey are asked: "*All things considered, how satisfied would you say you are with your life these days? Please tell me on a scale of 1 to 10, where 1 means very dissatisfied and 10 means very satisfied.*" The survey allows including a rich set of personal controls, e.g. age, marital status, education level, as well as job characteristics, e.g. number of hours worked, occupation, time arrangements. Information on the type of contract is provided. This allows me to differentiate the analysis by workers on an open-end contract, workers on a fixed term contract of less than 12 months and workers on a fixed term contract of 12 months or more.

Next to their level of job satisfaction, the participants are asked to evaluate their probability to lose their job within the next six months on a 5-item scale.<sup>3</sup> Also, they are asked to evaluate their chances of finding a new job of similar salary on a 5-item scale.<sup>4</sup> I recode these two ordinal variables to binary variables, which take the values of 1 for answers "Very likely" and "Quite likely", and 0 otherwise.

The second major data source is OECD Employment Protection Database. The OECD provides summary indicators on the level of employment protection. Overall 21 items are aggregated to sub-indices which in turn are again aggregated so that at the last level, three indicators provide an overview on the level of EPL in a country. These indicators are: Protection of regular workers against (individual) dismissal (EPR), Regulation on temporary forms of employment (EPT), and specific requirements for

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<sup>3</sup> The question reads: "*Using this card, how likely or unlikely do you think is it that you might lose your job in the next 6 months?*" [Very likely, Quite likely, Neither likely nor unlikely, Quite unlikely, Very unlikely, Don't know, Refusal]

<sup>4</sup> The question reads: "*If you were to lose or had to quit your job, how likely or unlikely is it that you will find a job of similar salary?*" [Very likely, Quite likely, Neither likely nor unlikely, Quite unlikely, Very unlikely, Don't know, Refusal]

collective dismissal (EPC). In this paper, I use the OECDs sub-indices on employment protection of regular workers against (individual) dismissal (EPR) and on employment protection for fixed-term contracts (EPFTC), which is a sub-index of the EPT.

Due to technical reasons discussed below I need to extract sub-index on the amount of severance pay from the EPR index. Therefore, the analysis will include two sub-indices on EPR: one index the amount of severance pay (Severance) and one index comprising regulations on the difficulty of dismissal, on procedural inconveniences and on the length of the notice period (EPR\_Res). Additionally, the EPFTC is disaggregated into two sub-indices. These are one index on the number of valid cases for the use of fixed-term contracts (FTC\_Cases) and one index on regulations on the maximum number of successive contracts and their maximum cumulated duration (FTC\_Length). Annexes 1a and 1b contrast the summary indicators used in this paper to the original OECD summary indicators.

Linking the two dataset gives a sample of 6,201 workers on an open-end contract and 767 workers on a fixed-term contract originating from 23 countries. A table on descriptive statistics including all variables used in the analysis can be found in Tables 2 and 3.

## **5. Estimation and Results**

In this chapter, the results from applying the structural model are presented. At first, however, some adjustments due to particularities from the data will be discussed. I differentiate the EPL index in two sub-indices - one for size of severance payments and one residual index. The indicator on severance pay is calculated by weighting the amount of severance pay a worker is eligible to receive for different years of tenure. However, I do not have information on the years of tenure for the workers in the sample. This impedes a sound interpretation of the effect of the severance index on the probability of a job loss. The indicator captures two effects. First, there is a protecting effect from higher severance payments as firms do not want to encounter high costs of dismissal. Second, the stronger the severance pay increases with tenure, the higher are the incentives for firms to dismiss workers early. Since both effects work in opposite directions, the coefficient cannot be interpreted. The estimation coefficients on severance pay will hence

not be interpreted. The exact depiction of the structural model is given by the following system of equations:

$$NewJob_{ic} = 1 \left( \left( \begin{array}{c} 1 \\ EPR - Res_c \\ Severance_c \\ FTC - Length_c \\ FTC - Cases_c \end{array} \right)^T \left( \begin{array}{ccccc} \alpha & \gamma_1 & \gamma_2 & \gamma_3 & \gamma_4 \\ \eta_1 & \beta_1 & \beta_2 & \beta_3 & \beta_4 \\ \eta_2 & \beta_5 & \beta_6 & \beta_7 & \beta_8 \\ \eta_3 & \beta_9 & \beta_{10} & \beta_{11} & \beta_{12} \end{array} \right) \left( \begin{array}{c} 1 \\ uer_c \\ sft_c \\ uer_c \times sft_c \end{array} \right) + x'_{ic}\delta + u_{ic} > 0 \right) \quad (1)$$

$$JobLoss_{ic} = 1 \left( \left( \begin{array}{c} 1 \\ EPR - Res_c \\ Severance_c \\ FTC - Length_c \\ FTC - Cases_c \end{array} \right)^T \left( \begin{array}{ccccc} \alpha & \gamma_1 & \gamma_2 & \gamma_3 & \gamma_4 \\ \eta_1 & \beta_1 & \beta_2 & \beta_3 & \beta_4 \\ \eta_2 & \beta_5 & \beta_6 & \beta_7 & \beta_8 \\ \eta_3 & \beta_9 & \beta_{10} & \beta_{11} & \beta_{12} \end{array} \right) \left( \begin{array}{c} 1 \\ uer_c \\ sft_c \\ uer_c \times sft_c \end{array} \right) + x'_{ic}\gamma + u_{ic} > 0 \right) \quad (2)$$

$$LS^*_{ic} = \alpha + NewJob_{ic}\alpha_1 + JobLoss_{ic}\alpha_2 + \left( \begin{array}{c} EPR - Res_c \\ Severance_c \\ FTC - Length_c \\ FTC - Cases_c \end{array} \right)^T \left( \begin{array}{c} \gamma_1 \\ \gamma_2 \\ \gamma_3 \\ \gamma_4 \end{array} \right) + \left( \begin{array}{c} uer_c \\ sft_c \\ uer_c \times sft_c \end{array} \right)^T \left( \begin{array}{c} \eta_1 \\ \eta_2 \\ \eta_3 \end{array} \right) + x'_{ic}\delta + u_{ic} \quad (3)$$

where  $uer$  refers to the unemployment rate and  $sft$  refers to the share of fixed-term workers. The subscripts  $i$  and  $c$  refer to the individual and the country she or he resides. The coefficients  $\gamma$  refer to effects from the employment protection measures, coefficients  $\eta$  refer to the effects from the moderators and coefficients  $\beta$  refer to effects from the interaction of the employment protection measures and the moderators. Equations (1) and (2) estimate the (moderated) influence of the different employment protection measures on the mediators *Probability of Finding a New Job* (*New\_Job*) and *Probability of a Job Loss* (*Job\_Loss*). Both models are probit models. Equation (3) estimates the effects on *Life Satisfaction* ( $LS^*$ ), taking direct as well as indirect, i.e. mediated effects from the employment protection measures into account. Life Satisfaction is unobservable. The ordered logit applied to equation (3) assumes a direct link between the latent life satisfaction ( $LS^*$ ) and the observed scaled outcomes from the EQLS survey ( $LS$ ):

$$LS_{ic} = k \leftrightarrow LS^*_{ic} \in [\tau_{k-1}, \tau_k] \quad (4)$$

with  $k \in \{1, 2, \dots, 10\}$ . The cutoffpoints  $\tau$  are strictly increasing in  $k$ , with  $\tau_0 = -\infty$  and  $\tau_{10} = \infty$ .

The following paragraphs will explain the results separately for each protection measure. A first glance of the results can be gained by inspecting the regression output presented in Tables 4 and 5. Due to the many interactions in the model, the point estimates are not readily interpretable. In order to enhance clarity, I resort to graphical representations. The effects on the mediators will be discussed using average marginal effects (AME). The AMEs are presented for different levels of the moderating variables *unemployment rate* and *share of fixed-term workers*. In order to assess the direct effects of employment protection legislation on life satisfaction, I estimate distributions of life satisfaction. For each measure (EPR, FTC\_Length, FTC\_Cases) I will estimate the distribution of the mean of the measure as well as plus/minus one standard deviation. These distributions will disregard indirect effects through the mediators *Probability of a Job Loss* and *Probability of Finding a New Job*. In addition, I will estimate distributions of life satisfaction that include both direct and indirect effects through the mediators. I calculate the predicted probabilities from equations (1) and (2) for each individual at his or her observed level of unemployment/share of fixed-term workers at the the mean of the measure as well as plus/minus one standard deviation. These predicted probabilities are then added to the direct effects from equation (3).

### **Protection of permanent contracts – EPR\_Res**

Stricter protection of permanent contracts is strongly negatively related to a lower probability of finding a new job. Figure Results\_1 shows the average marginal effect of a change in EPR\_Res for different unemployment rates and different shares of fixed-term workers. The relation is both in economically and statistically significant for both permanent workers and fixed-term workers over a wide range of unemployment rates and shares of fixed-term workers. Only for large shares of fixed-term workers, the relation loses significance. Also, for fixed-term workers the relation is not significant for small values of the unemployment rate (less than 6 %). The results are in line with the hypothesis that stricter protection of permanent jobs works as a barrier to entry.

Figure Results\_2 shows the relation between EPR and the probability of a job loss. There are only moderately statistically significant effects for medium to large unemployment rates. Workers on a permanent contract show a lower probability of a job loss while workers on a fixed-term contract show a higher probability of a job loss as

unemployment increases. This figure shows nicely the insider-outsider effect of EPR. In hard times, when firms lay off workers and unemployment is high, EPR protects permanent workers, i.e. the insiders, at the expense of the unprotected fixed-term workers, i.e. the outsiders. As Figure Results\_2 shows, the relation is on the verge of significance for a share of fixed-term workers of less than 14 %.

Figure Results\_3 shows the estimated distribution of life satisfaction for different values of EPR when only direct effects are considered. For permanent workers, there is no direct relation. A negative direct relation of stricter EPR\_Res and Life Satisfaction of fixed-term workers can be explained negative effects from social comparisons or by feeling unjustly treated.

Figure Results\_4 shows the estimated distribution of life satisfaction for different values of EPR, this time, however, including direct effects and indirect effects through the mediators. For permanent workers, the negative effect of lower chances of finding a new job seems to compensate the positive effects from a lower risk of a job loss. This combined with the fact that there is no significant direct effect of EPR\_Res yield distributions of life satisfaction, that hardly vary over different values of EPR\_Res. For fixed-term workers, the negative direct effect as well as a negative indirect effect through lower chances of finding a new job yields a negative total effect. Figure Results\_4 shows that for high values of employment protection for permanent contract a smaller probability mass lays at large values of life satisfaction. Correspondingly, a higher probability mass can be found at lower values of life satisfaction compared to lower values of EPR\_Res.

### **Protection of fixed-term contracts – FTC\_Length**

Stricter protection on contract length and contract renewals goes hand in hand with a higher probability of finding a new job for both groups, as Figure Results\_5 shows. Stricter protection in this case means a shorter cumulative duration and a lower number of contract renewals. These measures increase the turnover of fixed-term contracts. Higher turnover increases the probability to find a new job. For permanent workers, the relation is statistically significant independent of the unemployment rate, for permanent workers is relation loses significance for large values of the unemployment rate. For both

groups, the effect is decreasing over the share of fixed-term workers and loses significance at 16 % or more. The results indicate that if the share of fixed-term workers is already high, increasing regulation on contract length/renewal cannot increase turnover further and will, thus, only have a marginal or zero effect.

Fixed-term workers' perceived probability of a job loss is not related to FTC\_Length. This is no surprise as fixed-term contracts usually expire rather than end in dismissal. For permanent workers, there is a small indication that stricter regulation of cumulative contract duration/number of contract renewals is negatively related to the probability of experiencing a job loss. The relation is statistically significant for medium of unemployment (9 to 15 %) but not over the array of the share of fixed-term workers. Stricter regulation in this case means fewer contract renewals and a short cumulative contract duration. This reduces the average fixed-term workers tenure in the firm, thus his or her maximum attainable firm specific human capital. The stricter the regulation, the relatively more valuable is permanent workers firm specific human capital, reducing their risk of a job loss. Figure Results\_6 shows the results graphically.

Stricter protection of contract length/renewals show a negative direct relation to life satisfaction of fixed-term workers, while there is no such significant relation for permanent workers. This is in line with the hypothesis, that short contract duration, few possibilities of contract renewals increase stress of fixed-term workers due to insecurity/lack of predictability of the career. Figure Results\_7 shows the direct effect of FTC\_Length on Life Satisfaction for both groups. When indirect effects are incorporated, the distributions show a larger probability mass at higher values of life satisfaction for fixed-term workers as due to the positive indirect effect from a larger probability to find a new job. Life satisfaction increases stronger for larger values of FTC\_Length than for smaller ones. The indirect effect, however, cannot outweigh the negative direct effect. Thus, the stricter protection on contract length and duration, the smaller is the probability mass at high levels of life satisfaction for fixed-term workers. For permanent workers, there is a slight, albeit negligible positive indirect effect of FTC\_Length.



## **Protection of fixed-term contracts – FTC\_Cases**

Stricter protection on the number of valid cases for the use of fixed-term contracts does not show a significant relation to the probability of finding a new job for either group. As was the case for regulation on fixed-term contract's length and contract renewals, there is no relation of regulation on the number of valid cases and fixed-term workers' probability of a job loss. Fixed-term workers contract expiry does not depend on regulation on the number of valid cases but is determined at the start of the employment relationship. For permanent workers, stricter regulation on the number of valid cases for the use of fixed-term contracts is positively related to the probability of a job loss. This true except for unemployment rates below or equal to 8 % and a share of fixed-term workers of 8 % or less. This means that the fewer valid cases there are, the higher workers evaluate their risk of a job loss. The fewer valid cases there are, the smaller c.p. the fewer fixed-term workers a firm has. In case of a downturn, the firm has lower cushion before it has to reduce its core staff.

For permanent workers, the model does not indicate direct effects. For fixed-term workers, there is a positive direct link between stricter regulation of FTC\_Cases and Life Satisfaction. The fewer valid cases there are, the lower is the chance of falling into a fixed-term trap. Due to small indirect effects, the total effect largely bears on the direct effect, as the estimates distributions of life satisfaction in graphs Results\_11 and Results\_12 show.

In addition to the results presented, I also estimated a linear model. The results are both in size and significance comparable to the results from the non-linear model, as Tables A1 and A2 show.

## **6. Limitations**

One reason that literature examining cross effects of EPL between different groups of workers and literature examining mediating effects of EPL is so scarce is the poor availability of data. This analysis can only give a first glance. Cross-country analysis on EPL always suffers from little variation of regulation over time within countries. Since data are only available for one year, this problem is even more present in this paper.

There are only few data sources that contain information on individuals' level of job and/or life satisfaction for different years and countries. The ECHP was a notable exception. Aggravatingly, there are even fewer data sources that ask respondent's on their perceived probability of a job loss and their perceived chances of finding a new job. Once better data comes available, the literature on this topic will hopefully gain momentum and will repeat this analysis with more accuracy due to better data.

The results presented show correlations rather than causal relations. As De Cuyper et al (2009) argue, it is more likely that job insecurity, thus the probability to lose one's job causes satisfaction than vice versa and that this seems reasonable for employability, thus the probability to find a new job, as well. Reverse causality can also affect the first stage. EPL influence labour market outcomes, policy makers, however, also react to labour market outcomes by adjusting EPL. Including macro variables as the unemployment rate helps reducing this problem.

One more limitations stems from the way respondents to the EQLS are asked to evaluate their chances of finding a new job. Unfortunately, they are asked to evaluate the probability to find a new job *with similar salary*. The question abstracts from the dimension of job security. In order to analyse whether fixed-term contracts are seen as a springboard to regular jobs or how regulation can help to overcome a fixed-term contract traps, a question that puts emphasis on the probability to find a similar job or a job with a similar level of job security is necessary.

## **7. Conclusion**

Employment protection affects workers' well-being. This paper argues that permanent and fixed-term workers are not only affect by their own groups' level of protection but also by the other group's level of protection. I add to the literature by examining how the effects on well-being are mediated by the perceived risk of a job loss and the perceived chances of finding a new job. In addition, the effects are allowed to be moderated by both the level of unemployment and the share of fixed-term workers.

A structural model is estimated using data from the third wave of the European Quality of Life Survey. The results show that for permanent workers employment protection for permanent contracts is a Janus-faced institution. While it is associated with

a lower risk of a job loss, it is also associated with lower chances of finding a new job. For fixed-term workers, stronger protection of permanent contracts goes hand in hand with a lower probability of finding a new job. Also, there is a strong direct, i.e. unmediated relation between protection of permanent contracts and fixed-term workers' well-being. There is a strong relation between the regulation of fixed-term contracts and both groups' evaluation of the chances of finding a new job, respectively. Permanent workers and fixed-term workers show higher chances of finding a new job the stricter the laws on contract duration and number of renewals of fixed-term contracts are. Thus, the results show that there are cross-effects between the two groups' level of protection and their respective level of life-satisfaction. For fixed-term workers, the other groups' (i.e. permanent workers') level of protection is even as important as their own level of protection.

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# Tables

**TABLE 2: Variable Description**

Variable	Description
Endogenous	
LifeSat	<i>Life Satisfaction (range 0-10)</i>
JoblossProb	<i>1 if finds it quite likely to lose job in the next 6 months</i>
New_Job	<i>1 if finds it quite likely to find a job of similar salary</i>
EPL_Res	<i>EPL indicator w/o severance pay</i>
Severance	<i>OECD severance pay indicator</i>
FTC_Cases	<i>OECD indicator on valid cases for fixed-term contracts</i>
FTC_Length	<i>OECD indicator on contract duration and contract renewal of fixed-term contracts</i>
Unempl_rate	<i>Unemployment rate per country</i>
Age	<i>Age</i>
Partner	<i>1 if in a relationship</i>
Gender	<i>1 if male</i>
Children	<i>1 if individual has children</i>
Rural	<i>1 if lives in small town/countryside</i>
Health	<i>Own assessment health</i>
Pol_Part	<i>1 if attended political meeting/trade union</i>
Trusting	<i>Assessment how people can be trusted (range 1-10)</i>
Private	<i>1 if private sector</i>
Occupation	
Manager	<i>1 if manager</i>
Professional	<i>1 if professional</i>
Techn_JunProf	<i>1 if technician or junior professional</i>
Clerical_Supp	<i>1 if clerical support worker</i>
Service_Sales	<i>1 if service or sales worker</i>
Agric_Worker	<i>1 if skilled agricultural or forestry worker or fisherman</i>
CraftTrade_Work	<i>1 if craft and related trades worker</i>
PlantMachOpp	<i>1 if plant and machine operator or assembler</i>
Element_Occ	<i>1 if elementary occupations</i>
Education	
NoEd	<i>1 if no education completed</i>
PrimEd	<i>1 if completed primary education</i>
SecondEd	<i>1 if completed secondary education</i>
TertEd	<i>1 if completed tertiary education</i>
Countries	<i>Austria, Belgium, Czech Republic, Germany, Denmark, Estonia, Greece, Spain, Finland, France, Hungary, Ireland, Italy, Luxembourg, Netherlands, Poland, Portugal, Sweden, Slovenia, Slovakia, UK, Turkey, Iceland</i>

**TABLE 3: Descriptive Statistics**

Variable	Permanent Workers		Fixed-term Workers		Difference
	Mean	Std Dev	Mean	Std Dev	
LifeSat	7.497	1.798	7.123	1.953	0.374***
JoblossProb	0.099		0.287		-0.188***
New_Job	0.415		0.421		-0.005
EPL_Res	2.606	0.007	2.549	0.023	0.057**
Severance	1.062	0.013	1.334	0.047	-0.272***
FTC_Cases	1.453	0.022	1.356	0.062	0.097
FTC_Length	2.222	0.012	2.043	0.032	0.179***
Unempl_rate	8.577	0.042	9.410	0.140	-0.834***
Share of Fixed-Term Workers	13.168	0.070	14.599	0.229	-1.430***
IncomePerCapita	1750.138	2440.913	1394.996	1721.321	355.143***
Age	42.682	9.459	38.755	9.663	3.927***
Partner	0.711		0.627		0.084***
Gender	0.466		0.439		0.027
Children	0.758		0.654		0.104***
Rural	0.447		0.425		0.218
Health	1.977	0.788	1.953	0.802	0.242
Pol_Part	0.363	0.481	0.361	0.481	0.002
Trusting	5.642	2.306	5.360	2.416	0.282***
Trust Legal	5.474	2.527	5.096	2.490	0.377***
Trust Gov	4.428	2.475	4.089	2.527	0.339***
Trust Local	5.525	2.285	5.132	2.416	0.394***
Trust Police	6.364	2.259	6.052	2.310	0.312***
Private	0.606	0.006	0.596	0.012	0.021
Manager	0.679		0.134		-0.066***
Professional	0.040		0.043		-0.003
Techn_JunProf	0.098		0.086		0.012
Clerical_Supp	0.012		0.018		-0.006
Service_Sales	0.211		0.284		-0.073***
Agric_Worker	0.161		0.126		0.034**
CraftTrade_Work	0.150		0.080		0.071***
PlantMachOpp	0.192		0.201		-0.009
Element_Occ	0.068		0.027		0.040***
NoEd	0.003		0.007		-0.004*
PrimEd	0.023		0.033		-0.009
SecondEd	0.604		0.597		0.007
TertEde	0.370		0.364		0.007



**TABLE 4:** Regression Results – Workers on a permanent contract

	Probability to find a new job	Probability of a job loss	Life Satisfaction
<i>EPR_Res</i>	3.113*** (0.991)	0.263 (1.230)	-0.037 (0.142)
× <i>unemployment rate</i>	-0.630*** (0.161)	-0.189 (0.209)	
× <i>share of fixed – term workers</i>	-0.280*** (0.067)	0.063 (0.084)	
× <i>unemployment rate × share of fixed – term workers</i>	0.044*** (0.009)	0.003 (0.012)	
<i>Severance</i>	3.847*** (0.705)	1.077 (0.944)	-0.106 (0.070)
× <i>unemployment rate</i>	-0.317*** (0.072)	-0.079 (0.086)	
× <i>share of fixed – term workers</i>	-0.300*** (0.045)	0.003 (0.062)	
× <i>unemployment rate × share of fixed – term workers</i>	0.023*** (0.003)	-0.005 (0.004)	
<i>FTC_Length</i>	-0.705 (1.969)	-7.569*** (2.457)	0.009 (0.138)
× <i>unemployment rate</i>	0.210 (0.266)	1.012*** (0.327)	
× <i>share of fixed – term workers</i>	0.074 (0.176)	0.739*** (0.229)	
× <i>unemployment rate × share of fixed – term workers</i>	-0.015 (0.023)	-0.097*** (0.030)	
<i>FTC_Cases</i>	0.619** (0.253)	0.360 (0.362)	-0.052 (0.071)
× <i>unemployment rate</i>	-0.083*** (0.029)	-0.053 (0.041)	
× <i>share of fixed – term workers</i>	-0.074** (0.032)	-0.068 (0.045)	
× <i>unemployment rate × share of fixed – term workers</i>	0.009*** (0.004)	0.010** (0.005)	
<i>Probability to find a New Job</i>			0.305*** (0.045)
<i>Probability of a Job Loss</i>			-0.586*** (0.099)
<i>Log Likelihood</i>	-16.396.713		
<i>No of obs</i>	6.201		

Source: EQLS, third wave and OECD Employment Protection Database. own calculations.

Note: \*\*\*/\*\*/\* indicate significance at the 1%/5%/10% levels. Robust standard errors in parentheses. Controls include: Age, Age<sup>2</sup>, Partner, Gender, Children, Rural, Health, Pol\_Part, Trusting, Partsocial, Commuting, Day\_Off, Acc\_Hours, Private, Lookdown, Notimehh, Diffconc, Dummies on the Occupation, Dummies on the level of education, unemployment rate and share of fixed-term workers as well as the interaction of unemployment rate and share of fixed-term workers.

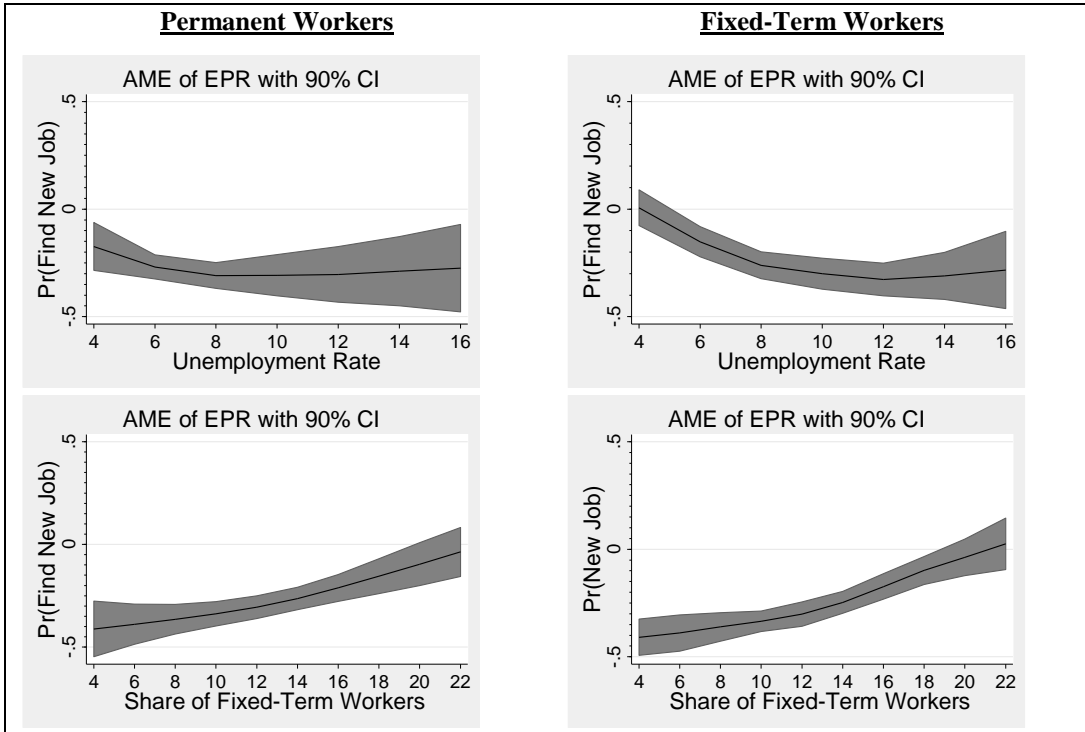
**TABLE 5: Regression Results – Workers on a fixed-term contract**

	Probability to find a new job	Probability of a job loss	Life Satisfaction
<i>EPR_Res</i>	5.339*** (1.198)	0.552 (0.824)	-0.489*** (0.134)
× <i>unemployment rate</i>	-0.948*** (0.178)	-0.037 (0.106)	
× <i>share of fixed – term workers</i>	-0.351*** (0.074)	-0.097* (0.058)	
× <i>unemployment rate × share of fixed – term workers</i>	0.056*** (0.010)	0.011 (0.007)	
<i>Severance</i>	4.341*** (0.625)	1.554*** (0.490)	0.016 (0.067)
× <i>unemployment rate</i>	-0.374*** (0.072)	-0.164*** (0.049)	
× <i>share of fixed – term workers</i>	-0.321*** (0.036)	-0.056 (0.034)	
× <i>unemployment rate × share of fixed – term workers</i>	0.024*** (0.003)	0.005* (0.003)	
<i>FTC_Length</i>	-4.161* (2.452)	-0.589 (1.127)	-0.205* (0.012)
× <i>unemployment rate</i>	0.651** (0.317)	0.105 (0.151)	
× <i>share of fixed – term workers</i>	0.373* (0.217)	0.068 (0.110)	
× <i>unemployment rate × share of fixed – term workers</i>	-0.052* (0.028)	-0.010 (0.014)	
<i>FTC_Cases</i>	0.948*** (0.271)	-0.206 (0.288)	0.104** (0.051)
× <i>unemployment rate</i>	-0.143*** (0.035)	0.020 (0.030)	
× <i>share of fixed – term workers</i>	-0.110*** (0.028)	0.012 (0.030)	
× <i>unemployment rate × share of fixed – term workers</i>	0.016*** (0.004)	-0.001 (0.003)	
<i>Probability to find a New Job</i>			0.393*** (0.135)
<i>Probability of a Job Loss</i>			-0.429*** (0.145)
<i>Log Likelihood</i>	-2239.082		
<i>No of obs</i>	767		

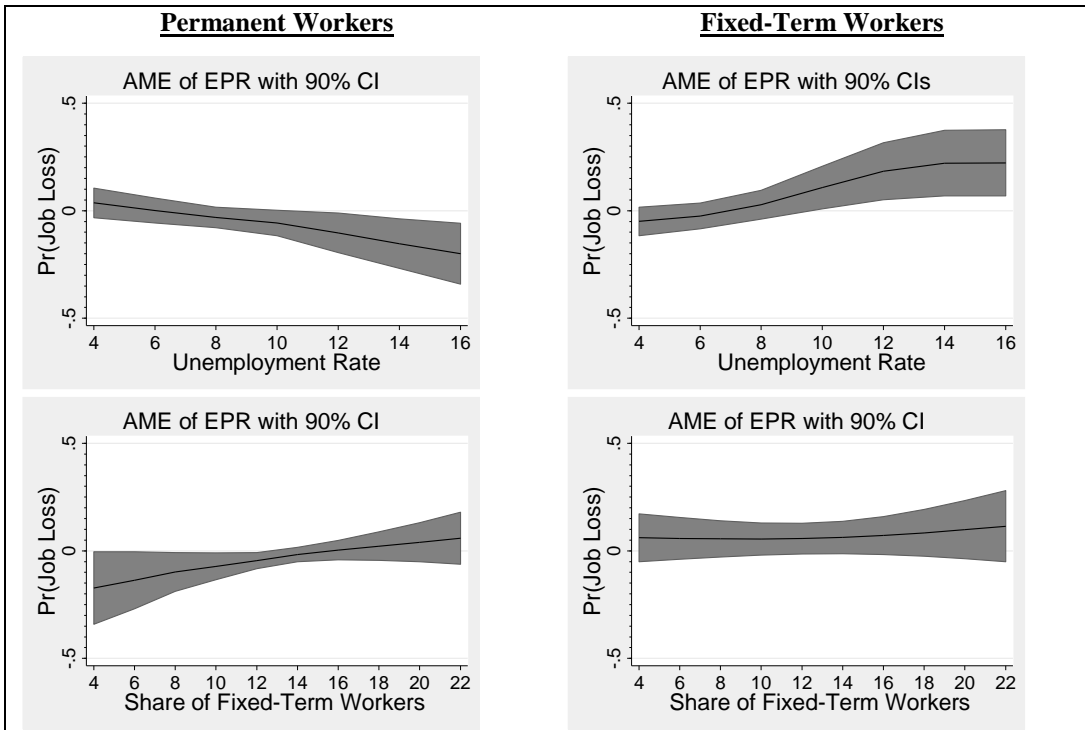
Source: EQLS, third wave and OECD Employment Protection Database. own calculations.

Note: \*\*\*/\*\*/\* indicate significance at the 1%/5%/10% levels. Robust standard errors in parentheses. Controls include: Age, Age<sup>2</sup>, Partner, Gender, Children, Rural, Health, Pol\_Part, Trusting, Partsocial, Commuting, Day\_Off, Acc\_Hours, Private, Lookdown, Notimehh, Diffconc, Dummies on the Occupation, Dummies on the level of education, unemployment rate and share of fixed-term workers as well as the interaction of unemployment rate and share of fixed-term workers.

**Figure Results\_1:** Effect of protection of permanent contracts on the probability of finding a new job



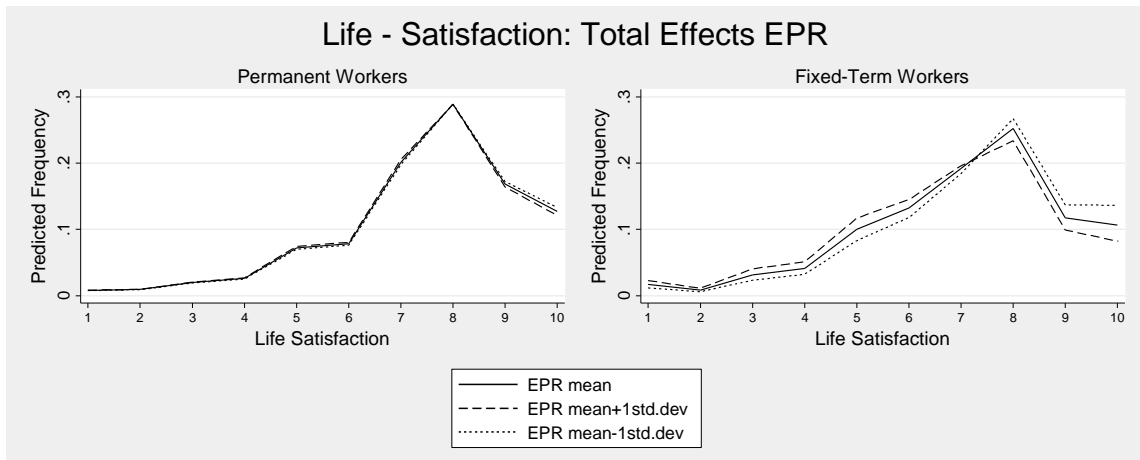
**Figure Results\_2:** Effect of protection of permanent contracts on the probability of a job loss



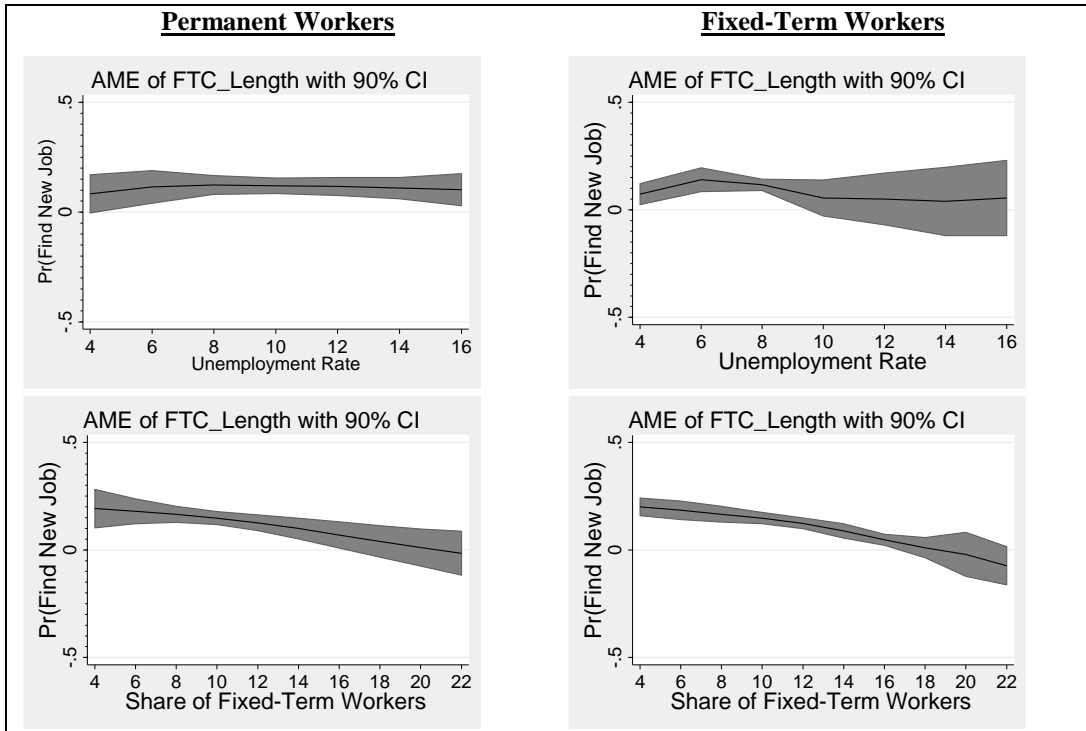
**Figure Results\_3:** Effect of protection of permanent contracts on life satisfaction – direct effect



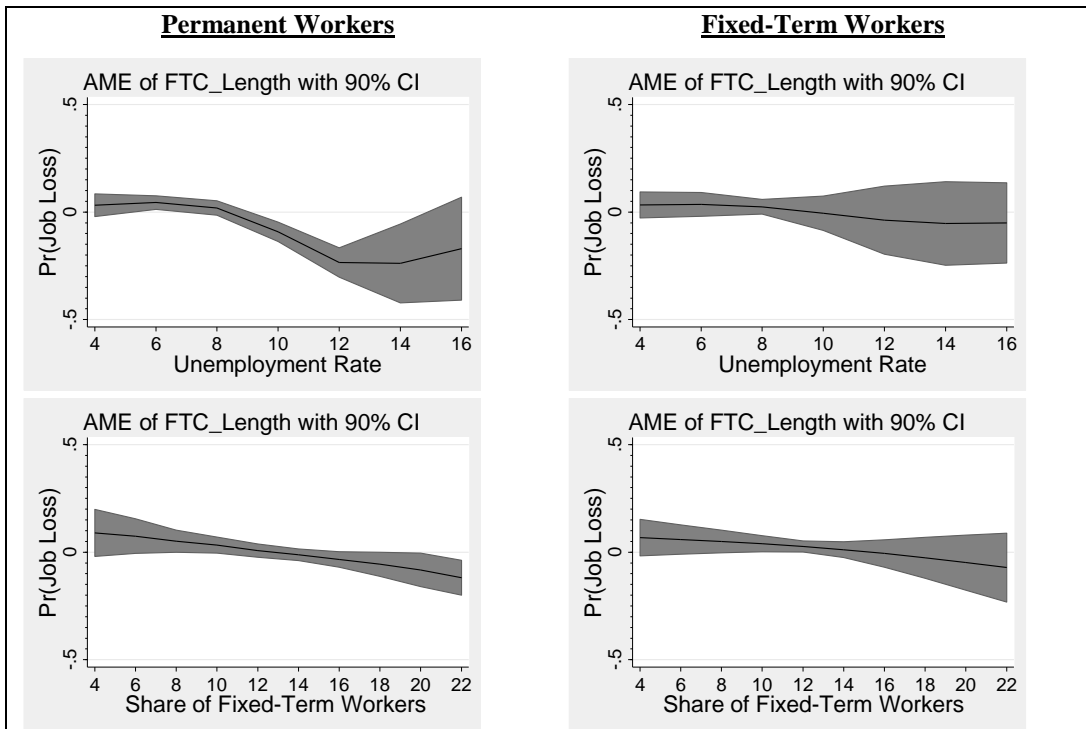
**Figure Results\_4:** Effect of protection of permanent contracts on life satisfaction – total effect



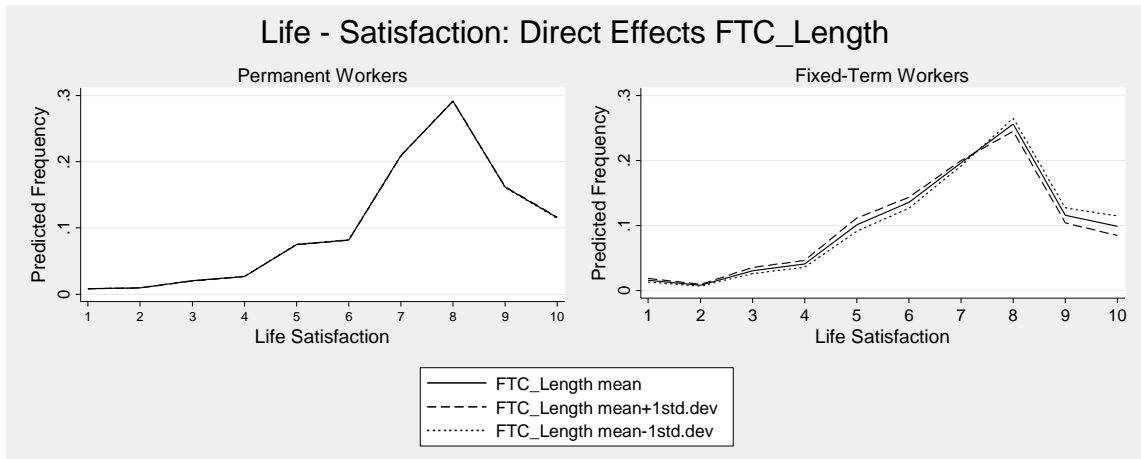
**Figure Results\_5:** Effect of protection of fixed-term contract length/renewal on the probability of finding a new job



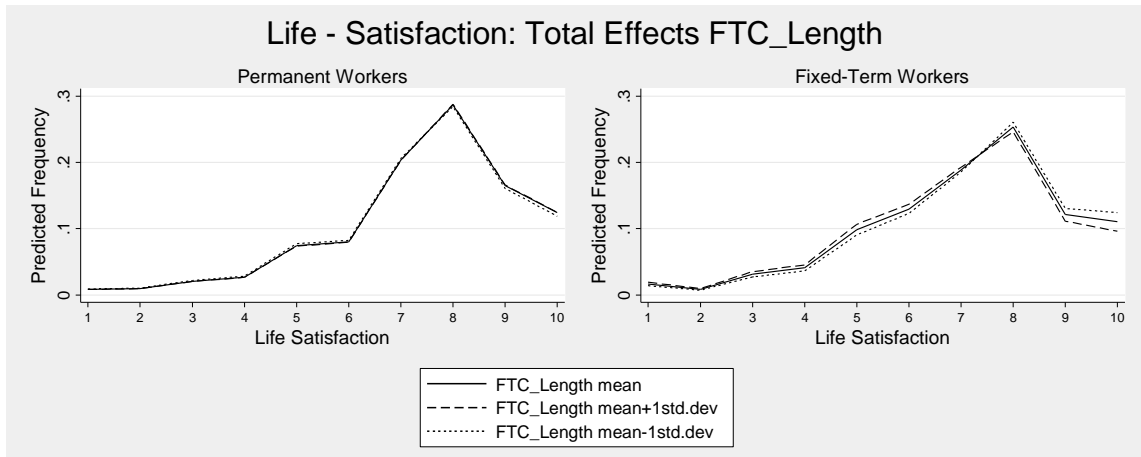
**Figure Results\_6:** Effect of protection of fixed-term contract length/renewal on the probability of a job loss



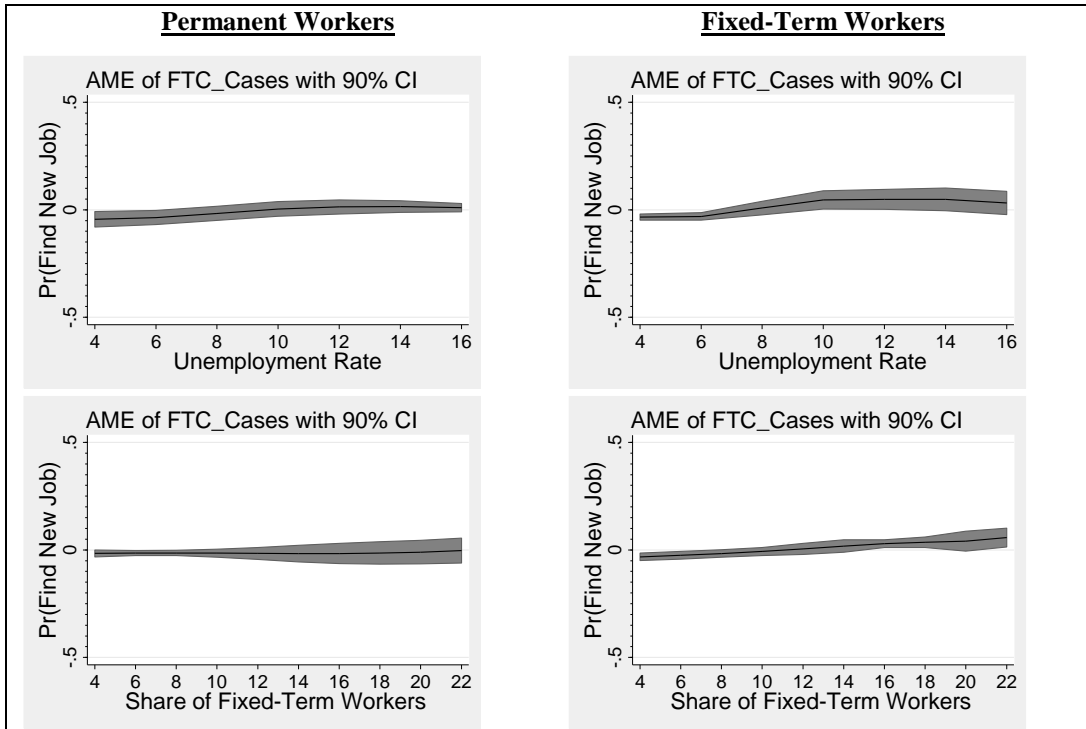
**Figure Results\_7:** Effect of protection of fixed-term contract length/renewal on life satisfaction – direct effect



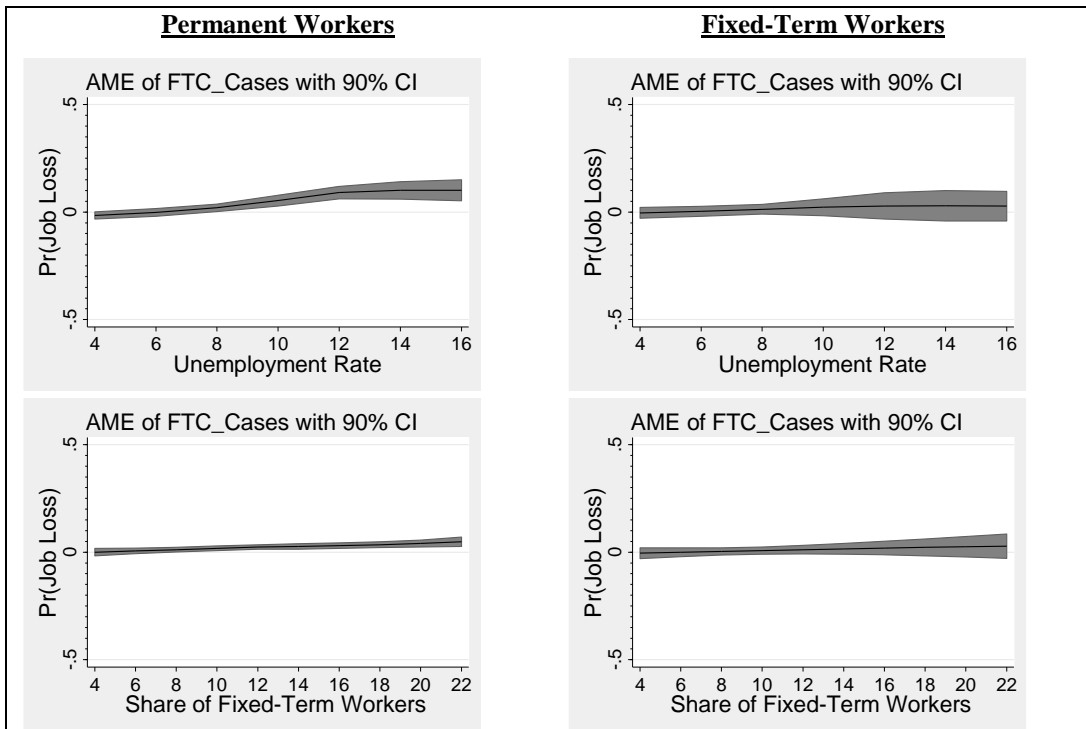
**Figure Results\_8:** Effect of protection of fixed-term contract length/renewal on life satisfaction – total effect



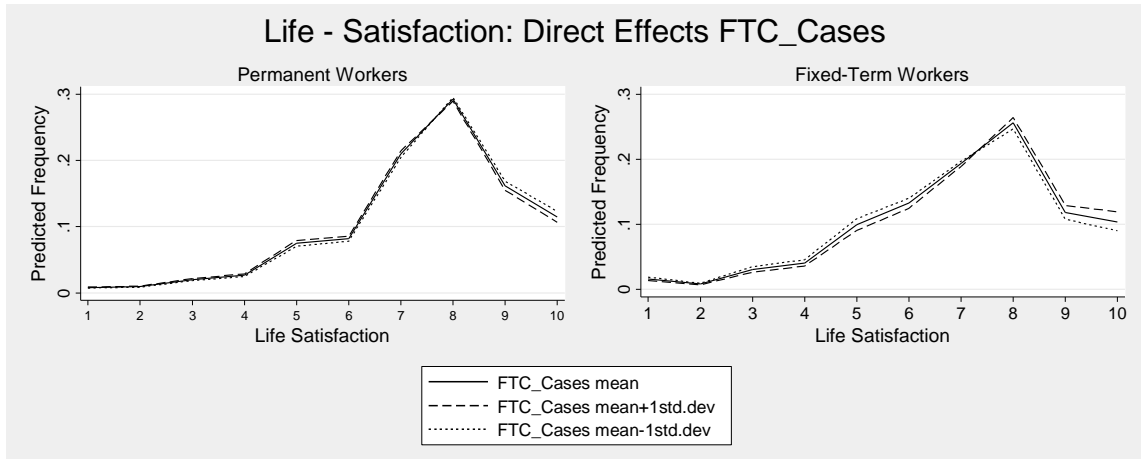
**Figure Results\_9:** Effect of protection on number of valid cases for the use of fixed-term contracts on the probability of finding a new job



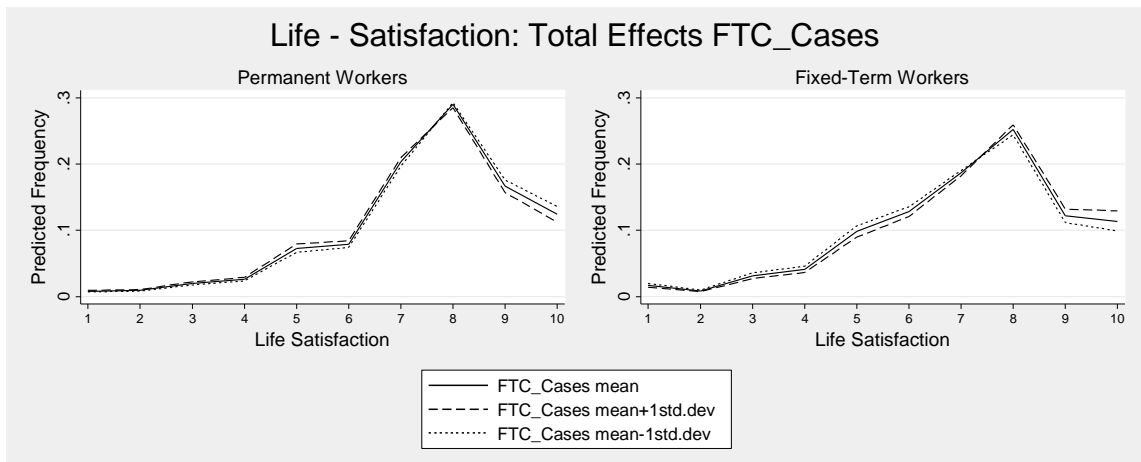
**Figure Results\_10:** Effect of protection on number of valid cases for the use of fixed-term contracts on the probability of a job loss



**Figure Results\_11:** Effect of protection on number of valid cases for the use of fixed-term contracts on life satisfaction – direct effect



**Figure Results\_12:** Effect of protection on number of valid cases for the use of fixed-term contracts on life satisfaction – total effect





**ANNEX 1a: OECD vs Adjusted (Sub-)Indices of Employment Protection for Regular Employed**

**OECD Definitions**

	Name	Weights	
EPR	Procedural inconvenience (1/3)	Notification procedures	1/2
		Delay involved before notice can start	1/2
	Notice and severance pay for no-fault individual dismissal (1/3)	Length of the notice period at 9 months tenure	1/7
		Length of the notice period at 4 years tenure	1/7
		Length of the notice period at 20 years tenure	1/7
		Severance pay at 9 months tenure	4/21
		Severance pay at 4 years tenure	4/21
		Severance pay at 20 years tenure	4/21
	Difficulty of dismissal (1/3)	Definition of justified or unfair dismissal	1/4
		Length of trial period	1/4
		Compensation following unfair dismissal	1/4
		Possibility of reinstatement following unfair dismissal	1/4

**Adjusted Definitions**

	Name	Weights	
EPR_Res	Procedural inconvenience (2/5)	Notification procedures	1/2
		Delay involved before notice can start	1/2
	Notice pay for no-fault individual dismissal (1/5)	Length of the notice period at 9 months tenure	1/3
		Length of the notice period at 4 years tenure	1/3
		Length of the notice period at 20 years tenure	1/3
	Difficulty of dismissal (2/5)	Definition of justified or unfair dismissal	1/4
		Length of trial period	1/4
		Compensation following unfair dismissal	1/4
		Possibility of reinstatement following unfair dismissal	1/4
		Severance pay at 9 months tenure	1/3
Severance	Severance pay at 4 years tenure	1/3	
	Severance pay at 20 years tenure	1/3	

**ANNEX 1b: OECD vs Adjusted (Sub-)Indices of Employment Protection for Fixed-Term Employees**

OECD Definitions			Adjusted Definitions		
	Name	Weights		Name	Weights
EPFTC	Valid cases for use of fixed-term contracts	1/2	FTC_Cases	Valid cases for use of fixed-term contracts	1/2
	Maximum number of successive fixed-term contracts	1/4	FTC_Length	Maximum number of successive fixed-term contracts	1/4
	Maximum cumulated duration of successive fixed-term contracts	1/4		Maximum cumulated duration of successive fixed-term contracts	1/4

**TABLE A1: Linear Regression Results (direct effects) – Workers on a permanent contract**

	Probability to find a new job	Probability of a job loss	Life Satisfaction
<i>EPR_Res</i>	1.198*** (0.31)	0.187 (0.225)	-0.024 (0.102)
× <i>unemployment rate</i>	-0.233*** (0.051)	-0.038 (0.035)	
× <i>share of fixed – term workers</i>	-0.107*** (0.021)	-0.01 (0.013)	
× <i>unemployment rate × share of fixed – term workers</i>	0.017*** (0.003)	0.002 (0.002)	
<i>Severance</i>	1.32*** (0.233)	0.019 (0.136)	-0.073 (0.052)
× <i>unemployment rate</i>	-0.109*** (0.024)	0.007 (0.014)	
× <i>share of fixed – term workers</i>	-0.102*** (0.015)	0.008 (0.009)	
× <i>unemployment rate × share of fixed – term workers</i>	0.008*** (0.001)	-0.002*** (0.001)	
<i>FTC_Length</i>	-0.341 (0.672)	-0.867*** (0.337)	0.02 (0.102)
× <i>unemployment rate</i>	0.085 (0.091)	0.115*** (0.045)	
× <i>share of fixed – term workers</i>	0.034 (0.06)	0.085*** (0.03)	
× <i>unemployment rate × share of fixed – term workers</i>	-0.006 (0.008)	-0.011*** (0.004)	
<i>FTC_Cases</i>	0.249*** (0.083)	0.073 (0.055)	-0.038 (0.056)
× <i>unemployment rate</i>	-0.033*** (0.01)	-0.009 (0.006)	
× <i>share of fixed – term workers</i>	-0.031*** (0.01)	-0.014** (0.007)	
× <i>unemployment rate × share of fixed – term workers</i>	0.004*** (0.001)	0.002*** (0.001)	
<i>Probability to find a New Job</i>			0.223*** (0.038)
<i>Probability of a Job Loss</i>			-0.629*** (0.089)
<i>No of obs</i>	6,201		

Source: EQLS, third wave and OECD Employment Protection Database. own calculations.

Note: \*\*\*/\*\*/\* indicate significance at the 1%/5%/10% levels. Robust standard errors in parentheses. Controls include: Age, Age<sup>2</sup>, Partner, Gender, Children, Rural, Health, Pol\_Part, Trusting, Partsocial, Commuting, Day\_Off, Acc\_Hours, Private, Lookdown, Notimehh, Diffconc, Dummies on the Occupation, Dummies on the level of education, unemployment rate and share of fixed-term workers as well as the interaction of unemployment rate and share of fixed-term workers.

**TABLE A2:** Linear Regression Results (direct effects) – Workers on a fixed-term contract

	Probability to find a new job	Probability of a job loss	Life Satisfaction
<i>EPR_Res</i>	2.219*** (0.345)	0.240* (0.249)	-0.403*** (0.12)
× <i>unemployment rate</i>	-0.378*** (0.052)	-0.016 (0.034)	
× <i>share of fixed – term workers</i>	-0.153*** (0.02)	-0.353* (0.015)	
× <i>unemployment rate × share of fixed – term workers</i>	0.234*** (0.003)	0.004* (0.002)	
<i>Severance</i>	1.452*** (0.204)	0.529*** (0.149)	0.027 (0.063)
× <i>unemployment rate</i>	-0.125*** (0.024)	-0.058*** (0.015)	
× <i>share of fixed – term workers</i>	-0.106*** (0.012)	-0.018* (0.01)	
× <i>unemployment rate × share of fixed – term workers</i>	0.008*** (0.001)	0.002* (0.001)	
<i>FTC_Length</i>	-1.437* (0.810)	-0.535 (0.379)	-0.203* (0.123)
× <i>unemployment rate</i>	0.228** (0.105)	0.072 (0.05)	
× <i>share of fixed – term workers</i>	0.127* (0.072)	0.058 (0.036)	
× <i>unemployment rate × share of fixed – term workers</i>	-0.018* (0.009)	-0.007 (0.005)	
<i>FTC_Cases</i>	0.4*** (0.083)	0.018 (0.09)	0.094 (0.059)
× <i>unemployment rate</i>	-0.058*** (0.011)	-0.002 (0.01)	
× <i>share of fixed – term workers</i>	-0.048*** (0.009)	-0.007 (0.009)	
× <i>unemployment rate × share of fixed – term workers</i>	0.007*** (0.001)	0.001 (0.001)	
<i>Probability to find a New Job</i>			0.355*** (0.105)
<i>Probability of a Job Loss</i>			-0.402*** (0.121)
<i>No of obs</i>	767		

Source: EQLS, third wave and OECD Employment Protection Database. own calculations.

Note: \*\*\*/\*\*/\* indicate significance at the 1%/5%/10% levels. Robust standard errors in parentheses. Controls include: Age, Age<sup>2</sup>, Partner, Gender, Children, Rural, Health, Pol\_Part, Trusting, Partsocial, Commuting, Day\_Off, Acc\_Hours, Private, Lookdown, Notimehh, Diffconc, Dummies on the Occupation, Dummies on the level of education, unemployment rate and share of fixed-term workers as well as the interaction of unemployment rate and share of fixed-term workers.