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Christine Lücke, Andreas Knabe

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Poschingerstr. 5, 81679 Munich, Germany

Telephone +49 (0)89 2180-2740, Telefax +49 (0)89 2180-17845, email office@cesifo.de

Editors: Clemens Fuest, Oliver Falck, Jasmin Gröschl

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Abstract

Employment protection legislation (EPL) is an important determinant of workers' perceived future labour market prospects as well as their subjective well-being. Recent studies indicate that it is not only a worker's own level of protection, but also the employment protection of other workers that matters for individual prospects and well-being. We contribute to this literature by examining how such cross-effects on well-being are mediated by a workers' perceived risk of job loss and future employability. We apply a structural model to data from the Third Wave of the European Quality of Life Survey, combined with summary indices from the OECD Employment Protection Database. Our results are indicative of cross-effects. Stricter protection for permanent workers (stricter regulation on the length and number of renewals of fixed-term contracts) is associated with lower (higher) perceived employability for both permanent workers and fixed-term workers. In addition, stricter protection for permanent workers is positively related to fixed-term workers' perceived risk of job loss. We do find some evidence that EPL has significant indirect (cross-)effects on life satisfaction via the mediators. There are no indications for direct, non-mediated effects.

JEL-codes: J280, J680.

Keywords: employment protection, employability, risk of job loss, life satisfaction.

*Christine Lücke**
Otto von Guericke University Magdeburg
Faculty of Economics and Management
P.O. Box 4120
Germany – 39016 Magdeburg
Christine.Luecke@ovgu.de

Andreas Knabe
Otto von Guericke University Magdeburg
Faculty of Economics and Management
P.O. Box 4120
Germany – 39016 Magdeburg
Andreas.Knabe@ovgu.de

*corresponding author

1. Introduction

This study analyses the effects of employment protection legislation (EPL) on permanent and fixed-term workers' future labour market prospects and life satisfaction. We analyse whether protection for permanent workers and regulation of fixed-term contracts have cross-effects between both groups of workers.

EPL regulates employers' options to hire and dismiss workers. The OECD's employment protection indices, which are widely used in the literature, distinguish between employment protection for regular, i.e. permanent, contracts and regulation of fixed-term contracts. The OECD's index on protection of permanent workers summarizes policies that shield regular workers from job loss. More precisely, it takes account of the difficulty of dismissal, notice periods and severance payments, as well as procedural inconvenience. By contrast, the OECD's (sub-)index on the regulation of temporary forms of employment does not (as one might intuitively expect) necessarily show how strongly fixed-term workers are shielded from job loss. Rather, it summarizes restrictions on the use of fixed-term contracts and how strictly contract duration and contract renewals are limited.

EPL has an influence on "objective" outcomes such as wages (see e.g. Bird and Knopf, 2009, Leonardi and Pica, 2013) or turnover (see e.g. Garibaldi, 1998, Kugler and Saint-Paul, 2004) for the groups targeted by the legislation. Protection for permanent workers may, however, not only affect workers on a regular contract but also workers on fixed-term contracts, i.e. there can be cross-effects. If protection for permanent workers reduces turnover of permanent workers, fixed-term workers' chances of entering the regular segment are reduced. Conversely, regulation that affects the availability of fixed-term jobs will also affect permanent workers' employability, i.e. workers' probability of finding a new job if they lose or quit their job. In addition, not only employability but also the risk of a job loss is affected. E.g., if EPL protects permanent workers from job losses, adjustments in firm size are more likely to affect the atypically employed.

These effects on objective labour market prospects are also subjectively perceived by the affected individuals and may influence their optimism for the future or anxiety about job loss. Moreover, psychological effects, such as the feeling of being treated unjustly, can lead to cross-effects between regulations for different groups and their level of well-being.

Our study relates to two strands of the literature. First, Salvatori (2010) analyses EPL's cross-effects and shows how employment protection of permanent workers and regulation of fixed-term contracts affect the well-being (job satisfaction) of both groups. Second, De Cuyper et al. (2009) analyse how the perceived job loss risk and self-reported employability are related to workers' satisfaction. In a similar vein, several studies analyse how overall employment protection affects the perceived job loss risk and self-reported employability as well as the general anxiety about job loss (see Anderson and Pontusson 2007; Erlinghagen 2008; Chung and Van Oorschot 2011; Hipp 2016). Our paper contributes to this literature by combining those two strands. We analyse to what extent the perceived risk of job loss and the perceived employability act as mediators of EPL's effects on well-being when allowing for cross-effects.

In order to analyse the different channels through which EPL operates, we estimate a structural equation model, allowing the effects to be mediated by subjective perceptions and to be moderated by the unemployment rate and the share of fixed-term workers. Using survey data from the Third Wave of the European Quality of Life Survey, combined with summary indices from the OECD Employment Protection Database, we find evidence for cross-effects. These are predominantly mediated by perceived employability. Stricter regulation of the length of fixed-term contracts and the number of times they may be renewed is expected to increase turnover in fixed-term jobs. Our analysis shows that for workers on permanent contracts as well as for fixed-term workers, stricter regulation of the length and number of renewals of fixed-term contracts is associated with increased perceived employability, which can be explained by the anticipated increase in turnover. For fixed-term workers, we find that stricter protection of permanent workers is positively associated with their perceived risk of job loss. For both groups of workers, the indirect effects of stricter protection of permanent workers on life satisfaction, i.e. those transmitted via the mediators 'perceived employability' and 'perceived job loss risk', are negative and statistically significant. For permanent workers, there is also a statistically significant positive indirect effect on life satisfaction from stricter regulation of the length and number of renewals of fixed-term contracts. There are no indications for direct, non-mediated effects of EPL on worker' life satisfaction.

This paper is structured as follows: Section 2 reviews the relevant literature. In section 3, the model and research hypotheses are presented. Sections 4 and 5 describe the

data and estimation methods, respectively. Section 6 presents the results. Limitations are discussed in section 7 and section 8 summarizes the analysis.

2. Related Literature

The literature examining the effects of EPL on workers' well-being can be separated into different strands. One of these strands examines the role of job security by comparing the level of well-being/job satisfaction of permanent workers to the well-being of workers on fixed-term contracts. The evidence is mixed. Some papers find no 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 have lower levels of satisfaction than permanent workers (Clark and Oswald 1996; Booth et al. 2002; Petrongolo 2004; Chadi and Hetschko 2015).

Another strand of the literature distinguishes between job type and perceived job security. Using cross-country data, Origo and Pagani (2009) show that fixed-term workers who consider their job secure show higher values in job satisfaction than permanent workers who consider their job insecure. They conclude that the type of contract is less important than the perceived risk of job loss. Jahn (2015) confirms this result with German data. Carr and Chung (2014) and Artz and Kaja (2014) also conclude that job satisfaction decreases with higher levels of perceived job insecurity. Clark and Postel-Vinay (2009) regress estimates of individually perceived job security (one for each job type, adjusted for selection effects) on the OECD's EPL index. Their results show that higher rates of EPL reduce individually perceived job security. A negative relationship between EPL and perceived job security is also found by Böckerman (2004).

Finally, there are two papers that use cross-country data to assess the interplay between EPL and workers' well-being. Ochsens and Welsch (2012) use repeated cross-section data from the Eurobarometer from 1975 to 2002. Their results, based on least squares and ordered probit estimations, show that higher EPL is related to higher levels of life satisfaction. The effect is moderated by gender (the effect is less pronounced among women), age (older workers profit less from EPL) and education (better-educated individuals benefit less from EPL). By contrast, those groups that benefit less from EPL experience a more positive influence of the unemployment benefits replacement rate on

their life satisfaction. The authors emphasize that this is consistent with the notion that EPL is favoured by insiders, whereas more generous unemployment benefits are preferred by outsiders (e.g. women and older workers). Salvatori (2010) is, to the best of our knowledge, the only study analysing how regulation of permanent and fixed-term contracts affects the well-being of both types of workers. He uses cross-sectional data from the European Community Household Panel between 1994 and 2001. Applying a random effects ordered probit model, he finds only weak evidence that stronger protection of permanent workers increases their well-being. However, stricter regulation of fixed-term contracts reduces the well-being of permanent workers. The well-being of fixed-term workers is also reduced by stricter regulation of fixed-term contracts. Finally, Salvatori (2010) finds (weak) evidence that fixed-term workers' well-being is increased by stricter protection of permanent workers.

Using data from a Belgian cross-sectional survey, De Cuyper et al. (2009) analyse how job insecurity and employability affect job satisfaction. Applying a structural equation model, they find that job insecurity is negatively related to the job satisfaction of permanent and temporary agency workers, while there is no effect on fixed-term workers. Interestingly, they find a negative relationship between employability and job satisfaction among fixed-term and temporary agency workers, but no such relationship among permanent workers.

Anderson and Pontusson (2007) and Hipp (2016) estimate the effects of different policy parameters – including employment protection – on a person's general anxiety about losing his or her job using data from the International Social Survey Programme (ISSP). They allow for different mediators: the perceived risk of job loss, the perceived (lack of) employability and the general perceived severity of job loss, which may include financial distress. Both papers use multilevel modelling. Anderson and Pontusson (2007) find that EPL reduces the perceived risk of job loss, while there are no effects on general anxiety about losing one's job. It should be mentioned that they allow EPL to have a direct influence only on the risk of job loss, and not on employability. In their model, EPL may only have indirect pass-through effects on the general anxiety about losing one's job. Hipp (2016) allows for direct effects of EPL on the perceived risk of job loss and perceived employability. She finds that EPL has an influence on the perceived risk of job loss only when the share of fixed-term employees in the respective country is high.

Due to limitations in the ISSP data, neither study can control for the type of contract. Erlinghagen (2008) estimates the effect of EPL on the perceived risk of job loss, using a multilevel model with data from the 2008/09 wave of the European Social Survey. He finds no significant relationship. Similarly, Georgieff and Lepinteur (2017) show that an increase in the French Delande Tax (payable by firms whenever they dismiss elderly workers) decreases the perceived risk of job loss for the elderly, but increases it for younger workers. Kuroki (2012) showed that a deregulation of atypical work in Japan led to a decrease in permanent workers' perceived risk of job loss. Using data from the European Social Survey, Chung and Van Oorschot (2011) find a negative interaction effect between employment protection of permanent jobs and having a permanent job on perceived employability and interpret their result as showing that stricter protection of permanent jobs reduces the gap in employability between fixed-term workers and regular workers.

Our paper is similar to the papers by Anderson and Pontusson (2007), Hipp (2016) and De Cuyper et al. (2009) in analysing how the perceived risk of job loss and employability affect workers' well-being. We combine the structural approach with Salvatori's (2010) idea of cross-effects between the level of protection of permanent workers/regulation of temporary employment and the level of life satisfaction of permanent/temporary workers. The results expand our understanding of how – and through which channels – employment protection legislation affects workers' well-being.

3. Model and Hypotheses

Figure 1 gives a first simplified overview of the structural equation model we apply in this analysis. The model is a *moderated mediation* model.¹ The effects of EPL for permanent workers and regulation of fixed-term contracts on life satisfaction are mediated by the perceived risk of job loss and perceived employability. These mediated paths are moderated by the unemployment rate and the share of fixed-term contracts in the country where the individual lives. The unemployment rate and the share of fixed-term workers in a country may weaken or strengthen the effects of employment protection on the mediators. For example, the higher the unemployment rate, the stronger

¹ Since the moderators are themselves interacted, the moderation itself is a *moderated moderation*.

might be the effect of dismissal protection on the perceived risk of job loss. Correspondingly, when the share of fixed-term workers in a country is low, the perceived future employability of fixed-term workers depends more on the conditions in the (large) regular segment than in the (small) fixed-term segment of the labour market. Hence, any effect of employment protection on employment conditions in the fixed-term segment should affect current fixed-term workers' perceived employability less the lower is the share of fixed-term workers. Besides the mediated paths, we allow protection of permanent workers and regulation of fixed-term contracts to have direct effects on life satisfaction.

The effects on the mediators – i.e. the perceived risk of job loss and the perceived employability – are estimated using probit estimation. The effect on life satisfaction is estimated by an ordered logit regression.

One can argue that, instead of affecting well-being directly, the perceived risk of job loss and perceived employability affect job satisfaction, which then affects well-being. Since we are not interested in the effect on job satisfaction as such, but only in the overall effect on life satisfaction, we ignore this intermediate step. In this sense, we estimate a reduced form model.

We allow the coefficients to vary between permanent and fixed-term workers by estimating the model separately for the two groups.

Next, we present our hypotheses.

H 1: The direct influence of the perceived risk of job loss on life satisfaction is negative.

Fear of losing one's job causes stress for an individual (Cheng et al. 2005; Heaney et al. 1994; De Cuyper et al. 2009). This can lead to lower levels of life and job satisfaction. A job loss is associated with financial losses. The higher an individual evaluates the risk of losing her job, the lower are her expected future earnings. Lower earnings are, again, associated with lower levels of satisfaction (Kahneman and Deaton 2010).

H 2a: The direct influence of protection of permanent workers on permanent workers' perceived risk of job loss is negative.

Employment protection of permanent workers sets rules on the difficulty of dismissal. The more constraining the laws on unfair dismissal are, the lower should be the individually perceived risk of job loss.

H 2b: The direct influence of protection of permanent workers on fixed-term workers' perceived risk of job loss is mildly positive (if at all).

Fixed-term workers are much less affected by dismissals. Usually, employers part with their fixed-term workers when the contract expires. However, fixed-term workers can in principle also be dismissed before their contract expires. If a firm experiences a sudden need to dismiss workers (e.g. due to a negative business-cycle shock), a high level of EPL protects workers on permanent contracts. The harder permanent workers are to dismiss, the higher should be the probability of job loss for fixed-term workers.

H 3a: The direct influence of regulation of fixed-term contracts on permanent workers' perceived risk of job loss is mildly negative (if at all).

For workers on permanent contracts, the risk of job loss should mainly depend on their own level of protection (H2a). Yet, if there is a fear that a job will be taken over by workers on flexible/atypical contracts, stricter regulation of flexible contracts should reduce the risk of job loss.

H 3b: The direct influence of regulation of fixed-term contracts on fixed-term workers' perceived risk of job loss is mildly positive (if at all).

Again, rather than ending in dismissal, fixed-term contracts usually expire. Therefore, regulation of fixed-term contracts should not influence fixed-term workers' risk of job loss. Some regulations, e.g. restrictions on the possibility to prolong fixed-term contracts, could increase the perceived risk of job loss.

H 4: The direct influence of perceived employability on life satisfaction is positive.

The easier it is for workers to find a new job after losing one, the less pressure they should feel in their current job and the more positive should be their general future employment and income prospects. This should result in a higher level of life satisfaction (De Cuyper et al. 2009).

H 5: The direct influence of protection of permanent workers on permanent and fixed-term workers' perceived employability is negative.

Stronger protection of regular jobs acts as a barrier to entry. If workers who lose their current jobs prefer to find another permanent, rather than temporary job, stricter protection of permanent workers should decrease their perceived probability of finding a new job.

H 6: The direct influence of regulation of fixed-term contracts on permanent and fixed-term workers' perceived employability is ambiguous.

To the extent that restrictions on the length of fixed-term contracts increase turnover in this segment, this could increase permanent and fixed-term workers' perceived employability. Restrictions on the number of cases in which fixed-term contracts might be concluded will reduce the availability of these jobs and thus could reduce permanent and fixed-term workers' perceived employability.

H 7a: The direct influence of protection of permanent workers on permanent workers' life satisfaction is ambiguous.

Holding a permanent job might act as a signal to others (e.g. family members), thereby increasing a person's social standing/prestige and well-being. Conversely, firms might increase their monitoring in order to be able to justify a dismissal (Wasmer 2008). This could induce stress and decrease well-being.

H 7b: The direct influence of protection of permanent workers on fixed-term workers' life satisfaction is ambiguous.

Having a fixed-term contract, rather than a permanent one, could reduce a worker's comparative social standing/prestige and well-being. On the other hand, if a worker expects to be promoted to a permanent job soon, the prospect of becoming better protected should increase the worker's well-being.

H 8a: There is no direct influence of regulation of fixed-term contracts on permanent workers' life satisfaction.

We do not expect permanent workers to experience a direct well-being effect from stricter regulation of fixed-term contracts.

H 8b: The direct influence of regulation of fixed-term contracts on fixed-term workers' life satisfaction is ambiguous.

On the one hand, stricter regulation of fixed-term contracts is supposed to prevent workers from getting stuck in a fixed-term trap and to improve their chances of getting a permanent job. On the other hand, if fixed-term workers are less able to predict and plan their career stricter regulation should decrease their well-being.

4. Data

The paper's main data source is the Third European Quality of Life Survey (EQLS). This survey is conducted by Eurofound. The study was conducted in 2011/2012 in 34

European countries, with at least 1,000 participants in each country. Participating households were randomly drawn, stratified by geographical region and degree of urbanization. Only one (randomly drawn) adult per household was interviewed. The interviews were conducted face to face.

In our study, the main variable of interest is the level of life satisfaction. Participants in the survey were 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 making use of a rich set of personal controls (e.g. age, marital status, education level) and job characteristics (e.g. sector, occupation). Information on the type of contract is provided. We restrict the sample to persons employed under open-ended or fixed-term contracts and differentiate the analysis between these two contract types. Our sample consists of 6,347 workers on open-ended contracts and 789 workers on fixed-term contracts, across 23 countries. Table 1 offers descriptive statistics, including all the variables used in the analysis.

Besides their level of life satisfaction, the participants were asked to evaluate the probability of losing their job within the next six months, using a five-item scale. The question read: *‘How likely or unlikely do you think it is 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]. We use this question to represent the perceived risk of job loss. Respondents were also asked to evaluate their chances of finding a new job, on a similar salary, again using a five-item scale. The question read: *‘If you were to lose or had to quit your job, how likely or unlikely is it that you will find a job on a similar salary?’* [Very likely, Quite likely, Neither likely nor unlikely, Quite unlikely, Very unlikely, Don’t know, Refusal]. This represents perceived employability. We recode these two ordinal variables into binary variables: a value of 1 for answers ‘Very likely’ and ‘Quite likely’ and a value of 0 otherwise.²

The second major data source is the OECD Employment Protection Database (OECD (2004)). The OECD provides summary indices on the level of employment protection. Overall, 21 items are aggregated to sub-indices which in turn are aggregated to three indices, providing a broad overview of the level of EPL in a country. These indices are:

² This is done in order to facilitate presentation of the results. The results do not change in significance or direction if the variables are not recoded and ordered logit estimations are used instead of probit.

Protection of regular workers against (individual) dismissal (EPR); Regulation of temporary forms of employment (EPT); and specific requirements for collective dismissal (EPC). In this paper, we use the OECD's 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 EPT.

We extract the sub-index on the amount of severance pay from the EPR index. Hence, the analysis includes two sub-indices on EPR: one index with the amount of severance pay (Severance) and one (residual) index comprising regulations on the difficulty of dismissal, on procedural inconvenience and on the length of the notice period (EPR_Res). The index on severance pay was calculated by weighting the amount of severance pay that a worker is eligible to receive for different years of tenure. The index 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 more severance pay increases with tenure, the higher the incentive for firms to dismiss workers early. The two effects work in opposite directions for different levels of tenure. Since we do not have information on the years of tenure for the workers in the sample, the coefficient cannot (and will not) be interpreted.

The EPFTC index is also disaggregated into two sub-indices. The first subindex represents the extent of valid cases for the use of fixed-term contracts (FTC_Cases). A country with a high value of the sub-index FTC_Cases restricts the ability of firms to limit the contract duration of newly hired employees to a small set of specific 'objective' reasons (e.g. short-term replacements for workers on maternity leave). A country with a low value on the sub-index does not impose any restriction on the use of fixed-term contracts. The second subindex represents regulations on the maximum number of successive contracts and their maximum cumulative duration (FTC_Length). Higher values of this index indicate that the maximum number of successive fixed-term contracts is smaller and their maximum cumulative duration is shorter. While it can be argued that both indices capture how strongly the use of fixed-term workers is regulated, the two indices can have opposing effects, e.g. on the job-finding rate: FTC_Length will increase turnover, while FTC_Cases will reduce the number of fixed-term vacancies. Appendix 1 presents and compares the summary indices used in this paper and the original OECD summary indices.

Lastly, data on the unemployment rate and the share of fixed-term workers in each country were taken from the OECD's Labour Force Statistics.

5. Estimation

In this analysis, we want to estimate the effect of country-level variables (employment protection) on individual-level variables (life satisfaction, future labour market prospects). If the number of countries was large, one could directly estimate the effect of the protection indices on the mediators and on life satisfaction, clustering the standard errors by country. When the number of clusters is small, however, standard errors would still be underestimated even if clustered at the country-level (Bryan and Jenkins 2016). To overcome this problem, each of the model equations is estimated in two steps. In the first stage, all variables at the individual level, as well as country-level fixed effects, are used as regressors. In the second stage, the estimated country-level fixed effects are regressed on the protection indices and on the interactions between the indices and the moderators. In this second stage, there are only as many observations as there are countries in the sample.

The first stage regressions are estimated as follows:

$$NewJob_{ic} = 1(\alpha^1 + x'_{ic}\delta^1 + D_c^1 + u_{ic}^1 > 0) \quad (1)$$

$$JobLoss_{ic} = 1(\alpha^2 + x'_{ic}\delta^2 + D_c^2 + u_{ic}^2 > 0) \quad (2)$$

$$LS_{ic}^* = \alpha^3 + \alpha_1^3 NewJob_{ic} + \alpha_2^3 JobLoss_{ic} + x'_{ic}\delta^3 + D_c^3 + u_{ic}^3 \quad (3)$$

The subscripts i and c refer to the individual and the country in which he or she resides. The superscripts refer to the respective equation. The vector of exogenous variables x'_{ic} includes age, age squared, household income per capita, dummies on marital status, educational attainment, gender, children, area of residence (rural vs urban), health status, trustingness, political participation, sector (private vs public) and occupational status. D_c is a vector of country dummies, u_{ic} is the respective error term. Equations (1) and (2) are probit estimations. Equation (3) estimates the effects on Life Satisfaction (LS^*), applying an ordered logit estimation:

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

with $k \in \{1, 2, \dots, 10\}$. The cut-off points τ strictly increase in k , with $\tau_0 = -\infty$ and $\tau_{10} = \infty$.

The second stage regressions are estimated for equations (1) and (2), respectively, as follows:

$$D_c^j = \begin{pmatrix} EPR_Res_c \\ Severance_c \\ FTC_Length_c \\ FTC_Cases_c \end{pmatrix}^T \begin{pmatrix} \gamma_1^j & \gamma_2^j & \gamma_3^j & \gamma_4^j \\ \beta_1^j & \beta_2^j & \beta_3^j & \beta_4^j \\ \beta_5^j & \beta_6^j & \beta_7^j & \beta_8^j \\ \beta_9^j & \beta_{10}^j & \beta_{11}^j & \beta_{12}^j \end{pmatrix} \begin{pmatrix} 1 \\ uer_c \\ sft_c \\ uer_c \times sft_c \end{pmatrix} + \varepsilon_c^j \quad (5)$$

with $j = 1, 2$. *Uer* refers to the unemployment rate and *sft* to the share of fixed-term workers. The γ 's are the coefficients of the employment protection indices, and the β 's are the coefficients of the interaction between the employment protection indices and the moderators. In the life satisfaction estimations, we also allow for an unmoderated, i.e. direct, effect of the employment protection indices. The second stage for equation (3) is thus:

$$D_c^3 = \vartheta^3 + \begin{pmatrix} EPR_Res_c \\ Severance_c \\ FTC_Length_c \\ FTC_Cases_c \end{pmatrix}^T \begin{pmatrix} \gamma_1^3 \\ \gamma_2^3 \\ \gamma_3^3 \\ \gamma_4^3 \end{pmatrix} + u_c \quad (6)$$

The results from both the first and the second stage are used to calculate average marginal effects of the employment protection indices and their standard errors, using Monte-Carlo simulations. First, we draw a set of coefficients from the estimated coefficient vectors and their variance-covariance matrices from the first and second stage. We calculate by how much the country fixed-effect changes if the employment protection index of interest is increased marginally. For each individual, we then calculate the predicted first-stage outcome with and without the shift in the country fixed-effect. The difference between the two predicted outcomes yields the marginal effect. The average marginal effect for each draw is obtained by averaging over all individuals. This procedure is repeated 1,000 times per simulation. The standard error of the average marginal effect is obtained from the standard deviation of the predicted marginal effects.

6. Results

In the following, we will discuss the results separately for each protection index. A first impression of the results can be gained by inspecting the regression output presented in Table 2 and Table 3. It can be seen that, for both groups, a higher perceived risk of job loss is negatively related to life satisfaction, and a higher perceived probability of finding a new job is positively related to life satisfaction. This supports Hypotheses 1 and 4. Due to the many interactions in the model, most other point estimates are not readily interpretable. This is also true of the p-values. The point estimates refer to situations in which the unemployment rate and the share of fixed-term workers are both zero. An insignificant result at zero unemployment and a zero share of fixed-term workers does not necessarily mean that there are no significant effects over the whole spectrum of the moderators. In order to enhance clarity, we graphically present average marginal effects (AME) for different levels of the moderating variables *unemployment rate* and *share of fixed-term workers*. We evaluate the marginal effect of the respective employment protection index, taking the values of the explanatory variables and one of the moderators as actually reported in each observation, but exogenously varying the level of the other moderating variable (depicted on the abscissa in the respective graphs). For each person, we calculate the difference in the predicted probabilities when the respective employment protection index is increased by a value of 0.25. This corresponds to the actual magnitude of past EPL reforms (Bassanini and Duval 2009).³ We restrict the discussion of EPL's marginal effects to empirically relevant ranges of the mediating variables (unemployment rates between 4% and 16%, share of fixed-term workers between 4% and 22%).

Employment protection policies may influence life satisfaction directly or via their influence on the mediators. Therefore, we present the results on life satisfaction for the direct path and for the mediated (i.e. indirect) path. We also present the overall effect.

Protection of workers on permanent contracts – EPR_Res

Stricter protection for workers on permanent contracts is strongly negatively related to the probability of finding a new job. The upper panel of Figure 2 shows the average

³ Reforms that changed the OECD's EPR Index by 0.25 points happened, e.g., in the Czech Republic in 2007 and in Italy in 2013. Reforms that changed the OECD's EPFTC Index by 0.25 points happened, e.g., in the Czech Republic in 2005 and 2012, in Spain in 2011, 2012 and 2013, in the UK in 2003, in Portugal in 2013, and in Slovakia 2011, 2012 and 2013.

marginal effect of a 0.25-unit increase in `EPR_Res` for different unemployment rates and different shares of fixed-term workers. It ranges from -14 pp to +2.1 pp for permanent workers and from -12.6 pp to 2 pp for fixed-term workers. Over a wide range of unemployment rates and shares of fixed-term workers, the relation is both economically and statistically significant. For permanent workers, the results are significant for all levels of unemployment considered and for a share of fixed-term workers smaller than 17 %, with an average marginal effect varying between -3.8 pp and -14 pp. For fixed-term workers, the results are significant for unemployment rates larger than 6 % and a share of fixed-term workers smaller than 15 %, with an average marginal effect varying between -3.5 pp and -12.6 pp. The results are in line with the hypothesis that stricter protection of permanent jobs works as a barrier to entry to the labour force (Hypothesis 5).

For permanent workers, there is no statistically significant association between `EPR_Res` and the probability of job loss. The lack of a significant relationship between `EPR_Res` and permanent workers' perceived risk of job loss gives no support to Hypothesis 2a. It is, however, in line with Chung and van Oorschot (2011), Erlinghagen (2008) and Hipp (2016), none of whom found a significant relationship. We do find a positive significant association between stricter protection for permanent workers and fixed-term workers' perceived risk of job loss. Overall, the marginal effect varies between -2.5 pp and 11.6 pp. The relation is statistically significant for unemployment rates larger than 7 % and a share of fixed-term workers larger than 6 %, with an average marginal effect varying between 2 pp and 11.6 pp. The largest estimates are found for high levels of unemployment. This is in line with Hypothesis 2b.

The lower panel of Figure 2 shows the average marginal effects for the ordered logit estimation on life satisfaction. These are decomposed into direct and indirect (i.e. mediated) effects. For fixed-term workers, there is a tendency for stricter EPR to be related to a reduction in the right tail of the distribution of life satisfaction. This means that the incidence of high values of life satisfaction is reduced while, simultaneously, lower values are more frequently observed, i.e. on average there is a negative association between life satisfaction and stricter EPR. Both the direct and the indirect effects point in the same direction. However, only the indirect effect is statistically significant. For permanent workers, we also find a statistically significant negative indirect relation

between stricter EPR and life satisfaction and no significant direct or total effect. In contrast to the results for fixed-term workers, the direct effect and total effect for permanent workers are positive. The opposing direct effect for permanent and fixed-term workers can be explained by an increase (decrease) in the individual's social standing and from feeling secure (insecure) for permanent workers (fixed-term workers), as we argue in hypothesis 7a (7b).

Protection of fixed-term contracts – FTC_Length

Figure 3 shows the relation between stricter regulation of contract length and contract renewals and workers' perceived probability of finding a new job. The average marginal effects vary between -0.1 pp and 6.1 pp for permanent workers and between -5.4 pp and 8.3 pp for fixed-term workers. Generally, stricter regulation goes hand in hand with increased employability. In line with hypothesis 6, this holds true for fixed-term workers and also for permanent workers. Stricter regulation in this case means a shorter cumulative duration and a lower number of contract renewals. These measures increase the turnover in fixed-term contracts. Higher turnover increases the probability of finding a new job. The results are significant for a share of fixed-term contract workers smaller than 15 %. The results indicate that if the share of fixed-term contract workers is already high, increasing regulation of contract length/renewal cannot increase turnover much further, and will thus have only a marginal or zero effect. Turning to the unemployment rate, the effect is only significant if the unemployment rate is at a low or medium level, i.e. smaller than 11 % for permanent workers and smaller than 10 % for fixed-term workers. In the respective range of unemployment rates and a share of fixed-term workers smaller than 15 %, the magnitude of the average marginal effect varies between 1.8 pp and 6.1 pp for permanent workers and between 1.8 pp and 8.3 pp for fixed-term workers. The effect of an increase in turnover is weakened if the conditions for finding a job are hard, i.e. if the unemployment rate is high.

The perceived probability of job loss among workers on a fixed-term contract is not related to FTC_Length, as was predicted by Hypothesis 3b. Rather than end in dismissal, fixed-term workers' contracts usually expire. Permanent workers' risk of job loss is not related in a statistically significant way to stricter regulation of contract length/renewals for fixed-term contracts.

As is expected from Hypothesis 8a, there is no association between stricter rules on contract length/renewals and permanent workers' life satisfaction (lower panel of Figure 3). This holds also true for fixed-term workers. The results are insignificant, but still deserve some explanation. As can be seen, the direct effect and the indirect effect work in opposite directions. The direct effect reduces the right tail of the distribution of life satisfaction. This is in line with the hypothesis that short contract duration and limited possibilities of contract renewal increase stress among fixed-term workers, due to insecurity/lack of predictability about their careers, as is argued in hypothesis 8b. The indirect effect tends to increase life satisfaction through its positive effect on the chances of finding a new job. In contrast to the results for the protection of permanent workers, here the indirect effect is insignificant for both groups. This is probably due to smaller marginal effects on the mediator 'employability'. Due to small indirect effects, the total effect largely depends on the direct effect, but it is still statistically insignificant.

Protection of fixed-term contracts – FTC_Cases

As the upper panel of Figure 4 shows, there is no association between the perceived probability of finding a new job and regulation on valid cases for use of fixed-term contracts either for permanent workers or for workers on a fixed-term contract. For permanent workers, this is in line with Hypothesis 6a. However, as stricter regulation in this case means a reduction in turnover, we would have expected to find a negative relation between stricter regulation on valid cases for use of fixed-term contracts and fixed-term workers' employability (Hypothesis 6b). As was expected in Hypotheses 3a and 3b, there is no association between regulation on valid cases for use of fixed-term contracts and the perceived risk of job loss for either group.

As the lower panel of Figure 4 shows, there is no statistically or economically significant association between life satisfaction and restrictions on valid cases for the use of fixed-term contracts for either group. This is true for the direct effect, the indirect effect and the total effect.

7. Limitations

One reason why studies that examine the cross-effects of EPL between different groups of workers and that look at the mediating effects of EPL are so scarce is the poor availability of data. Even when panel data are available, cross-country analyses of EPL generally suffer from the small amount of variation in regulations over time within countries. In our analysis, data are only available for one year, so this is even more of a problem in this paper. The analysis presented here can thus only offer a first glimpse. There are only a few cross-country data sources that contain information on individuals' level of job satisfaction and/or life satisfaction for different years and countries. Aggravatingly, there are even fewer data sources that ask respondents how they perceive the likelihood that they will lose their job and how they perceive their chances of finding a new one. In contrast to the ECHP/EU-SILC or Eurobarometer, the International Social Survey Programme contains all the questions needed to estimate the model, but does not enable the separation of permanent workers and workers on a fixed-term contract. In our view, the best option to answer these research questions thus far is to use the data from the third wave of the EQLS. Once better data become available, the literature on this topic will hopefully gain momentum and this analysis can be repeated with greater accuracy.

Our results should be interpreted as correlations rather than causal relations. As De Cuyper et al. (2009) argue, however, it is more likely that the likelihood of losing one's job affects satisfaction than vice versa; and this also seems plausible for employability (i.e. the probability of finding a new job). Reverse causality could also matter for the relation between EPL and the mediators. EPL influences labour market outcomes. Policymakers, however, also react to labour market outcomes by adjusting EPL. In that respect, it is comforting that employment protection policies seem quite stable over time, and changing job market expectations do not cause them to be adjusted very frequently, as noted by Hipp (2016).

One further limitation 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 of finding a new job *with a similar salary*. The question thus diverts attention from the dimension of job security. In order to analyse whether fixed-term contracts are seen as a springboard to a regular job and how regulation can help overcome a fixed-term

contract trap, it would be necessary to ask questions that emphasize the probability of finding a similar job or a job with a similar level of job security.

8. Conclusion

Employment protection affects workers' future labour market prospects and workers' well-being. This paper argues that workers on permanent and fixed-term contracts are affected not only by their own group's level of protection, but also by the level of protection offered to the other group. We extend the literature by examining how the effects on well-being are mediated by the perceived risk of job loss and perceived employability. 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, combined with summary indices from the OECD Employment Protection Database. We show that stricter protection of permanent workers is negatively related to both permanent workers' and fixed-term workers' perceived employability. While we do not find that stricter protection for permanent workers reduces permanent workers' perceived risk of job loss, we do find a positive relation for fixed-term workers when unemployment rates are relatively high. For both groups, the direct effect of EPL on life satisfaction is not statistically significant. However, we find a significant positive indirect effect of stricter protection for permanent workers on permanent workers' life satisfaction.

Regulation of fixed-term contracts affects the turnover and availability of fixed-term jobs. Stricter regulation concerning the length and number of renewals of fixed-term contracts increases turnover, whereas regulation concerning the number of valid cases for the use of fixed-term contracts reduces the availability of fixed-term jobs. While the latter is not statistically significantly related to any outcome analysed, the former is positively related to perceived employability of both fixed-term and permanent workers. This, again, yields a statistically significant indirect effect on life satisfaction, while the overall effect is insignificant for both groups.

Our results indicate that regulation for specific types of contracts has cross-effects on workers in other job types. While it appears plausible that effects on perceived

employability are similar for both groups, it is noteworthy that the only significant effect of EPL on the perceived risk of job loss is a cross-effect (fixed-term workers suffer from the protection of permanent workers). Our results indicate that policies intended to increase permanent workers' job security end up reducing fixed-term workers' perceived job security without increasing the perceived job security of permanent workers. When designing employment protection policies, policymakers should be aware that the group of workers affected consists not only of the group primarily targeted.

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Tables and Figures

Figure 1: Simplified depiction of the structural model

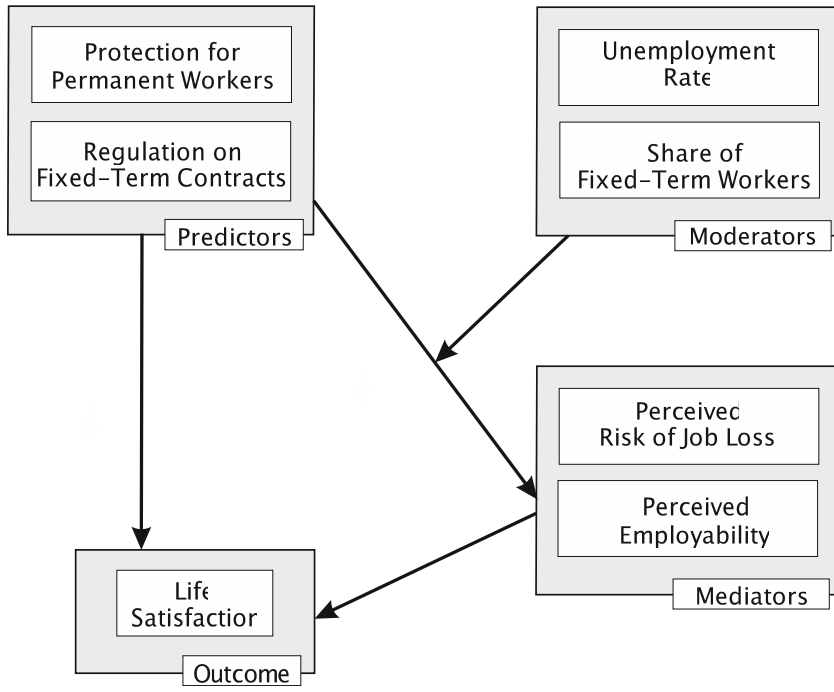


Table 1: Descriptive Statistics

Source	Variable	Description	Permanent Workers		Fixed-term Workers		Difference
			Mean	Std Dev	Mean	Std Dev	
OECD Employment Protection Database							
	EPR_Res	<i>EPL index for permanent workers (excl. severance pay)</i>	1.696	0.591	1.547	0.683	0.149***
	Severance	<i>OECD severance pay index</i>	1.061	1.009	1.343	1.320	-0.222***
	FTC_Cases	<i>OECD index on valid cases for fixed-term contracts</i>	1.462	1.717	1.370	1.713	0.092
	FTC_Length	<i>OECD index on regulation of contract duration and contract renewal of fixed-term contracts</i>	2.218	0.979	2.042	0.887	0.176***
European Quality of Life Survey (Third Wave)							
	LifeSat	<i>Life Satisfaction (range 0–10)</i>	7.494	1.802	7.122	1.966	0.372***
	JoblossProb	<i>1 if quite likely to lose job in the next 6 months</i>	0.099		0.287		-0.188***
	New_Job	<i>1 if quite likely to find a job with a similar salary</i>	0.415		0.421		-0.005
	Income Per Capita	<i>Household income, divided by number of household members</i>	1743.087	2416.668	1393.721	1703.750	349.366***
	Age	<i>Age</i>	42.646	9.476	38.769	9.638	3.877***
	Partner	<i>1 if in a relationship</i>	0.709		0.631		0.077***
	Gender	<i>1 if male</i>	0.465		0.439		0.027
	Children	<i>1 if individual has children</i>	0.758		0.654		0.104***
	Rural	<i>1 if lives in small town/countryside</i>	0.447		0.430		0.017
	Health	<i>Own assessment health (range 1 – 5)</i>	1.976	0.788	1.958	0.803	0.018
	Pol_Part	<i>1 if attended meeting of a trade union, a political party or a political action group</i>	0.360		0.352		0.008
	Trusting	<i>Assessment of how people can be trusted (range 1–10)</i>	5.635	2.311	5.335	2.423	0.300***
	Private	<i>1 if private sector</i>	0.617		0.596		0.022
	Manager	<i>1 if manager</i>	0.067		0.027		0.041***
	Professional	<i>1 if professional</i>	0.192		0.200		-0.008
	Techn_JunProf	<i>1 if technician or junior professional</i>	0.150		0.079		0.071***
	Clerical_Supp	<i>1 if clerical support worker</i>	0.160		0.125		0.035**
	Service_Sales	<i>1 if service or sales worker</i>	0.212		0.288		-0.075***
	Agric_Worker	<i>1 if skilled agricultural or forestry worker or fisherman</i>	0.012		0.018		-0.006
	CraftTrade_Work	<i>1 if craft and related trades worker</i>	0.098		0.085		0.014
	PlantMachOpp	<i>1 if plant and machine operator or assembler</i>	0.041		0.042		-0.001
	Element_Occ	<i>1 if elementary occupations</i>	0.068		0.137		-0.069***
	NoEd	<i>1 if no education completed</i>	0.003		0.006		-0.003
	PrimEd	<i>1 if completed primary education</i>	0.023		0.033		-0.010*
	SecondEd	<i>1 if completed secondary education</i>	0.604		0.598		0.006
	TertEde	<i>1 if completed tertiary education</i>	0.369		0.362		0.007
OECD Labour Force Statistics							
	Unemployment_Rate	<i>Unemployment rate (country level)</i>	8.570	3.282	9.459	3.922	-0.890***
	Share of Fixed-Term Workers	<i>Share of fixed-Term Workers (country level)</i>	13.138	5.520	14.617	6.385	-1.479***

Countries: Austria, Belgium, Czech Republic, Germany, Denmark, Estonia, Greece, Spain, Finland, France, Hungary, Ireland, Italy, Luxembourg, Netherlands, Poland, Portugal, Sweden, Slovenia, Slovakia, UK, Turkey, Iceland

Note: ***/**/* indicate significance at the 1%/5%/10% levels.

Table 2: Regression Results – Workers on a permanent contract

	Probability of finding a new job	Probability of job loss	Life Satisfaction
<i>First Stage: probit/ordered logit</i>			
Individual-level controls	✓	✓	✓
Country-FE	✓	✓	✓
Probability of finding a new job			0.260*** (0.050)
Probability of job loss			-0.698*** (0.079)
Obs	6347	6347	6347
Pseudo-R ²	0.123	0.106	0.077
<i>Second Stage: OLS</i>			
EPR_Res	-0.269 (1.018)	-0.030 (1.562)	0.244 (0.275)
× unemployment rate	-0.244 (0.152)	0.051 (2.233)	
× share of fixed-term workers	-0.003 (0.087)	-0.035 (0.134)	
× unemployment rate × share of fixed-term workers	0.014 (0.012)	0.002 (0.019)	
Severance	2.831** (0.933)	-0.558 (1.431)	-0.043 (0.122)
× unemployment rate	-0.332** (0.108)	0.094 (0.166)	
× share of fixed-term workers	-0.240** (0.068)	0.055 (0.105)	
× unemployment rate × share of fixed-term workers	0.023** (0.007)	-0.007 (0.010)	
FTC_Length	-1.495 (1.182)	0.490 (1.813)	-0.078 (0.182)
× unemployment rate	0.283* (0.140)	-0.079 (0.215)	
× share of fixed-term workers	0.178 (0.108)	-0.039 (0.166)	
× unemployment rate × share of fixed-term workers	-0.027* (0.013)	0.006 (0.019)	
FTC_Cases	0.261 (0.444)	-0.230 (0.680)	-0.038 (0.089)
× unemployment rate	-0.034 (0.046)	0.022 (0.070)	
× share of fixed-term workers	-0.039 (0.049)	0.020 (0.076)	
× unemployment rate × share of fixed-term workers	0.005 (0.005)	-0.001 (0.008)	
Obs	23	23	23
Adj. R ²	0.724	0.261	0.007

Source: EQLS Third Wave and OECD Employment Protection Database. Own calculations.

Note: ***/**/* indicate significance at the 1%/5%/10% levels. Standard errors in parentheses. Controls include: age, age squared, partner, gender, children, income, rural, health, pol_part, trusting, private; dummies on trust in legal system, government, local authorities and police; dummies on occupation; dummies on level of education.

Table 3: Regression Results – Workers on a fixed-term contract

	Probability of finding a new job	Probability of job loss	Life Satisfaction
<i>First Stage: probit/ordered logit</i>			
Individual-level controls	✓	✓	✓
Country-FE	✓	✓	✓
Probability of finding a new job			0.310** (0.145)
Probability of job loss			-0.390** (0.151)
Obs	789	789	789
Pseudo-R ²	0.182	0.110	0.101
<i>Second Stage: OLS</i>			
EPR_Res	0.128 (1.169)	0.772 (0.647)	-0.202 (0.387)
× unemployment rate	-0.274 (0.174)	-0.028 (0.097)	
× share of fixed-term workers	-0.024 (0.100)	-0.117* (0.056)	
× unemployment rate × share of fixed-term workers	0.016 (0.014)	0.012 (0.008)	
Severance	2.924** (1.071)	1.763** (0.593)	-0.078 (0.182)
× unemployment rate	-0.321** (0.124)	-0.167* (0.069)	
× share of fixed-term workers	-0.267** (0.078)	-0.088* (0.043)	
× unemployment rate × share of fixed-term workers	0.025** (0.007)	0.009* (0.004)	
FTC_Length	-2.032 (1.356)	-0.216 (0.751)	-0.341 (0.255)
× unemployment rate	0.316* (0.161)	0.034 (0.089)	
× share of fixed-term workers	0.257* (0.124)	0.036 (0.069)	
× unemployment rate × share of fixed-term workers	-0.033* (0.015)	-0.004 (0.008)	
FTC_Cases	0.516 (0.509)	-0.338 (0.282)	0.072 (0.125)
× unemployment rate	-0.059 (0.053)	0.032 (0.029)	
× share of fixed-term workers	-0.074 (0.057)	0.027 (0.031)	
× unemployment rate × share of fixed-term workers	0.008 (0.006)	-0.003 (0.003)	
Obs	23	23	23
Adj. R ²	0.892	0.847	-0.062

Source: EQLS Third Wave and OECD Employment Protection Database. Own calculations.

Note: ***/**/* indicate significance at the 1%/5%/10% levels. Standard errors in parentheses. Controls include: age, age squared, partner, gender, children, income, rural, health, pol_part, trusting, private; dummies on trust in legal system, government, local authorities and police; dummies on occupation; dummies on level of education.

Figure 2: Marginal effect of protection of workers on permanent contracts

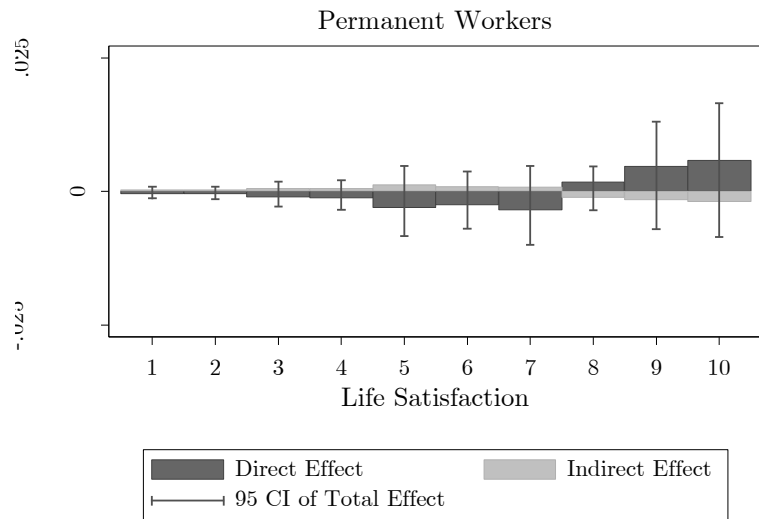
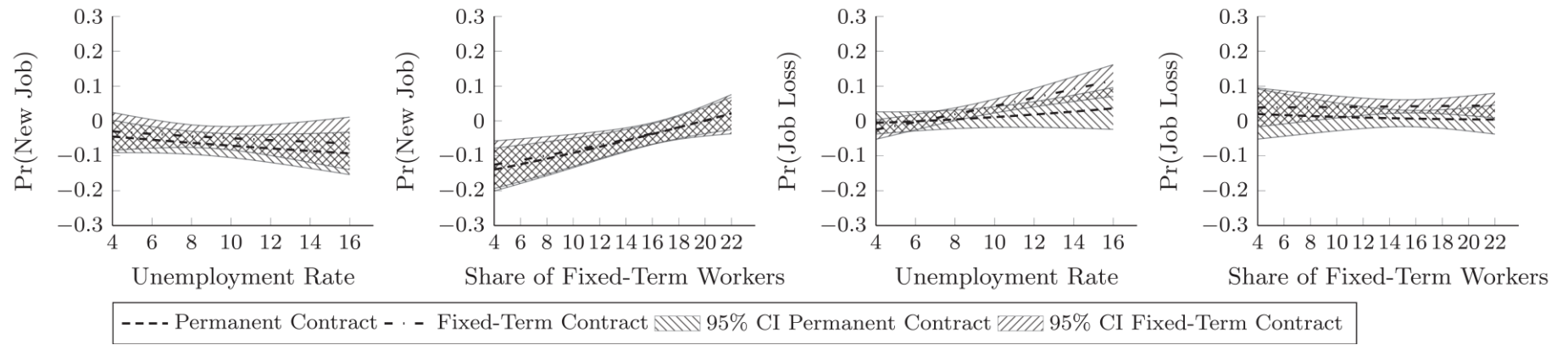


Figure 3: Marginal effect of regulation on the length and number of renewals of fixed-term contracts

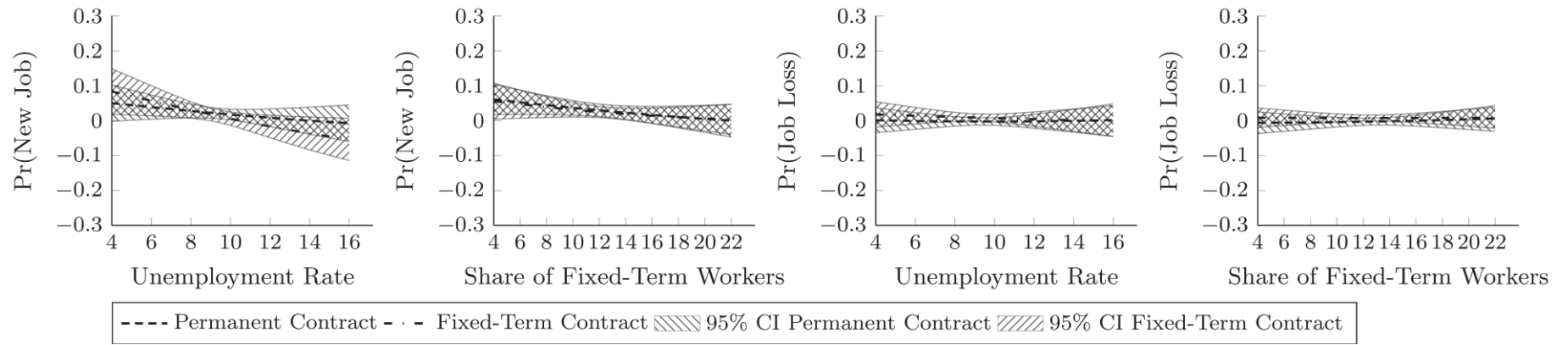
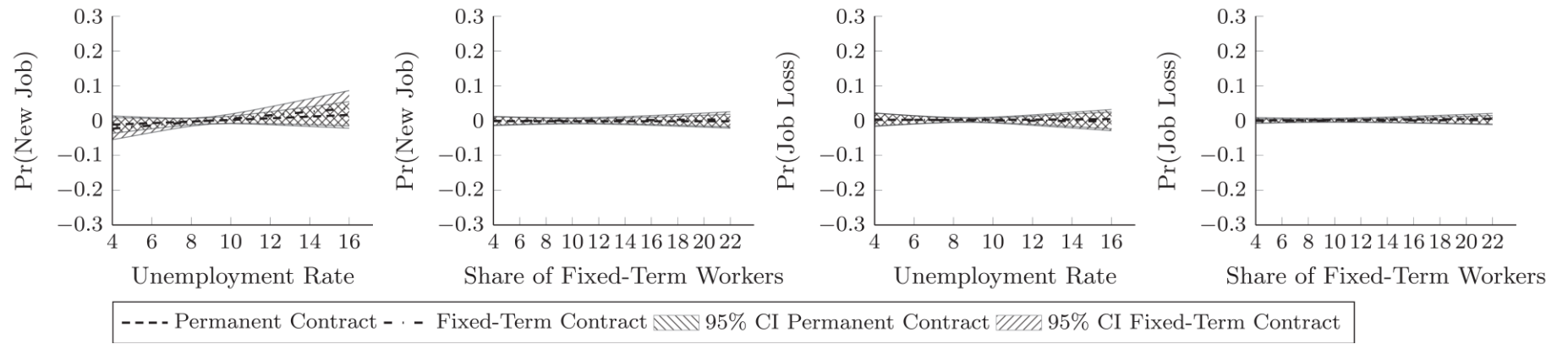


Figure 4: Marginal effect of legislation regulating valid cases for the use of fixed-term contracts



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

		Name	Weight
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
		Definition of justified or unfair dismissal	1/4
	Difficulty of dismissal (1/3)	Length of trial period	1/4
		Compensation following unfair dismissal	1/4
		Possibility of reinstatement following unfair dismissal	1/4

		Name	Weight
EPR_Res	Procedural inconvenience (1/3)	Notification procedures	1/2
		Delay involved before notice can start	1/2
	Notice 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
	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
		Severance pay at 9 months tenure	4/21
Severance	Severance pay at 4 years tenure	4/21	
	Severance pay at 20 years tenure	4/21	

×21/17
(rescaling to 0-6 interval)

×21/12
(rescaling to 0-6 interval)

		Name	Weights
EPFTC	Valid cases for use of fixed-term contracts	1/2	
	Maximum number of successive fixed-term contracts	1/4	
	Maximum cumulative duration of successive fixed-term contracts	1/4	

		Name	Weights
FTC_Cases	Valid cases for use of fixed-term contracts	1	
FTC_Length	Maximum number of successive fixed-term contracts	1/2	
	Maximum cumulative duration of successive fixed-term contracts	1/2	