

Enhancing employee health in flexible labour markets: a cross-country investigation into the buffering effect of adult education participation against perceived job insecurity



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This thesis has been written as a study assignment under the supervision of an Utrecht University teacher. Ethical permission has been granted for this thesis project by the ethics board of the Faculty of Social and Behavioral Sciences, Utrecht University, and the thesis has been assessed by two university teachers. However, the thesis has not undergone a thorough peer-review process so conclusions and findings should be read as such.

Abstract

The rise of non-standard jobs in Europe is believed to subject a growing amount of employees to increasing job and social insecurity, which in turn can harm their health. The European Union addresses this issue through adult education programs, but their overall effectiveness remains uncertain. This research examined the impact of labour market flexibility, in the form of the proportion of temporary employment and employment protection, on cognitive and affective perceived job insecurity. It also investigated whether adult education participation (AEP) moderates this relationship. Utilising a cross-country multilevel regression analysis with data from 16 European Member states (N =9226), it was found that a higher proportion of temporary employment predicts higher cognitive perceived job insecurity, but did not predict higher affective perceived job insecurity. Employment protection did not predict either form of perceived job insecurity. No evidence of moderation through AEP was found, although AEP independently predicted lower cognitive and affective perceived job insecurity. This aligns with existing literature suggesting a Matthew's effect in adult learning programmes and questioning its current ability to protect vulnerable employees on the labour market. It is recommended to improve data collection on the topic, do further research on the relationship between both cognitive and affective perceived job insecurity and employee health, and investigate what barriers vulnerable people on the labour market experience in participating in adult education and how they can be motivated and enabled to do so. With this additional research, policy-making can be informed in order to achieve labour markets that can maintain flexible while also offering sufficient protection against social insecurity to their employees, ultimately leading to improved health outcomes.

Introduction

Outline of the problem

The rise of non-standard jobs in Europe has led to heightened employment and social insecurity among individuals, particularly those on temporary contracts. Approximately 60% of the jobs created between 2007 and 2013 were non-standard jobs (OECD, 2014) and recent data show no sign of change in this trend (Ter Weel, 2018; OECD, 2020). Non-standards jobs consist of three types of jobs: part-time jobs, self-employment, and fixed-term or temporary contracts (Matsaganis et al., 2016). People in non-standard jobs, especially those who are on temporary contracts, are more vulnerable to unemployment and restricted access to certain social security benefits in European Member states (O'Connor, 2013; OECD, 2014; Matsaganis et al., 2016). As more people in Europe are participating in non-standard employment, more people face job and social insecurity (Kalleberg, 2018). However, the consequences of non-standard employment vary widely among employees (Kiersztyn, 2017).

Acknowledging the social risk of job uncertainty, the European Union has started implementing a policy strategy called “flexicurity” in 2007 (European Commission, 2008). Flexicurity is meant to satisfy the flexible demands of the labour market while also offering adequate protection and social security to employees (Wilthagen et al., 2004). One of the pillars of this strategy is to have employees participate in additional learning programmes. The European Commission (2008) argues that educating employees ensures their adaptability and employability, especially the vulnerable ones, and hence offers protection against social insecurity.

Understanding the impact of flexible employment and education programmes is critical for effective policy-making. Flexible employment policies can increase social insecurity, which in turn can seriously harm the well-being and health of employees (McDonough, 2000; László et al., 2010). If proven successful, such educational programs can serve as viable solutions to enhance social security; otherwise, alternative approaches must be considered. Hence, this study sets out to investigate if education programmes can protect employees against social insecurity arising from flexible employment.

Additionally, conducting this study holds scientific importance. The effects of flexible employment on social security and health outcomes remain uncertain due to its heterogeneous labour market results (Kiersztyn, 2017). Moreover, substantial evidence supporting learning programmes as a buffer against social insecurity and employee health is lacking. This study aims to fill these gaps and provide valuable insights.

Overview of existing research

The rise of non-standard jobs is captured in a trend called labour market flexibility, which refers to the ease with which employees can be hired and fired (Brodsky, 1994; Wiltghagen et al., 2004; Kalleberg & Vallas, 2018). Labour market flexibility aims to create an environment that benefits both companies and provides sufficient employment opportunities for individuals (Ignjatović, 2012). On one hand, it is seen as crucial for meeting global market needs, addressing societal challenges, promoting workforce diversity, creating jobs, and fostering innovation (Rubery et al., 2016). In volatile economies, labour market flexibility enables companies to swiftly respond to demand fluctuations, offering protection against economic shocks (Cuñat & Melitz, 2012). On the other hand, flexible labour markets have diminished social security for employees, generating jobs without standard employment protections and exposing some individuals to heightened job and social insecurity (Barbieri, 2009; Julià et al., 2017; Kalleberg & Vallas, 2018).

There is little to no conclusive evidence that policy concerning learning programmes for employees benefit those who are vulnerable to social insecurity on the labour market. Learning programmes are argued to buffer the risk of unemployment by enabling workers to acquire new skills and knowledge, enhancing their adaptability to evolving job demands (Laal & Salamati, 2012; De Cuyper et al., 2012). For instance, a Swiss longitudinal study by Lebert and Antal (2016) finds that employees who participate in adult education perceive their employment as more secure, although it is not actively used as a strategy. However, a skewed participation in such learning programmes exists throughout Europe, indicating that the most vulnerable demographics in the labour force are the least likely to participate and benefit from them (Rubenson, 2018; Hovdhaugen & Opheim, 2018; Humlum & Munch, 2019). Boeren (2009) finds a Matthew's effect in Europe, meaning that those who are already more educated participate more in adult education learning programmes; only 23.1% of low-skilled employees participate in learning programs, while this percentages increase to 44.2% for medium-skilled workers and 68.7% for high-skilled workers.

There is, however, some fragmented evidence that adult education participation can help different groups of people on the labour market. Research has shown that adult education can enhance social inclusion for vulnerable adults (De Greef et al., 2014), increase employability and overall health for low-educated women (Iñiguez-Berrozpe, 2020), provide better middle-age adults with better access to high quality jobs (Jenkins & Wiggins, 2015), and, in general, protect adults against employment (Wahler et al., 2014).

Furthermore, research into the topic of adult education participation as a buffer against the negative consequences of flexible labour markets has mostly neglected to look at an important outcome: perceived job insecurity. Perceived job insecurity is the subjective experience regarding an employee's perception about their chances to lose or retain their job (Mauno et al., 2005). This construct serves as a valuable predictor of health consequences, including mental stress, burnout, and depression (Benach et al., 2014; De Witte et al., 2015). A meta-analysis has shown evidence that temporary employment has a negative effect on mental health, but the link is weak; perceived job insecurity, however, showed a strong link to be detrimental for mental health and to cause depression and anxiety (Rönblad et al., 2019). Especially as it has been found that labour market flexibility increases perceived job insecurity (Fullerton et al., 2011; Lowe, 2020), it is striking that substantial research on the moderating influence of education programmes is lacking.

Theoretical framework

Labour market flexibility

To conceptualise labour market flexibility, seen as the degree to which an organisation can easily hire and fire employees, this research employs two components. Firstly, *the proportion of temporary employment*. Temporary employment allows companies to hire without long-term commitments, enabling them to release employees once their contracts expire and labour demand changes (Kiersztyn, 2017). A higher proportion of temporary contracts signifies greater labour market flexibility, and governments can influence this by encouraging or limiting their use (Hipp et al., 2015).

Secondly, the concept of *employment protection* is crucial in understanding labour market flexibility, comprised of the employment protection legislation (EPL). EPL are laws and regulations that limit companies' ability to easily terminate employees (Aleksynska & Eberlein, 2016). EPL significantly impacts labour allocation, influencing job flow and turnover (Addison & Teixeira, 2003; Bassanini & Garnero, 2013). This research focuses on the employment protection for employees on temporary contracts and not on regular contracts, as this helps comprehend its specific effects (OECD, 2014; Arestis 2020). The OECD (2020) provides indicators and an index for employment protection across countries, considering factors such as advance notice duration, severance payment requirements, and legal definitions of unfair dismissal, which make it more or less difficult and expensive to fire (or not rehire) employees on temporary contracts.

Perceived job insecurity

A distinction can be made between cognitive and affective perceived job insecurity (De Witte et al., 2015). The first solely has to do with the probability an employee ascribes to losing one's job, as where the latter signifies whether an employee is worried or scared to lose one's job. A meta-analysis on the topic shows that it is empirically meaningful to differentiate between them, adding that affective perceived job insecurity is closer related to employee wellbeing than cognitive (Jian & Lavaysse, 2018). Hence, this research will use both *cognitive* and *affective perceived job insecurity*.

Adult education participation

Participation in learning or training programmes for employees with an often vocational focus is called *adult education participation* (AEP) (European Commission, 2008). This element comprises three different kinds of education: formal, informal and non-formal. Formal

education involves a teacher, curriculum, and official certification upon successful completion; non-formal education is structured for learning but lacks official accreditation, like a seminar; and informal education is unstructured but still imparts knowledge through experiences, such as feedback from colleagues (Eshach, 2007; Cameron & Harrison, 2012). This research does not aim to distinguish between these different kinds of education, as research on the topic of adult education participation is still scarce.

This study

This study aims to contribute to the research on labour market flexibility policies and employee health, with a particular focus on temporary employment. It seeks to investigate whether AEP mitigates cognitive and affective job insecurity resulting from labour market flexibility. By examining the effects of AEP as a flexicurity policy, this research can provide valuable insights for policy-making. The research question is: *Does adult education participation mitigate cognitive and affective job insecurity arising labour market flexibility?*

This study's key contribution lies in its interdisciplinary nature, merging elements from different academic disciplines. Embracing interdisciplinarity means transcending specific academic boundaries and integrating various fields within a single project (Nissani, 1995). The research integrates socio-economic concepts like education, labour market flexibility and social insecurity with the psychological construct of perceived job insecurity. It goes beyond the sociological understanding of social insecurity by incorporating an element out of psychology to capture the effects of labour market flexibility and AEP. In other words, while sociological elements describe and interpret labour market dynamics, a psychological element is introduced to understand how these sociological factors affect employees on a personal level. This interdisciplinary approach is crucial, as perceived job insecurity proves a stronger predictor of health and work-related well-being (Benach et al., 2014; Rönnblad et al., 2019). Consequently, it can significantly contribute to informing policy-making for improving employee health in flexible labour markets.

Hypotheses

The conceptualised relationships between the labour market flexibility concepts and cognitive and affective perceived job insecurity are displayed in figure 1 and 2. The corresponding sets of hypotheses are stated and explained below.

Hypothesis 1. *The higher the proportion of people temporarily employed in a country, the higher the average cognitive perceived job insecurity.* It is expected that as a larger share of employees are temporarily employed, facing increased vulnerability to unemployment, employees on average perceive a higher likelihood of becoming unemployed.

Hypothesis 2. *AEP moderates the relationship between the proportion of temporary employed and the cognitive perceived job insecurity, such that it diminishes the effect of the proportion of temporary employment on cognitive perceived job insecurity.* It is expected that, on average, employees with AEP consider their chance of becoming unemployed less likely than those without AEP as they are argued to have better employment opportunities. This could protect them against the effects of a higher proportion of temporary employment.

Hypothesis 3. *The higher the employment protection for temporary contracts, the lower the cognitive perceived job insecurity.* It is expected that as employees on temporary contracts have better job protection, employees perceive a lower likelihood of becoming unemployed on average.

Hypothesis 4.

AEP moderates the relationship between employment protection and the cognitive perceived job insecurity, such that it diminishes the effect of the proportion of temporary employment on cognitive perceived job insecurity. It is expected that, on average, employees with AEP consider their chance of becoming unemployed less likely than those without AEP as they are argued to have improved employment opportunities. This could protect them against the effects of employment protection on their cognitive perceived job insecurity.

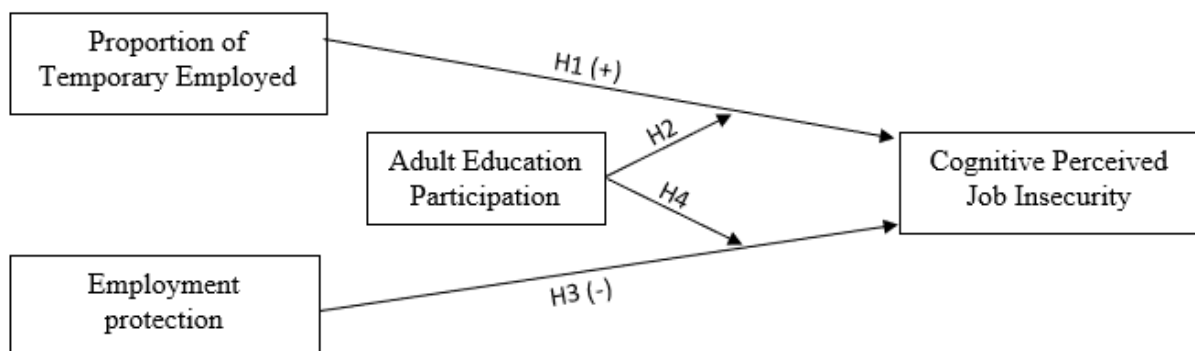


Figure 1

Hypothesis 5. *The higher the proportion of temporary employment in a country, the higher the average affective perceived job insecurity.* It is expected that as a larger share of

employees are temporarily employed, facing increased vulnerability to unemployment, employees on average are more worried of becoming unemployed.

Hypothesis 6. *AEP moderates the relationship between the proportion of temporary employed and the cognitive perceived job insecurity, such that it diminishes the effect of the proportion of temporary employment on affective perceived job insecurity.* It is expected that, on average, employees with AEP are less worried about losing their job than those without AEP, as they are argued to have better employment opportunities which could protect them against the effects of a higher proportion of temporary employment.

Hypothesis 7. *The lower the employment protection for temporary contracts, the higher the affective perceived job insecurity.* It is expected that as employees on temporary contracts have better job protection, employees are less worried of becoming unemployed on average.

Hypothesis 8. *AEP moderates the relationship between employment protection and the affective perceived job insecurity, such that it diminishes the effect of the employment protection on affective perceived job insecurity.* It is expected that, on average, employees with AEP are less worried about becoming unemployed than those without AEP as they are argued to have better employment opportunities. This could protect them against the effects of employment protection on affective perceived job insecurity.

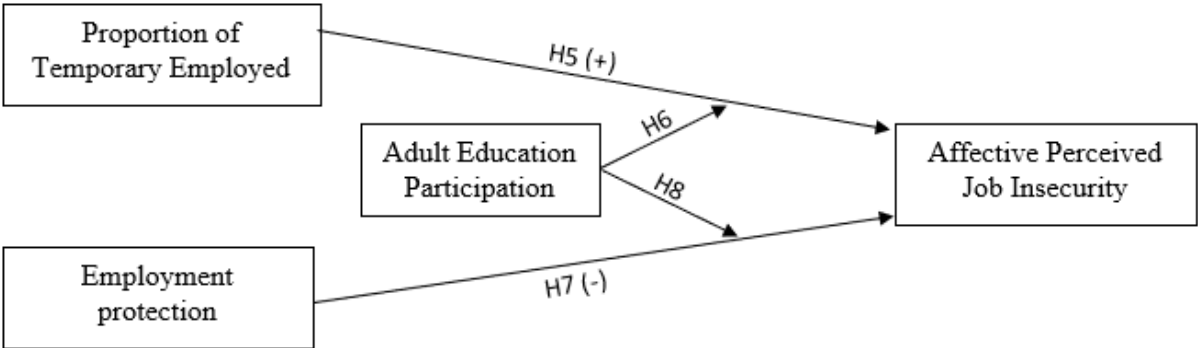


Figure 2

Data and Methods

Design

To assess the relationship between the labour market flexibility concepts and perceived job insecurity, as well as the moderating influence of AEP, a quantitative study was chosen. Considering the large sample size across multiple countries, this approach allowed for more substantial claims about the effects of AEP on employee well-being compared to the fragmented research existing on the topic currently. Additionally, by including perceived job insecurity as a health predictor and distinguishing between affective and cognitive job insecurity, a quantitative setting makes it possible to understand how these concepts are possibly differently affected by the predictors. Lastly, extensive data that align with the study's aims is available. This dataset comprises a large sample population from multiple European countries, providing information on the distinction between cognitive and affective perceived job insecurity as well as respondents' participation in AEP. Overall, both the state-of-the-art scientific discussion as the available data make it very suitable for a quantitative study.

Study sample

A dataset has been composed that fits the research requirement. The individual-level data were derived from the 2015 wave of the International Social Survey Program (ISSP, 2017) titled "Work Orientations IV," which aims to monitor social change, including subjective job experience (Jutz et al., 2018). The country-level data were obtained from two datasets provided by the OECD (2021; 2023) on employment.

To ensure the validity of the results, certain data exclusions were made. Only respondents who live in a country that is a European Union Member State and on which conclusive data could be gathered were included, as this research limits itself to the EU. Additionally, employees who are 24 years old or younger were excluded from the dataset as these individuals often do not rely on these jobs for complete social security, and the flexibility of their contracts is often voluntary and preferred (Guest, 2004). The same exclusion criterion was applied to individuals above the retirement age in the year 2015 as provided by the European Commission (2015). It was assumed that if they continue working beyond that age, they could be less concerned about job loss and have other motivations for employment beyond social security. Lastly, all respondents who were unemployed or self-employed were excluded, as the research focuses on employees. The final sample comprised 9,226 observations from 16 European Member States: Austria, Belgium, Czech Republic,

Estonia, Finland, France, Germany Hungary Iceland, Lithuania, Latvia, Poland, Slovakia, Slovenia, Sweden and Spain.

Data and measurements

In the sections it is briefly explained how the variables have been created and operationalised from the raw data. Additional information can be found in Appendix B.

This study examined two independent variables: the proportion of temporary employment and employment protection for temporary contracts. The proportion of temporary employment was measured by the percentage of temporary employees in each country in 2015, obtained from the OECD (2023). Females in Lithuania were the demographic with the lowest percentage of temporary employed (1.8%), while both males and females in Poland had the highest percentage (28.0%). Employment protection for temporary contracts was assessed using the OECD's (2021) strictness of employment protection index for temporary contracts. The index ranges from zero to six, with higher values indicating greater employment protection. France had the highest protection score (3.13), while Hungary and Iceland have the lowest scores (0.63).

This study used two dependent variables: cognitive perceived job insecurity and affective perceived job insecurity. Data from the ISSP survey were used to operationalize these concepts. Both cognitive and affective perceived job insecurity were assessed using a Likert scale. For this study, the responses were categorised into three levels of perceived job insecurity: low, medium and high, making them ordinal variables.

Additionally, adult education participation was included as a moderator, measured using data from the ISSP survey. Respondents indicated whether they had any training in the past 12 months to improve their job skills. The data were included as a dummy variable in the dataset.

At the individual level, several control variables were utilised, including sex by birth, having children, and part-time work, which were transformed into dummy variables. Age was included as a continuous variable and has been group-mean centred in order to enhance the predictability of the model (Asparouhov & Muthén, 2019) as the ages up until 24 are excluded. The educational attainment level was measured in the ISSP survey, however, for each country different categories were established as the education system differs greatly among them. To ensure validity, the categories that were made for the data analysis were overarching as to be able to incorporate all these different categories, namely: having finished

primary education or less, having finished secondary education and having finished tertiary education. Education was an ordinal variable in this analysis.

All the data were collected ethically. The ISSP questionnaires undergo a rigorous development process involving international teams, pretesting, and approval by the ISSP General Assembly (ISSP, n.d.). This assembly ensures that the questions have scientific merit, socio-political relevance, and ethical appropriateness. All fieldwork activities must also adhere to the legal requirements specific to each country in which they operate and all participants are anonymous so they cannot be identified. Furthermore, all data that have been used from the OECD adheres to the recommendation of the OECD Council on Improving Ethical Conduct in the Public Service, Including Principles for Managing Ethics in the Public Service (OECD, 2000).

Data analysis

A multilevel regression analysis was chosen as the statistical model for this research due to its suitability for handling hierarchical data structures. Multilevel models effectively handle clustering of observations within countries, ensuring independence assumptions are not violated (Cohen et al., 2013). They can estimate random effects, capturing variability between countries. This allows for considering unique country characteristics. Additionally, multilevel models partition total variation into within-group and between-group components, enabling examination of contextual effects (Scott et al., 2013). By assessing individual-level and country-level variables, the distinct contributions to the outcome can be assessed. This choice provided a robust approach, considering data hierarchy, clustering effects, variability between countries, and examination of individual and country-level factors.

Multilevel regression analysis assumes linear relationships, independent errors within each group, homoscedasticity, and normally distributed errors (Cohen et al., 2013). Additionally, it assumes independence between groups and homogeneity of variances (Cohen et al., 2013).

The analysis consisted of two models, one for cognitive and for affective perceived job insecurity. Each model consisted of three sub-models. The null model assessed variation among countries. Model 1 included predictor variables, with AEP as a control variable. Model 2 introduced the cross-level interaction between the independent variable and the moderator (AEP), treating AEP as a random slope and allowing its effect to vary across countries. The AEP control variable was excluded from model 2 to address collinearity and convergence issues.

When applying a multilevel method, it is necessary to choose an estimation strategy (Peugh, 2010). Restricted Maximum Likelihood has been chosen as it is commonly regarded as the best estimation strategy when primarily interested in estimating the variance components and obtaining accurate estimates of the random effect (Peugh, 2010). As AEP and the possible different effects it has in different countries is central to the research question, REML has been chosen.

Results

Descriptive statistics

To evaluate the representativeness of the sample population in relation to the actual population, which comprises the complete workforce, relevant characteristics were compared between them. Table 1 presents some characteristics of the sample population, while table 2 provides the corresponding statistics for the actual population. These characteristics include the percentages of males and females, part-time workers, individuals with higher education, and those who partook in AEP within the past twelve months.

Several noteworthy observations were made regarding the sample population. Firstly, there was an overrepresentation of females, with the proportion of female respondents surpassing that of males in each country, ranging from 50.3% (Austria) to 58.5% (Hungary). However, in all countries except Lithuania (49.5%), the majority of the actual population comprised of males, with the proportion ranging from 50.2% (Latvia) to 55.8% (Czech Republic). Secondly, the percentage of part-time employment was higher in the actual population than the sample population in every country. This discrepancy was most pronounced in Austria, with a difference of 13.0 percentage points. Thirdly, the variations in the percentages of individuals with higher education were more pronounced among the sample population than in the actual population. For instance, in the sample population of Austria, the percentage of higher-educated individuals was 12.9% lower compared to the actual population, while for Belgium this percentage was 18.5% higher. Countries with differences exceeding 10 percentage points compared to the actual population included Austria, Belgium, France, Iceland, and Sweden. Lastly, a similar pattern was observed for adults who participated in AEP within the past twelve months, with greater variability observed in the sample population compared to the actual population. Countries with differences exceeding ten percentage points included Austria, Belgium, Hungary, Lithuania, Poland, Slovak Republic and Slovenia. Additionally, an overview of the descriptive statistics of the variables is presented in Table 3.

Table 1*Descriptive Statistics Sample Population*

Countries	N	Male	Female	Part-time employment	Higher Educated	Participated in Adult Education in the past 12 months
Austria	503	49.7%	50.3%	8.0%	17.7%	33.2%
Belgium	846	47.6%	52.4%	13.1%	55.4%	62.7%
Czech Republic	557	46.4%	53.6%	3.5%	19.8%	48.5%
Estonia	516	42.7%	57.3%	4.6%	30.5%	49.2%
Finland	479	46.0%	54.0%	8.6%	42.4%	61.0%
France	520	42.7%	57.3%	11.3%	50.5%	48.4%
Germany	664	49.5%	50.5%	19.3%	36.6%	50.3%
Hungary	469	41.5%	58.5%	2.7%	21.4%	20.2%
Iceland	553	42.4%	57.6%	8.4%	55.5%	57.1%
Latvia	430	45.9%	54.1%	6.1%	39.1%	50.2%
Lithuania	438	47.4%	52.6%	4.4%	29.0%	47.1%
Poland	611	47.7%	52.3%	4.8%	30.4%	37.9%
Slovak Republic	410	42.3%	57.7%	3.1%	27.9%	30.2%
Slovenia	370	48.0%	52.0%	3.4%	33.4%	59.9%
Spain	574	47.1%	52.9%	12.8%	37.7%	53.2%
Sweden	549	43.3%	56.7%	6.3%	58.7%	53.4%

Table 2*Descriptive statistics of working population*

Countries	Male	Female	Part-time employment	Higher Educated	Participated in Adult Education in the past 12 months
Austria	53.1%	46.9%	21.0%	30.6%	60%
Belgium	53.8%	46.2%	18.2%	36.9%	45%
Czech Republic	55.8%	44.2%	4.7%	22.2%	46%
Estonia	51.2%	48.8%	8.6%	38.0%	44%
Finland	51.5%	48.5%	13.4%	42.7%	54%
France	51.9%	48.1%	14.4%	34.1%	51%
Germany	53.6%	46.4%	22.4%	27.6%	56%
Hungary	54.1%	45.9%	4.4%	24.2%	56%
Iceland	52.3%	47.7%	17.2%	37.0%	-
Latvia	50.2%	49.8%	6.8%	31.6%	48%
Lithuania	49.5%	50.5%	6.8%	38.7%	28%
Poland	55.0%	45.0%	6.4%	27.7%	26%
Slovak Republic	54.9%	45.1%	5.7%	21.2%	46%
Slovenia	54.0%	46.0%	9.2%	30.2%	46%
Spain	53.7%	46.3%	14.5%	35.1%	43%
Sweden	52.4%	47.6%	14.1%	39.8%	46%

a. Note. Data for this table were obtained from “Labour Market Statistics” provided by the OECD (2023), “Education and Training” provided by the OECD (2023) and “Labour Force Statistics” provided by ILOSTAT (2023).

b. Note. Participated in adult education measured in 2016 with the exception of Germany (2018) and Iceland (missing).

Table 3*Descriptive Statistics of the Variables used in the Analysis*

		Minimum	Maximum	Mean	Standard deviation	Missing
Level 1	Female	0	1	0.54	0.498	0.0%
	Having child(ren)	0	1	0.32	0.468	2.1%
	Part-time employed	0	1	0.08	0.277	0.0%
	Degree of education	1	3	2.27	0.605	9.2%
	Age	25	66	43.67	10.529	0.0%
	Adult Education Participation	0	1	0.49	0.500	1.7%
	Cognitive Perceived Job Insecurity	1	3	1.47	0.743	2.4%
	Affective Perceived Job Insecurity	1	3	1.42	0.677	1.5%
Level 2	Employment protection	0.63	3.13	1.71	0.726	
	Degree of temporary employed	1.8	28.0	12.73	7.14	

Multilevel regression analysis

To assess the impact of predictors, two multilevel models were employed consisting of three sub-models: a null model to assess between-country differences, a first model to investigate the fixed effects of predictors on the dependent variable, and a second model that incorporated interactions between the moderator AEP and the independent variables. Table 4 and Table 5 present an overview of the results.

Regarding cognitive perceived job insecurity, the following findings emerged. Firstly, there was a positive, statistically significant relationship (coefficient = 0.009, $p < 0.05$) between the proportion of temporary employment and cognitive perceived job insecurity. Therefore, the proportion of temporary employment did predict cognitive perceived job insecurity. As a result, [hypothesis 1](#) was accepted. Secondly, concerning AEP as a moderator, there did not exist a significant interaction (coefficient = -0.006, $p < 0.05$) between the proportion of temporary employment and adult education participation in relation to cognitive perceived job insecurity. This indicated that the effects of the proportion of temporary employment on cognitive perceived job insecurity was not predicted to be influenced by AEP. Therefore, [hypothesis 2](#) was rejected. Thirdly, there was no significant relationship (coefficient = 0.060, $p > 0.05$) between employment protection and cognitive perceived job insecurity, indicating that employment protection did not predict the level of cognitive perceived job insecurity. Hence, [hypothesis 3](#) was rejected. Fourthly, no significant interaction (coefficient = -0.025, $p > 0.05$) was observed between employment protection and AEP regarding cognitive perceived job insecurity. Consequently, AEP was not predicted to moderate the relationship between employment protection and cognitive perceived job insecurity. Therefore, [hypothesis 4](#) was rejected. Lastly, the fit of the statistical model on the data were assessed using the intercept and the Intraclass Correlation Coefficient (ICC). The significance of model's intercept (coefficient = 0.032, $p < 0.05$) suggested that the multi-level model adequately fitted the data, indicating substantial variation between countries. The ICC was used to estimate the proportion of variance in the dependent variable attributable to between-country differences. In the null model, the ICC for the random intercept was determined to be 0.068, indicating that 6.8% of the variance in perceived cognitive job insecurity is associated with between-country differences. After introducing the predictors and the moderation effect, these percentages diminished to 4.8% and 5.7%, respectively. Such low scores for ICC suggested a low level of agreement among the countries.

Table 4*Results of Multilevel Regression Analysis on Cognitive Perceived Job Insecurity*

		Coefficients		
		Null Model	Model 1	Model 2
Level of data	Fixed Effects			
Individual	Female		0.010 (0.018)	0.011 (0.018)
Individual	Having child(ren)		-0.001 (0.018)	-0.003 (0.018)
Individual	Part-time employed		0.091** (0,032)	0.092** (0.032)
Individual	Degree of education		-0.065*** (0.015)	-0.073*** (0.015)
Individual	Age		0.000 (0.001)	0.00 (0.001)
Individual	Adult Education Participation		-0.130** (0.017)	
Country	Proportion of temporary employed		0.009* (0.005)	0.012* (0.005)
Country	Employment protection		0.060 (0.059)	0.068 (0.065)
	Cross-level interaction			
	Proportion of temporary employed*Adult Education Participation			-0,006 (0.005)
	Employment protection*Adult Education Participation			-0.025 (0.052)
	Random effects			
Individual	Adult Education Participation			0.018* (0.009)
Country	Intercept	0.038** (0.014)	0.027*** (0,012)	0.032* (0.014)
Country	Residual	0.517*** (0.008)	0.532*** (0.008)	0.532*** (0.008)
	Model Fit			
	AIC	19766.06	17726.33	17750.95
	BIC	19780.28	17740.30	17771.90
Country	ICC	0.068	0.048	0.057

Note: standard errors are displayed in the parentheses.

*p < 0.05, **p < 0.01, ***p < 0.001.

Table 5*Results of Multilevel Regression Analysis on Affective Perceived Job Insecurity*

		Coefficients		
		Null Model	Model 1	Model 2
Level of data	Fixed Effects			
Individual	Female		0.076*** (0.016)	0.075*** (0.016)
Individual	Having child(ren)		0.010 (0.015)	0.008 (0.015)
Individual	Part-time employed		0.001 (0,028)	0.003 (0,028)
Individual	Degree of education		-0.079*** (0.013)	-0.086*** (0.013)
Individual	Age		0.001 (0.001)	0.001 (0.001)
Individual	Adult Education Participation		-0.052*** (0.015)	
Country	Proportion temporary employed		-0.006 (0.006)	-0.004 (0.006)
Country	Employment protection		0.133 (0.101)	0.150 (0.101)
	Cross-level interaction			
	Proportion of temporary employed*Adult Education Participation			-0.003 (0.002)
	Employment protection* Adult Education Participation			-0.035 (0.023)
	Random effects			
Individual	Adult Education Participation			0.001 (0.002)
Country	Intercept	0.077** (0.028)	0.081** (0,033)	0.082** (0.033)
Country	Residual	0.384*** (0.006)	0.397*** (0.006)	0.397*** (0.006)
	Model Fit			
	AIC	17232.42	15523.81	15540.96
	BIC	17250.66	15537.80	15564.94
Country	ICC	0.181	0.169	0.171

Note: standard errors are displayed in the parentheses.

*p < 0.05, **p < 0.01, ***p < 0.001.

Regarding affective perceived job insecurity, the following results were found. Firstly, there was no significant relationship between the proportion of temporary employed and affected perceived job insecurity (coefficient = -0.006 , $p > 0.05$). Therefore, the proportion of temporary employed did not predict affective perceived job insecurity. Hence, [hypothesis 5](#) was rejected. Secondly, the interaction (coefficient = -0.003 , $p > 0.05$) between the proportion of temporary employed and AEP on affective perceived job insecurity was not found to be significant, indicating that it was not predicted to affect the relationship of the proportion of temporary employment on affective perceived job insecurity. Therefore, [hypothesis 6](#) was rejected. Thirdly, there was also no significant relationship (coefficient = 0.133 , $p > 0.05$) between employment protection and affective perceived job insecurity. Employment protection did not predict affective perceived job insecurity and therefore [hypothesis 7](#) was rejected. Fourthly, the interaction (coefficient = -0.035 , $p > 0.05$) between employment protection and AEP on affective perceived job insecurity was also not significant, meaning that AEP was not predicted to affect the relationship of employment protection on affective perceived job insecurity. Hence, [hypothesis 8](#) was rejected. Lastly, this statistical model was assessed on its fit. The intercept was positive and significant (0.082 , $p < 0.01$), indicating a significant variance of reported affected perceived job insecurity between countries. The ICC of the null model had a value of 0.181 , meaning that there was a variance of 18.1% between countries. After adding the predictors and the moderators this percentage became 16.9% and 17.1% , respectively. These scores suggested that there was a moderate level of agreement among countries.

Furthermore, some results that are not directly related to the hypothesis but are nonetheless noteworthy have been found. Firstly, AEP was found to be a significant, negative predictor both cognitive (coefficient = -0.130 , $p < 0.01$) and affective perceived job insecurity (coefficient = -0.052 , $p < 0.001$) on its own. Secondly, being female was not significantly predicted to influence cognitive perceived insecurity (coefficient = 0.011 , $p > 0.05$); but being female did significantly predict a higher affective perceived job insecurity (coefficient = 0.075 , $p < 0.001$). Thirdly, part-time employment was a positive, significant predictor of perceived job insecurity (coefficient = 0.092 , $p < 0.01$) but not significantly related to affective job insecurity (coefficient = 0.003 , $p > 0.05$). Lastly, the education level was a negative, significant predator for both cognitive (coefficient = -0.073 , $p < 0.001$) and affective (coefficient = -0.086 , $p < 0.001$) perceived job insecurity.

Conclusion

In summary, the study revealed that a higher proportion of temporarily employed people in a country predict more cognitive perceived job insecurity on average; it did not, however, predict affective perceived job insecurity. Employment protection did not predict either. Additionally, AEP did not moderate any of these relationships. Furthermore, the statistical models demonstrated significant variation among countries in terms of both cognitive and affective perceived job insecurity. Notably, the ICC in affective perceived job insecurity was found to be substantially higher than that of cognitive perceived job insecurity, before and after adding the predictors and the interaction effects.

Discussion

Findings

This study aimed to assess whether AEP could reduce perceived job insecurity resulting from labour market flexibility, specifically concerning the proportion of temporary employment and employment protection for temporary employed in a country. The results showed that a higher proportion of temporary contracts among employees increases the perceived probability of becoming unemployed but does not lead to increased worry about job loss. Employment protection for temporary contracts did not appear to have any significant influence either. Additionally, AEP did not seem to provide protection against the effects of labour market flexibility. To answer the research question, this study found no evidence that AEP mitigates cognitive and affective job insecurity arising from flexible labour markets.

Some additional findings also emerged. Participants who engaged in AEP did experience lower cognitive and affective job insecurity. Females worried more about losing their job than men, although they did not regard their chances of becoming unemployed as higher than men. In contrast, part-time employees perceived a higher risk of becoming unemployed than full-time employees, but they did not express greater worry about unemployment. Additionally, education level diminished both cognitive and perceived job insecurity. Interestingly, affective perceived job insecurity showed greater variance among countries compared to cognitive perceived job insecurity, suggesting that the model better predicted affective than cognitive perceived job insecurity.

Scientific context

While some scholars argue that labour market flexibility induces social insecurity, this study provides only partial support for this claim. The study's results did not conclusively demonstrate the effects of employment protection for temporary contracts on perceived job insecurity. Even more, the finding that the proportion of temporary employed did increase the perceived probability that employees lose their job but not cause more worries could be interpreted as an argument for labour market flexibility, as it might mean people trust the labour market to provide them with sufficient opportunities if they face unemployment.

Additionally, this study highlights the importance of critically examining AEP due to its potential Matthew effect, favouring already educated employees. Higher educational attainment was associated with lower cognitive and affective perceived job insecurity. Although AEP alone was found to reduced job insecurity, it did not act as a buffer against labour market flexibility's effects. Therefore, AEP appears to benefit those who are already

relatively educated and secure in the labour market. This finding cast doubt on the effectiveness of AEP as a policy instrument to achieve flexicurity, as it does not seem to fulfil its intended purpose of protecting vulnerable employees against job insecurity. Nevertheless, this study does not dismiss the potential of AEP as a successful flexicurity measure entirely. In this study it was evident that AEP reduces both cognitive and affective perceived job insecurity. Therefore, encouraging more vulnerable employees to participate in adult education could still be a viable strategy to combat social insecurity and improve employee health in flexible labour markets.

Furthermore, this study underscores the importance of differentiating between cognitive and affective perceived job insecurity as they are influenced differently by various predictors, namely gender and part-time employment. Moreover, the variance among countries is twice as high for affective perceived job insecurity than for cognitive perceived job insecurity, suggesting that they also differ in the extent to which they are influenced by certain predictors. This complements existing research arguing for this distinction.

Strengths and limitations

This study is characterised by several strengths and weaknesses. One of the strengths of this study was the exhaustive database providing extensive information on many respondents in many different countries. Even after cleaning up the data and filtering out everything that was deemed invalid for the purpose of this study, the sample population consisted of more than 9000 participants. This makes the results from the statistical analysis robust.

One limitation was the discrepancy between the sample and actual populations. The sample population exhibited a slight overrepresentation of women, while part-time employees were underrepresented. Additionally, there was considerable variance among countries concerning the proportion of employees with higher education who participated in AEP. These differences may have arisen because the sample populations excluded self-employed individuals and those aged under 25 or over retirement age, which was not the case for the data on the actual population.

Another limitation was the lack of data on respondents' temporary or permanent employment status. Instead, the proportion of temporary employment in each country was used to assess the impact on the sample population. This approach has strengths, yielding conservative results and cautious conclusions about the effects of temporary employment on perceived job insecurity (Anderson & Pontusson, 2007; Dixon et al., 2013). However, not including individual-level data on temporary employment may overlook a significant

predictor (Debus et al., 2014) and henceforth decrease the predictability potential of the statistical model.

An additional limitation was the absence of other independent variables. One such variable that could enhance the predictability of such a statistical model is the unemployment assistance (Hipp, 2016) as this could take away the worries about losing one's job. Another such predictor is the state of the economy (Lübke & Erlinghagen, 2014). If the economy is doing well, it might be considered easy to find a new job, hence employees regard their chances to become unemployed less likely or are not worried to do so.

Implications

Certain recommendations can be made. Firstly, to complement this study, a similar study should be conducted that includes both individual data on temporary employment and distinguishes between cognitive and affective perceived job insecurity. To achieve this, data collection methods need adjustments. Surveys should be designed to differentiate between cognitive and affective job insecurity while also determining employees' contract types. The ISSP survey used in this research presents an opportunity for improvement in its next wave in 2025 by including a question about employment status. Additionally, the European Working Conditions Surveys (EWCS), a prominent multi-wave survey on this topic, already includes information on temporary employment but lacks the distinction between cognitive and affective job insecurity. It is recommended that these surveys modify their questionnaires to encompass employment status and ensure a conceptual distinction regarding perceived job insecurity.

Some future research is suggested. Firstly, similar studies including unemployment assistance and the state of the economy should be done, as this could enhance the understanding of the effects particular labour market flexibility policies have on perceived job insecurity. Secondly, research into how the two concepts of perceived job insecurity relate differently to their predictors, such as gender, labour market characteristics and cultural differences; and further research into how these two concepts possibly affect health differently. By understanding what predicts these forms of perceived job insecurity and how they, in turn, affect health, makes it possible to more accurately make health predictions for employees. Secondly, future research should be done into the participation of those who are vulnerable to social insecurity in the labour market in adult education. This entails both understanding what barriers are currently holding them back as well as researching how they

can be motivated or enabled to do so. Such research can inform policy-making to improve employment wellbeing and health.

Closing statement

Understanding the consequences of labour market flexibility on employees and the ability and potential of AEP to change this relationship for the better seems to be a complex field.

Although this research could not provide definitive answers, it provided valuable insight to expand on the current knowledge on the topic. As of now, further research is necessary to adequately inform policy making.

Bibliography

Addison, J. T., & Teixeira, P. (2003). The economics of employment protection. *Journal of Labor research*, 24(1), 85-128. <https://doi.org/10.1007/s12122-003-1031-0>.

Aleksynska, M., & Eberlein, F. (2016). Coverage of employment protection legislation. *IZA Journal of Labor Policy*, 5(1), 1-20. <https://doi.org/10.1186/s40173-016-0073-x>.

Anderson, C. J., & Pontusson, J. (2007). Workers, worries and welfare states: Social protection and job insecurity in 15 OECD countries. *European Journal of Political Research*, 46(2), 211-235. <https://doi.org/10.1111/j.1475-6765.2007.00692.x>.

Arestis, P., Ferreiro, J., & Gómez, C. (2020). Quality of employment and employment protection. Effects of employment protection on temporary and permanent employment. *Structural Change and Economic Dynamics*, 53, 180-188. <https://doi.org/10.1016/j.strueco.2020.02.008>.

Asparouhov, T., & Muthén, B. (2019). Latent variable centering of predictors and mediators in multilevel and time-series models. *Structural Equation Modeling: A Multidisciplinary Journal*, 26(1), 119-142. <https://doi.org/10.1080/10705511.2018.1511375>.

Barbieri, P. (2009). Flexible employment and inequality in Europe. *European Sociological Review*, 25(6), 621-628. <https://doi.org/10.1093/esr/jcp020>.

Bassanini, A., & Garnero, A. (2013). Dismissal protection and worker flows in OECD countries: Evidence from cross-country/cross-industry data. *Labour Economics*, 21, 25-41. <https://doi.org/10.1016/j.labeco.2012.12.003>.

Benach, J., Vives, A., Amable, M., Vanroelen, C., Tarafa, G., & Muntaner, C. (2014). Precarious employment: understanding an emerging social determinant of health. *Annual review of public health*, 35, 229-253. <https://doi.org/10.1146/annurev-publhealth-032013-182500>.

Boeren, E. (2009). Adult education participation: The Matthew principle. *Filosofija-sociologija*, 20(2), 154-161. <https://lirias.kuleuven.be/retrieve/110139>.

Boeren, E., Nicaise, I., & Baert, H. (2010). Theoretical models of participation in adult education: The need for an integrated model. *International journal of lifelong education*, 29(1), 45-61. <https://doi.org/10.1080/02601370903471270>.

Brodsky, M. M. (1994). Labor market flexibility: a changing international perspective. *Monthly Lab. Rev.*, 117, 53-60.

<https://heinonline.org/HOL/P?h=hein.journals/month117&i=1201>.

Cameron, R., & Harrison, J. L. (2012). The interrelatedness of formal, non-formal and informal learning: Evidence from labour market program participants. *Australian Journal of Adult Learning*, 52(2), 277-309.

<https://search.informit.org/doi/10.3316/informit.816821802785062>.

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2013). *Applied multiple regression/correlation analysis for the behavioral sciences, Third Edition*. Taylor and Francis.. <https://doi.org/10.4324/9780203774441>.

Cuñat, A., & Melitz, M. J. (2012). Volatility, labor market flexibility, and the pattern of comparative advantage. *Journal of the European Economic Association*, 10(2), 225-254.

<https://doi.org/10.1111/j.1542-4774.2011.01038.x>.

Debus, M. E., König, C. J., & Kleinmann, M. (2014). The building blocks of job insecurity: The impact of environmental and person-related variables on job insecurity perceptions. *Journal of occupational and organizational psychology*, 87(2), 329-351.

<https://doi.org/10.1111/joop.12049>.

De Cuyper, N., Mäkikangas, A., Kinnunen, U., Mauno, S., & Witte, H. D. (2012). Cross-lagged associations between perceived external employability, job insecurity, and exhaustion: Testing gain and loss spirals according to the conservation of resources theory. *Journal of Organizational Behavior*, 33(6), 770-788. <https://doi.org/10.1002/job.1800>.

De Cuyper, N., Piccoli, B., Fontinha, R., & De Witte, H. (2019). Job insecurity, employability and satisfaction among temporary and permanent employees in post-crisis Europe. *Economic and Industrial Democracy*, 40(2), 173-192.

<https://doi.org/10.1177/0143831X18804655>.

De Greef, M., Verte, D., & Segers, M. (2015). Differential outcomes of adult education on adult learners' increase in social inclusion. *Studies in Continuing Education*, 37(1), 62-78.

<https://doi.org/10.1080/0158037X.2014.967346>.

De Witte, H., Vander Elst, T., & De Cuyper, N. (2015). Job insecurity, health and well-being. In J. Vuori, R. Blonk, & R. H. Price (Eds.), *Sustainable working lives: Managing work*

transitions and health throughout the life course (pp. 109–128). Springer Science + Business Media. https://doi.org/10.1007/978-94-017-9798-6_7.

Dixon, J. C., Fullerton, A. S., & Robertson, D. L. (2013). Cross-national differences in workers' perceived job, labour market, and employment insecurity in Europe: Empirical tests and theoretical extensions. *European Sociological Review*, 29(5), 1053-1067. <https://doi.org/10.1093/esr/jcs084>.

Eshach, H. (2007). Bridging in-school and out-of-school learning: Formal, non-formal, and informal education. *Journal of science education and technology*, 16, 171-190. <https://doi.org/10.1007/s10956-006-9027-1>.

European Commission. (2008). *Report of the Mission for flexicurity*. <https://ec.europa.eu/social/BlobServlet?docId=1515&langId=en>.

European Commission, Council of the European Union, Directorate-General for Economic and Financial Affairs, Economic Policy Committee, (2015). *The 2015 ageing report: economic and budgetary projections for the 28 EU Member States (2013-2060)*. Publications Office. <https://data.europa.eu/doi/10.2765/877631>.

Fullerton, A. S., Robertson, D. L., & Dixon, J. C. (2011). Reexamining the Relationship Between Flexibility and Insecurity. In D. Brady (Ed.), *Comparing European Workers Part A* (Research in the Sociology of Work, Vol. 22 Part 1, pp. 9-41). Bingley: Emerald Group Publishing Limited. [https://doi.org/10.1108/S0277-2833\(2011\)0000022004](https://doi.org/10.1108/S0277-2833(2011)0000022004).

Guest, D. (2004). Flexible employment contracts, the psychological contract and employee outcomes: an analysis and review of the evidence. *International journal of management reviews*, 5(1), 1-19. <https://doi.org/10.1111/j.1460-8545.2004.00094.x>.

Hipp, L., Bernhardt, J., & Allmendinger, J. (2015). Institutions and the prevalence of nonstandard employment. *Socio-Economic Review*, 13(2), 351-377. <https://doi.org/10.1093/ser/mwv002>.

Hipp, L. (2016). Insecure times? Workers' perceived job and labor market security in 23 OECD countries. *Social Science Research*, 60, 1-14. <https://doi.org/10.1016/j.ssresearch.2016.04.004>.

Hovdhaugen, E., & Opheim, V. (2018). Participation in adult education and training in countries with high and low participation rates: demand and barriers. *International Journal of Lifelong Education*, 37(5), 560-577. <https://doi.org/10.1080/02601370.2018.1554717>.

Humlum, A., & Munch, J. R. (2019). Globalization, Flexicurity and adult vocational training in Denmark. In *Bacchetta, M., Milet, E., & Monteiro, J. A. (Eds.), Making Globalization More Inclusive: Lessons from Experience with Adjustment Policies* (pp. 51-70). WTO Publications. <https://www.sipotra.it/wp-content/uploads/2019/12/Making-Globalization-More-Inclusive-Lessons-from-experience-with-adjustment-policies.pdf#page=64>.

Ignjatović, M. (2012). Labour market flexibility and security in the EU. *Teorija in praksa*, 49(6), 901-921. http://dk.fdv.uni-lj.si/db/pdfs/TiP2012_6_Ignjatovic.pdf.

ILOSTAT. (2023). Labour force statistics: Employment by sex, economic activity and education [Data set]. International Labour Organisation. https://www.ilo.org/shinyapps/bulkexplorer10/?lang=en&id=EMP_TEMP_SEX_ECO_EDU_NB_A.

Iñiguez-Berrozpe, T., Elboj-Saso, C., Flecha, A., & Marcaletti, F. (2020). Benefits of adult education participation for low-educated women. *Adult Education Quarterly*, 70(1), 64-88. <https://doi.org/10.1177/0741713619870793>.

ISSP Research Group (2017). International Social Survey Programme: Work Orientations IV - ISSP 2015. *GESIS Data Archive, Cologne. ZA6770 Data file Version 2.1.0*, <https://doi.org/10.4232/1.12848>.

ISSP. (n.d.) International Social Survey Programme Ethical statement. https://issp.org/wp-content/uploads/2022/02/ethical_statement_issp.pdf.

Jenkins, A., & Wiggins, R. D. (2015). Pathways from adult education to well-being: The Tuijnman model revisited. *International Review of Education*, 61, 79-97. <https://doi.org/10.1007/s11159-015-9468-y>.

Jiang, L., & Lavaysse, L. M. (2018). Cognitive and affective job insecurity: A meta-analysis and a primary study. *Journal of Management*, 44(6), 2307-2342. <https://doi.org/10.1177/0149206318773853>.

Julià, M., Vives, A., Tarafa, G., & Benach, J. (2017). Changing the way we understand precarious employment and health: precarisation affects the entire salaried population. *Safety science*, 100, 66-73. <https://doi.org/10.1016/j.ssci.2017.01.015>.

Jutz, R., Scholz, E., Braun, M., & Hadler, M. (2018). The ISSP 2015 work orientations IV module. *International Journal of Sociology*, 48(2), 95-102, <https://doi.org/10.1080/00207659.2018.1446115>.

Kalleberg, A. L., & Vallas, S. P. (2017). Probing precarious work: Theory, research, and politics. In Kalleberg, A.L. and Vallas, S.P. (Ed.), *Precarious Work* (Research in the Sociology of Work, Vol. 31, pp 1-30). Bingley: Emerald Publishing Limited. <https://doi.org/10.1108/S0277-283320170000031017>.

Kalleberg, A. L. (2018). *Precarious lives: Job insecurity and well-being in rich democracies*. NJ, Hoboken: John Wiley & Sons. <https://www.wiley.com/en-us/Precarious+Lives:+Job+Insecurity+and+Well+Being+in+Rich+Democracies-p-9781509506491>.

Kiersztyn, A. (2017). Non-standard employment and subjective insecurity: how can we capture job precarity using survey data?. In Kalleberg, A.L. and Vallas, S.P. (Ed.), *Precarious Work* (Research in the Sociology of Work, Vol. 31, pp. 91-122). Bingley: Emerald Publishing Limited. <https://doi.org/10.1108/S0277-283320170000031003>.

Laal, M., & Salamati, P. (2012). Lifelong learning; why do we need it?. *Procedia-Social and Behavioral Sciences*, 31, 399-403. <https://doi.org/10.1016/j.sbspro.2011.12.073>.

László, K. D., Pikhart, H., Kopp, M. S., Bobak, M., Pajak, A., Malyutina, S., ... & Marmot, M. (2010). Job insecurity and health: A study of 16 European countries. *Social science & medicine*, 70(6), 867-874. <https://doi.org/10.1016/j.socscimed.2009.11.022>.

Lebert, F., & Antal, E. (2016). Reducing employment insecurity: Further training and the role of the family context. *Sage Open*, 6(4), <https://doi.org/10.1177/2158244016671769>.

Lowe, T. S. (2020). Strategies of Flexible Accumulation and Perceived Employment Insecurity: Is There a Connection?. *Social currents*, 7(4), 331-351. <https://doi.org/10.1177/2329496520908042>.

Lübke, C., & Erlinghagen, M. (2014). Self-perceived job insecurity across Europe over time: Does changing context matter?. *Journal of European Social Policy*, 24(4), 319-336. <https://doi.org/10.1177/0958928714538215>.

Matsaganis, M., Özdemir, E., Ward, T., & Zarakou, A. (2016). Non-standard employment and access to social security benefits. *Social Situation Monitor: Research note*, 8, 2015. European Commission. https://www.academia.edu/download/48330551/SMM_2015_RN8_non-standard_employment_final.pdf.

Mauno, S., Kinnunen, U., Mäkikangas, A., & Nätti, J. (2005). Psychological consequences of fixed-term employment and perceived job insecurity among health care staff. *European Journal of work and organizational psychology*, 14(3), 209-237. <https://doi.org/10.1080/13594320500146649>.

McDonough, P. (2000). Job insecurity and health. *International journal of health services*, 30(3), 453-476. <https://doi.org/10.2190/BPFG-X3ME-LHTA-6RPV>.

Nissani, M. (1995). Fruits, salads, and smoothies: A working definition of interdisciplinarity. *The Journal of Educational Thought (JET)/Revue de la Pensée Éducative*, 121-128. <https://www.jstor.org/stable/23767672>.

O'Connor, J. S. (2013). Non-standard employment and European Union employment regulation. In Koch, M., Fritz, M. (Eds), *Non-standard employment in Europe: paradigms, prevalence and policy responses* (pp. 46-63). London: Palgrave Macmillan. https://doi.org/10.1057/9781137267160_4.

Organisation for Economic Co-operation and Development Staff. (2000). Trust in Government: Ethics measures in OECD Countries. <https://www.oecd.org/gov/ethics/48994450.pdf>.

Organisation for Economic Co-operation and Development Staff. (2014). *OECD Employment Outlook 2014*. Chapter 4: Non-regular employment, job security and the labour market divide. https://doi.org/10.1787/empl_outlook-2014-7-en.

Organisation for Economic Co-operation and Development Staff. (2020). *OECD Employment Outlook 2020*. Chapter 2: Unemployment benefits and non-standard dependent employment: Striking the balance between income security and work incentives. <https://doi.org/10.1787/1686c758-en>.

Organisation for Economic Co-operation and Development Staff. (2020). *The New OECD Employment Legislation Indicators for Temporary Contracts*.

<https://www.oecd.org/els/emp/OECD-EPLIndicators-TemporaryContracts.pdf>.

Organisation for Economic Co-operation and Development Staff. (2021). *Employment Protection Legislation: Strictness of employment protection legislation: temporary employment (Edition 2020)*, OECD Employment and Labour Market Statistics [Data set].

<https://doi.org/10.1787/28d20a95-en>.

Organisation of Economic Co-operation and Development Staff (2023). *Education and Training: Adult education and learning* [Data set].

https://stats.oecd.org/Index.aspx?DataSetCode=EAG_AL_26092022#.

Organisation of Economic Co-operation and Development Staff (2023). *Labour Market Statistics: Full-time part-time employment* [Data set]. [doi: 10.1787/f2ad596c-en](https://doi.org/10.1787/f2ad596c-en).

Organisation for Economic Co-operation and Development Staff. (2023). *Share of employed in temporary employment, by sex and age group*. Employment [Data set].

<https://stats.oecd.org/index.aspx?queryid=54750>.

Peugh, J. L. (2010). A practical guide to multilevel modeling. *Journal of school psychology, 48*(1), 85-112. <https://doi.org/10.1016/j.jsp.2009.09.002>.

Rönblad, T., Grönholm, E., Jonsson, J., Koranyi, I., Orellana, C., Kreshpaj, B., ... & Bodin, T. (2019). Precarious employment and mental health. *Scandinavian journal of work, environment & health, 45*(5), 429-443. <https://www.jstor.org/stable/26787319>.

Rubenson, K. (2018). Conceptualizing participation in adult learning and education: Equity issues. In Milana, M., Webb, S., Holford, J., Waller, R., & Jarvis, P. (Eds.), *The Palgrave international handbook on adult and lifelong education and learning* (pp. 337-357). London: Palgrave Macmillan. <https://link.springer.com/book/10.1057/978-1-137-55783-4>.

Rubery, J., Keizer, A., & Grimshaw, D. (2016). Flexibility bites back: the multiple and hidden costs of flexible employment policies. *Human Resource Management Journal, 26*(3), 235-251. <https://doi.org/10.1111/1748-8583.12092>.

Scott, M. A., Marx, B. D., & Simonoff, J. S. (2013). *The SAGE handbook of multilevel modeling*. London: SAGE Publications Ltd. <http://digital.casalini.it/9781446265970>.

Ter Weel, B. (2018). The rise of temporary work in Europe. *De Economist, 166*(4), 397-401. <https://doi.org/10.1007/s10645-018-9329-8>.

Wahler, S., Buchholz, S., Jensen, V. M., & Unfried, J. (2014). Adult learning in Denmark: Patterns of participation in adult learning and its impact on individuals' labor market outcomes. In Blossfeld, H. P., Kilpi-Jakonen, E., de Vilhena, D. V., & Buchholz, S. (Eds.), *Adult Learning in Modern Societies*. Cheltenham: Edward Elgar Publishing.
<https://hdl.handle.net/1814/34670>.

Wilthagen, T., Tros, F., & Van Lieshout, H. (2004). Towards 'flexicurity'? Balancing flexibility and security in EU Member States. *European journal of social security*, 6(2), 113-136. <https://doi.org/10.1177/138826270400600202>.

Appendices

Appendix A

All the questions from the ISSP survey that have been used for this research, either for variable creation or the data filtering process, are displayed below. Take note that question 10,12, 21 and 28 are from the general questionnaire and are used in all the surveys in different countries. Question E1, E2, E4. E7 and E-29-30 are from the Icelandic version, who also provide an English version. Although all countries collected this information, the executive institutions could decide themselves how to pose the questions and which answers to provide. The best example question E4 where an extensive list of answers is provided. In most countries this list of answers was not as exhaustive.

10 **2005: 8; 1997: 11** **Currently Working for Pay**

Are you currently working for pay?

PLEASE TICK ONE BOX ONLY

Yes

Please answer question 11

No

Please go to question 32

12 a-g=2005: 10a-g; 1997: 14a-g; 1989: 16a-c, e-h/ **Job Characteristics** / h =N: **Social Dimension**
 For each of these statements about your (main) job, please tick one box to show how much you agree or disagree that it applies to your job.

PLEASE TICK ONE BOX ON EACH LINE

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Can't choose
a. My job is secure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. My income is high	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. My opportunities for advancement are high	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. My job is interesting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. I can work independently	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. In my job I can help other people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. My job is useful to society	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. In my job, I have personal contact with other people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<CLARIFICATION NOTE: the question refers to one's main job if he or she has multiple jobs.>

21 2005: 18 **Human Capital**

Over the past 12 months, have you had any training to improve your job skills, either at the workplace or somewhere else?

PLEASE TICK ONE BOX ONLY

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>
Can't choose	<input type="checkbox"/>

28 2005: 25; 1997: 26 **Employability/ New Job**

To what extent, if at all, do you worry about the possibility of losing your job?

PLEASE TICK ONE BOX ONLY

I worry a great deal	<input type="checkbox"/>
I worry to some extent	<input type="checkbox"/>
I worry a little	<input type="checkbox"/>
I don't worry at all	<input type="checkbox"/>

E1.

Please tick one box only

Are you...

<input type="checkbox"/>	Male
<input type="checkbox"/>	Female

E2.

Please write in the year of your birth (use four digits for the year)

When were you born?

--	--	--	--

E4. What is the highest level of education that you have attained?

Please tick one box only

- 1 Primary school not finished
- 2 Primary school (until around 12 years old)
- 3 Primary school (until around 14 years old)
- 4 Compulsory school, secondary school exams, the nationally co-ordinated junior college entrance examination
- 5 Short vocational training on secondary school level (e.g. home economics, marine captain study programme, foundation courses in trade, shorter music studies)
- 6 Secondary education (gymnasium), exam from the university bridging course exam from the preliminary studies department
- 7 Apprenticeship - upper secondary (vocational training)
- 8 Longer vocational training on secondary school level (e.g. nursing assistant certificate programme, masseuse training, trade exam)
- 9 Vocational training on completion of secondary school level (e.g. Grade 4 marine captain or engineer, medical secretary)
- 10 Master craftsman - licence to supervise apprentices
- 11 Short, practical training at university level, diploma
- 12 Short vocational training at university level, basic diploma, 2-3 years (e.g. system analysis, business management, music and instrument teachers, music studies at a university level, art studies at a university level)
- 13 Undergraduate degree BA/BS/B.Ed. or additional diploma
- 14 Studies at university longer than 4 years, at an undergraduate level, such as medicine, law, pharmacology, theology, odontology
- 15 Master's degree MA/MS
- 16 Doctoral degree PhD
- 17 Other, what? _____
- 97 Do not want to answer

E7. Are/were you an employee, self-employed, or working for your own family's business?

Please tick one box only

- | | | |
|--------------------------|--|--------------------------------|
| <input type="checkbox"/> | An employee | Please continue with E9 |
| <input type="checkbox"/> | Self-employed without employees | Please continue with E9 |
| <input type="checkbox"/> | Self-employed with employees | Please continue with E8 |
| <input type="checkbox"/> | Working for your own family's business | Please continue with E9 |

E29-30. Including yourself, how many people – including children – usually live in your household?

Please write in.

Adults of 18 years and older	<input type="text"/>
Children between 6-17 years of age	<input type="text"/>
Children up to the age of 5 years	<input type="text"/>
This makes a total of how many people?	<input type="text"/>

Appendix B

In the table below is explained how the variables that have been used are constructed and coded from the original data.

Table 1		
<i>Description of Variables used in the Analysis</i>		
Variables	Values	Original Source and Coding
Sex	Dummy Variable: 1 - Being Female, 0 - Being Male	Directly taken from the ISSP Survey
Having child(ren)	Dummy Variable: 1 - Having children, 0 - Not Having children	The ISSP Survey inquiries about number of children. When respondents have zero children it is marked as 0, more than zero marked as 1.
Part-time employed	Dummy Variable: 1 - part-time employed, 0 - full-time employed	Directly taken from the ISSP Survey, with less than 30 hours a week marked as part-time.
Degree of education	Ordinal Variable with three levels: 1 - having finished primary education or less, 2 - having finished secondary education, 3 - having finished tertiary education.	Question on the ISSP Survey: : "What is the highest level of Education you have attained." Answer vary across different countries and have therefore been categorised in three basic categories to ensure fitting categorisation.
Age	Continuous Variable ranging from 25 to 66.	Directly taken from ISSP Survey. Respondents under the age of 25 and those exceeding the pension age in their country have been excluded.
Adult Education Participation	Dummy Variable: 1 - AEP, 0 - No AEP	The ISSP Survey asks: "Over the past 12 months, have you had any training to improve your job skills, either at the workplace or somewhere else?". Answer "Yes" is marked as 1, answer "No" is marked as 2. Answer "Can't Choose" is marked as missing data.
Cognitive Perceived Job Insecurity	Ordinal Variable with three levels: 1 - Low Cognitive Perceived Job Insecurity, 2- Medium Cognitive Perceived Job Insecurity, 3 - High Cognitive Perceived Job Insecurity.	Original ISSP Survey Question: "My job is secure". Answers "Strongly Agree" and "Agree" have been marked as 1. Answer "Neither Agree not Disagree" is marked as 2 and answers "Disagree" and "Strongly Disagree" are marked as 3.
Affective Perceived Job Insecurity	Ordinal Variable with three levels: 1 - Low Affective Perceived Job Insecurity, 2- Medium Affective Perceived Job Insecurity, 3 - High Affective Perceived Job Insecurity.	Original ISSP Survey Question: "To what extent, if at all, do you worry about the possibility of losing your job?". Answers "I don't worry at all "and I worry a little" are marked as 1; answer "I worry to some extent has been marked 2 and answer "I worry a great deal" is been marked as 3.

Proportion of
Temporary
Employed

Continuous Variable ranging from 1.8 to 28.0.

Directly taken from OECD (2021), <https://doi.org/10.1787/28d20a95-en>.

Employment
protection

Continuous Variable ranging from 0.63 to 3.13.

Directly taken from OECD (2023), <https://stats.oecd.org/index.aspx?queryid=54750>.

Appendix C

In this appendix the syntax script that has been used to conduct the multilevel regression analysis on SPSS Statistics 28 is displayed.

* Descriptives sample population

* Custom Tables.

CTABLES

```
/VLABELS VARIABLES=Country PartTime GEN HighEducation AEP  
DISPLAY=LABEL
```

```
/TABLE Country [COUNT F40.0, ROWPCT.COUNT PCT40.1] BY PartTime + GEN +  
HighEducation + AEP
```

```
/CATEGORIES VARIABLES=Country PartTime GEN HighEducation AEP ORDER=A  
KEY=VALUE EMPTY=INCLUDE
```

```
/CRITERIA CILEVEL=95.
```

* Variables

```
DESCRIPTIVES VARIABLES=AGE Percentage Index EduDgr PartTime COG AFF AEP  
GEN CHIL
```

```
/STATISTICS=MEAN STDDEV MIN MAX.
```

* Cognitive

Model 1, nullmodel

DATASET ACTIVATE DataSet1.

MIXED COG

/CRITERIA=DFMETHOD(SATTERTHWAITE) CIN(95) MXITER(100) MXSTEP(10)
SCORING(1)

SINGULAR(0.000000000001) HCONVERGE(0.00000001, RELATIVE)
LCONVERGE(0, ABSOLUTE) PCONVERGE(0,

ABSOLUTE)

/FIXED=| SSTYPE(3)

/METHOD=REML

/PRINT=G SOLUTION TESTCOV

/RANDOM=INTERCEPT | SUBJECT(Country) COVTYPE(VC).

*Model 2, with predictors

MIXED COG WITH Index_GMC Percentage_GMC AEP GEN CHIL AgeGMC PartTime
EduDgr

/CRITERIA=DFMETHOD(SATTERTHWAITE) CIN(95) MXITER(100) MXSTEP(10)
SCORING(1)

SINGULAR(0.000000000001) HCONVERGE(0.00000001, RELATIVE)
LCONVERGE(0, ABSOLUTE) PCONVERGE(0,

ABSOLUTE)

/FIXED=GEN CHIL PartTime AgeGMC EduDgr AEP Percentage_GMC Index_GMC |
SSTYPE(3)

/METHOD=REML

/PRINT=G SOLUTION TESTCOV

/RANDOM=INTERCEPT | SUBJECT(Country) COVTYPE(VC).

*Model 3, with interaction and random slopen AEP

MIXED COG WITH Index_GMC Percentage_GMC AEP GEN CHIL AgeGMC PartTime
EduDgr

/CRITERIA=DFMETHOD(SATTERTHWAITE) CIN(95) MXITER(100) MXSTEP(10)
SCORING(1)

SINGULAR(0.000000000001) HCONVERGE(0.00000001, RELATIVE)
LCONVERGE(0, ABSOLUTE) PCONVERGE(0,
ABSOLUTE)

/FIXED=GEN CHIL PartTime AgeGMC EduDgr Percentage_GMC Index_GMC

Percentage_GMC*AEP Index_GMC*AEP | SSTYPE(3)

/METHOD=REML

/PRINT=G SOLUTION TESTCOV

/RANDOM=INTERCEPT AEP | SUBJECT(Country) COVTYPE(VC).

*Affective

Model 1, null model

MIXED AFF

/CRITERIA=DFMETHOD(SATTERTHWAITE) CIN(95) MXITER(100) MXSTEP(10)
SCORING(1)

SINGULAR(0.000000000001) HCONVERGE(0.00000001, RELATIVE)
LCONVERGE(0, ABSOLUTE) PCONVERGE(0,
ABSOLUTE)

```
/FIXED=| SSTYPE(3)
```

```
/METHOD=REML
```

```
/PRINT=G SOLUTION TESTCOV
```

```
/RANDOM=INTERCEPT | SUBJECT(Country) COVTYPE(VC).
```

*Model 2, predictors included

*Model 2, with predictors

```
MIXED AFF WITH Index_GMC Percentage_GMC AEP GEN CHIL AgeGMC PartTime  
EduDgr
```

```
/CRITERIA=DFMETHOD(SATTERTHWAITE) CIN(95) MXITER(100) MXSTEP(10)  
SCORING(1)
```

```
SINGULAR(0.000000000001) HCONVERGE(0.00000001, RELATIVE)  
LCONVERGE(0, ABSOLUTE) PCONVERGE(0,  
ABSOLUTE)
```

```
/FIXED=GEN CHIL PartTime AgeGMC EduDgr AEP Percentage_GMC Index_GMC |  
SSTYPE(3)
```

```
/METHOD=REML
```

```
/PRINT=G SOLUTION TESTCOV
```

```
/RANDOM=INTERCEPT | SUBJECT(Country) COVTYPE(VC).
```

*Model 3, with interaction and random slope AEP

MIXED AFF WITH Index_GMC Percentage_GMC AEP GEN CHIL AgeGMC PartTime
EduDgr

/CRITERIA=DFMETHOD(SATTERTHWAITE) CIN(95) MXITER(100) MXSTEP(10)
SCORING(1)

SINGULAR(0.000000000001) HCONVERGE(0.00000001, RELATIVE)
LCONVERGE(0, ABSOLUTE) PCONVERGE(0,

ABSOLUTE)

/FIXED=GEN CHIL PartTime AgeGMC EduDgr Percentage_GMC Index_GMC

Percentage_GMC*AEP Index_GMC*AEP | SSTYPE(3)

/METHOD=REML

/PRINT=G SOLUTION TESTCOV

/RANDOM=INTERCEPT AEP | SUBJECT(Country) COVTYPE(VC).