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**Working Paper**

## Decomposition of between and within- country (regional) differences in the labour market attachment and earnings in late career

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# Mapineq

## Decomposition of between and within- country (regional) differences in the labour market attachment and earnings in late career

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## Executive summary

With longer life expectancy and aging populations, enhancing older adults' labour market attachment is a major concern in Europe. Late-career experiences impact financial security, social inclusion, health, and well-being of older population, with continued employment providing social engagement and purpose, while poor conditions or involuntary retirement causing financial and psychological stress.

Life-course approach suggests that the accumulated effects of experiences, circumstances and institutional setting affect individual's life trajectories, including late careers, whereas these accumulated resources are shaped by both individual decisions, values and preferences (agency), and the institutional, cultural, economic and political context (structure) in which individuals live.

This report examines inequalities in late-career outcomes across 27 European countries and, for 14 of them, also between the main socio-economic (NUTS 1) regions within countries using the 2021 and 2018 wave of EU-SILC. Six indicators are used as measures of late career outcomes: unemployment, non-employment, occupational status, disposable income, poverty risk, and life satisfaction. The research questions addressed in this report are:

1. Whether late career outcomes are related not only to standard demographic characteristics of older adults, but also to other domains such as health and care needs at the individual level and to potential spill-over effect.
2. Whether, and to what extent differences between and within countries in late career outcomes can be explained by (regional) compositional differences in socio-demographic characteristics of the population.
3. Whether and how do additional contextual factors (beyond compositional differences) influence late careers.

Our key findings:

- **Regional disparities:** Significant variations exist in employment, income, and well-being of older adults across countries and regions in Europe.
- **Individual factors:** Looking beyond the standard determinants of labour market attachment (e.g. age, gender, migration background, or education) is important. Health and education, but also family situation (household composition) strongly impact late-career outcomes, with higher educational attainment and better health linked to better employment and financial security. Being without partner while having care responsibilities, relates with higher unemployment and poverty risks.
- **Compositional factors:** Differences in socio-demographic and socio-economic profile among older adults accounts for a considerable amount of variation in late career outcomes across countries and regions. Family composition plays a key role in cross-national differences, while education impacts both national and regional variations. Health has greater influence within countries, particularly on life satisfaction, while residence modestly affects occupational status and income across countries.
- **Contextual factors:** Regional economic structure, overall employment levels, and access to formal care influence older adults' labour market attachment and income security.



The findings highlight the need for comprehensive, cross-sectoral policies to enhance older adults' employment prospects and reduce inequalities across countries and regions. Addressing inequalities requires policies supporting lifelong learning, health, care, and poverty reduction. Investment in quality jobs, skills development, and targeted interventions for disadvantaged regions is crucial to improving late career outcomes for older workers.



## Abbreviations

AME	Average marginal effects
EPL	Employment protection legislation ESS European Social Survey
EU-LFS	EU-Labour Force Survey
EU-SILC	European Union Statistics on Income and Living Conditions Survey EVS European Value Survey
GDP	Gross domestic product
ISCED	International Standard Classification of Education ISEI International Socio- Economic Index
NUTS	Nomenclature of Territorial Units for Statistics PISA Programme for International Student Assessment
VET	Vocational education and training WVS World Value Survey

## ISO codes of countries included

Austria – AT – AUT	Italy – IT – ITA
Belgium – BE – BEL	Latvia – LV – LVA
Bulgaria – BG – BGR	Lithuania – LT – LTU
Croatia – HR – HRV	Luxembourg – LU – LUX
Cyprus – CY – CYP	Malta – MT – MLT
Czech Republic – CZ – CZE	Poland – PL – POL
Denmark – DK – DNK	Portugal – PT – PRT
Estonia – EE – EST	Romania – RO – ROU
Finland – FI – FIN	Serbia – RS – SRB
France – FR – FRA	Slovakia – SK – SVK
Germany – DE – DEU	Spain – ES – ESP
Greece – GR – GRC	Sweden – SE – SWE
Hungary – HU – HUN	Switzerland – CH – CHE
Ireland – IE – IRL	



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# Decomposition of between and within- country (regional) differences in the labour market attachment and earnings in late career

This report provides insights into inequalities in late careers by exploring the role of contextual and individual factors in shaping the experiences of older people. We examine differences between 27 European countries and, for 14 of them, also within countries across major socio-economic (NUTS 1) regions, using EU-SILC data from 2021 (during the COVID-19 pandemic) and comparing it with 2018 to assess whether the COVID-19 pandemic had an impact. We map success and inequalities in the labour market outcomes of older adults using six indicators – unemployment, non-activity, occupational attainment, disposable income, poverty risks, and life satisfaction. We explore whether late career outcomes are associated with other life domains, such as health or family situation; whether compositional differences across regions or countries account for late career inequalities, and whether and how does institutional context improve late career outcomes. Key findings are:

The most important individual-level factors are older adults' educational attainment, health and family situation (defined by partnership and dependent family members).

Differences in socio-demographic and socio-economic profiles of older adults account for substantial part of country- and regional-level variation in late career outcomes.

Late careers are influenced by factors from different policy areas, such as education, labour market and economic conditions, and care, at both national and regional level.

## 1. Introduction

With longer life expectancy and aging populations, enhancing labour market attachment of older adults is one of major concerns in European countries. Research has demonstrated that labour market attachment and late careers influence financial security and social inclusion of older population (Burnay et al., 2023; Heisig & Radl, 2017;



Warhurst & Black, 2024). Moreover, late-career experiences shape health and well-being of older people (Nuqoba et al., 2023), as continued employment can provide social engagement and purpose, while poor working conditions, career interruptions or involuntary retirement may lead to financial and psychological stress (Toczek et al., 2022). Late working life is often studied in interconnection with other stages of life (Naegele & Walker, 2021). Life-course approach suggests that the accumulated effects of experiences, circumstances and institutional setting over an individual life course affect that individual's life trajectories, including late career work (Elder, 1995). Starting even before birth, various sources and forms of capital accumulated over the life course are linked to ageing processes (Burnay et al., 2023; Ferraro & Shippee, 2009). These accumulated resources are shaped by both individual decisions, values and preferences (agency), and the institutional, cultural, economic and political context (structure) in which individuals live (Marshall, 2005). Literatures on later-life precarity draw on theories of accumulation of (dis)advantage and intersectionality proposing that the risks and precarities experienced over the life-course deepen disadvantage in later life with the specific nature of the disadvantage varying according to intersections between characteristics such as sex, disability, social class and ethnicity (Grenier et al., 2017).

The aim of this report is to provide new insights into inequalities in late careers in terms of labour market attachment, financial insecurity and life satisfaction by examining the role of individual and contextual sources of heterogeneity. Given the capabilities of EU-SILC data and the availability of regional macro indicators, we are able to examine regional resources and constraints by comparing across 27 European countries and, for 14 of them, across the NUTS 1 level (major socio-economic regions) within countries. We use the EU-SILC wave 2021, which also includes life satisfaction measures as the main data source, but also compare it to 2018 data of pre-COVID-19 pandemic period. The analysis is restricted to the age group of 50–64-year-olds.

By looking at late career in a more complex way, we go beyond standard labour market attachment outcomes and provide a more comprehensive view including also income in/security and well-being of older workers. Second, we go beyond standard determinants such as age, gender, migration background, or education and explore the interplay of labour market exit with health or family/household composition, both on individual as well structural (compositional) level. While existing research is often limited to between or within-county variation, we investigate these relations across countries and across regions within countries, and finally, we consider not only the role of standard contextual factors (education systems, labour market regulations, macro-economic situation) in explaining late careers, but also indicators from the family and (health) care policy domains.

The main research questions here are:

1. Whether late career outcomes in terms of labour market attachment, financial well-being and life satisfaction are related not only to standard demographic characteristics of older adults (such as gender, age, migration background), but also to other domains such as health and care needs at the individual level.



3. Whether, and to what extent, differences between and within countries in late career labour market attachment, income and life satisfaction inequalities can be explained by (regional) compositional differences in socio- demographic characteristics of the population.
4. Which additional contextual factors (beyond compositional differences) influence late careers.

## 2. Inequalities in late career: a literature review

The aim of the current literature review is not to provide a meta-analysis or systematic review in its own right, but rather some background and rationale for the chosen late career outcome measures and for factors that we have included in the analysis of explaining these outcomes. In the first part (section 2.1) we give an overview and rationale of the late career indicators/measures selected for the analysis. In the second part (section 2.2.) we focus on the individual (and household) characteristics that we are expecting to explain the observed late career inequalities within and across the countries. The third part (section 2.3) summarises the central contextual factors included in the analysis.

### 2.1. The measures of late career

Late career outcomes are mapped by six outcome variables. As indicators of labour market attachment, we examine the risks of unemployment and non-employment, and occupational attainment (measured by level of occupational status and serving also as a proxy for individual earnings). Income in/security of older adults and late career workers is measured in terms of disposable income and poverty risks. Economic well-being dimension is extended by perceived well-being (measured by life satisfaction).

#### 2.1.1. Labour market attachment measures

Pension reforms and active ageing policies have increased older workers' labour market participation in many industrialised countries (Kuitto & Helmdag, 2021). However, risks of early exit and precarious work persist, especially for those with low education, women, and migrants (Möhring, 2016; McAllister et al., 2019). Labour market attachment, in the form of employment/unemployment trajectories can affect individuals' transition out of the labour market. Career breaks and job losses can lead to lower earnings in older age, while inconsistent employment can result in early exits via unemployment, disability, or illness (Visser et al., 2016). Moreover, it affects negatively psychological and physical health (Noelke & Beckfield 2014). The impact of job loss can have long-term effects even when the unemployment episode remains relatively short: the so-called "scarring effect" that refer to persistent consequences of job displacement (Arulampalam, 2001) and other aspects of job quality (Dieckhoff, 2011). There is considerable evidence that job loss is more consequential in the late career than the mid-career stage. Due to ageism, skill obsolescence or health issues, older people experience severe barriers of re-employment, which can lead to leaving work permanently after displacement (Ebbinghaus & Radl, 2015). Different from younger or prime-age workers, older workers have often a long-term alternative to re-employment: they can opt for early retirement, which is a socially accepted



role compared to unemployment and/or provides a steadier income, especially for those in a more vulnerable labour market position. Thus, unemployment as a labour market attachment -related concept does not cover all facets of it and therefore next to it also 'non-employment' (includes next to unemployment also inactivity) is relevant to consider. Even when being successful in labour market re-entry after displacement, it can come at a cost of reduction of labour market position and/or income (Oesch & Bauman, 2015). There is evidence of severe wage losses related to job displacement especially for older workers (compared to their younger counterparts) (Oesch & Baumann, 2015; Couch et al., 2009; Heisig, 2015). Their reduced job opportunities and short remaining career time make it less likely for older workers to replenish their retirement savings after a job loss-induced depletion. At the same time, reduced or interrupted incomes in late career may be associated with late retirement decisions (Chan & Stevens, 2004), which can in turn lead to inequalities in the well-being of older workers. Thus, besides employment status (employed vs. unemployed/inactive), also the labour market position where one is employed at matters and will be included here as the third measure of labour market attachment in late career. It is done by a common occupational status measure of the International Socio-Economic Index of Occupational Status (ISEI) (Ganzeboom & Treiman, 1996). The ISEI score indicates the relative position of occupations in the hierarchical occupational stratification system, offering a broad and reliable indicator of labour market status and a proxy for individual earnings.

### **2.1.2. Economic and personal well-being measures**

While the evidence is clear that generally work is good (for health, particularly mental health) in later life (Modini et al. 2016), there may be an age when the benefits are outweighed by adverse impacts. Poor working conditions, precarious employment, or sudden job loss can all negatively affect physical and mental health, increasing stress and reducing well-being (Noelke & Beckfield 2014). Recent studies of life satisfaction in older adults found that economic satisfaction, satisfaction with daily activities such as work, and health status were key determinants of life satisfaction of older adults (Tian & Chen, 2022; Nuqoba et al., 2023; Sulandari et al., 2024). Thus, next to labour market attachment, we also consider the well-being (financial insecurity; satisfaction with life) as measures for mapping late career inequalities. To measure economic in/security, we use a measure of disposable income and a relative measure of risk of poverty, defined as household equivalence income below 60 per cent of median income (Atkinson et al., 2010). For well-being we use a measure perceived satisfaction with life.

## **2.2. The effect of socio-demographic and socio-economic characteristics on late career outcomes**

Inequalities in late careers are often linked to socio-demographic or socio-economic characteristics (Martin, 2018; Möhring, 2016; Naegele & Walker, 2021) such as educational attainment, gender, age, migration background, household composition, health, and place of residence, that will be addressed here. Next to individual level characteristics, also demographic, economic and institutional contexts where these patterns take place (Buchmann & Kriesi, 2011) tend to matter and will be respectively also addressed (see section 2.3).

### 2.2.1. Labour market attachment

Previous research has shown a strong association between late career development (including exit timing from working life) and individual characteristics (Martin, 2018; Scharn et al., 2018). One of the central characteristics in shaping the employment outcomes over the work course, including late career, is *educational attainment*. Investment in human capital through education and training as well as experience increases productivity and hence employment opportunities and outcomes over working life (Becker, 1964), directly through its impact on employability and earnings (Neumark et al., 2019), and indirectly through its link with financial capital accumulation and health status over the life course. Visser et al., (2018) showed in their analysis that older workers with lower education and manual occupations are more likely to face cutbacks in working hours. A study by McAllister et al. (2019) showed that primary-educated women exit from working life earlier than women with higher education.

Next to education, health is another distinct factor in affecting later career development and outcomes: for older workers, poor health, chronic illness and disability are key reasons for early exit from the labour market (Blekesaune & Solem, 2005). Although the decline in physical and/or mental ability during the ageing process does not necessarily occur during or affect working life, it is linked with a decrease in productivity or employability if it does happen (Robertson & Tracy, 1998). Workers with poor work ability and decreased work life satisfaction were more likely to indicate an intention to retire early (Prakash et al., 2019). It has also been found that a person's own assessment of work ability may predict working longer better than the presence of chronic disease (Virtanen et al., 2017).

The average age of exit from working life is lower for women than men (OECD, 2023), making gender another important characteristic shaping late career outcomes. Studies have shown that women are more likely to experience discontinuous employment than men in late working life (Baumann & Madero-Cabib, 2021). While it is more typical for men to have both intents to retire early and work long, women more often stick to 'regular' retirement ages (Forma et al., 2005).

In Riekhoff and Järnefelt's (2017) study on women's retirement, it turned out that having better and higher-paid jobs created incentives for women to maintain in labour market and in such positions. On the other hand, divorced women were less likely to retire early. For married couples, finance is certainly an important factor in decision-making but is often over-ridden by other aspects of the domestic life, such as health problems, caring responsibilities or long-term divisions of work between spouses (Loretto & Vickerstaff 2013), which makes family/household situation another important aspect to keep in mind in studying late careers.

Age-related disadvantages, i.e., those related to the chronological age of older workers, also tend to generate unequal employment outcomes in late working life, both directly affecting employment opportunities and indirectly affecting the employability and work-related motivation of late career workers. The ageism literature provides evidence for discrimination against older workers (Phillips Lassus et al. 2015; Lössbroek et al., 2021), suggesting that worker's age directly affects the decision-making process of potential employers. Age discrimination can also intersect with other forms of discrimination such



as gender or immigration status (Lundborg, 2013). For example, women are exposed to age discrimination in working life more often and at earlier ages than men (Duncan & Loretto, 2004).

Finally, regional conditions can pose challenges to labour market participation for older adults living in rural areas. A study in Sweden showed that establishments in small rural areas were less likely to hire older workers compared to establishments in bigger municipalities (Öylü, 2023).

### **2.2.2. Income in/security**

Income in later life is significantly shaped by career mobility, which has traditionally been recognized as a key driver of wage growth and career progression in early careers (Hahn et al., 2017), but is less frequently studied in the context of older workers. While voluntary job changes in mid and late careers can lead to higher wages and improved job quality, older workers are less likely to transition by choice in the first place, and involuntary job changes (including displacement) often result in wage declines and job instability (Brand, 2015; Couch et al., 2009). Barriers such as age discrimination, job location constraints, and limited opportunities further restrict mobility, particularly for low-skilled workers who frequently transition between similarly low-paying jobs (OECD, 2024).

Mitchell and colleagues (2022) followed the income trajectories in later life (initially 51-61 years old, followed for two decades) in America. Among their main findings were that factors closely associated with being in the lowest income quartiles at baseline included race (being Black or Hispanic), gender (being female), educational attainment (having less education), partnership status (being nonmarried), economic status (not working for pay), health (being disabled), and household composition (having children under age 18 at home). Additionally, respondents who resided in the South were systematically more likely to be in the lowest income quartile, making also the residence area/location another relevant characteristic in shaping income in later life. (Mitchell et al. 2022).

Using data from the English Longitudinal Study of Ageing (2002–19), Marshall and colleagues (2024) showed that volatility in income trajectories in later life is strongly influenced by socio-economic status (social class), gender, relationships, sources of income (pension), experiences of precarity in housing, care, and retirement. The study identified four main income trajectory groups: ‘Luxury,’ ‘Comfortable,’ ‘Boom-to-Bust,’ and ‘Always Poor.’ Those in lower socio-economic positions faced a higher risk of persistent poverty. Gender disparities in income volatility were linked to differences in pension access and relationship stability, with women initially appearing more at risk of being ‘Always Poor.’

### **2.2.3. Life satisfaction**

Recent studies of life satisfaction in older adults found that economic satisfaction, satisfaction with daily activities such as work, and health status were key determinants of life satisfaction of older adults (Tian & Chen, 2022; Nuqoba et al., 2023; Sulandari et al., 2024)

Life satisfaction is positively associated with educational attainment (Taht et al., 2020) and good health (Dolan et al., 2008) – both of which are related to income. This may partly



explain the positive correlation between income and life satisfaction (Nizalova et al., 2021).

On the other hand, life satisfaction has been shown to decline with age (Dolan et al., 2008; Taht et al., 2020) – likely due to age-related differences in life circumstances.

Also, gender has been shown to affect life-satisfaction: women are often more satisfied than men (Dolan et al., 2008; Taht et al., 2020). Having children is also positively related to life satisfaction, but only for couples. In contrast, single parents are less satisfied – for them, children may represent an additional challenge in managing everyday life and impact on their sense of personal control (Dolan et al., 2008).

Some studies have shown that people living in large cities are less satisfied, while those living in rural areas are more satisfied (Dolan et al., 2008). However, many of these studies control for income, and as income is likely to be lower in rural areas, they may give the misleading impression that overall life satisfaction is higher in rural areas (Dolan et al., 2008).

### **2.3. Contextual (regional) influences on late career outcomes**

Given the strong emphasis on extended working lives in recent pension reforms, there's an expanding body of research exploring retirement, late-career employment, and the overarching macro-level influences that shape them (Axelrad & Luski, 2022; Bennet & Möhring, 2015; De Breij, 2020; De Preter et al., 2013; Ebbinghaus & Hofäcker, 2013; Ebbinghaus & Radl, 2015; Geppert et al., 2019; Gruber & Wise, 2002; Hofäcker et al., 2016; Jansen, 2018; Jurek, 2023; Kuitto & Helmdag, 2021; König et al., 2016; 2022; Radl, 2013; Scharn et al., 2018; Schmidhuber et al., 2020; Stiemke & Hess, 2022; van Oorschot & Jensen, 2009). While some of these studies focus on comparing only a handful of countries, others adopt a broader perspective. However, it's noteworthy that the majority of this research is concentrated on Europe and the US, with limited exploration beyond these regions.

For the current analysis, we consider three sets of factors that have been commonly pointed out by existing research: economic factors, labour market factors, educational/skills system factors, and family/care system factors.

#### **2.3.1. Economic factors**

Economic downturns, labour demand shocks, and rising unemployment rates can diminish employment opportunities for older workers, increasing the likelihood of an early work exit. For instance, Great recession starting in 2008, has shown to reduce older workers' employment rates, especially in countries with less regulated labour markets such as the Baltic countries and Ireland. In regions like Southern Europe, employment rates for older workers have shown a marked decrease due to these economic challenges. Still, empirical evidence for these factors remains mixed (Mäcken et al., 2021). Some studies showed that low levels of economic growth measured with the gross domestic product and high unemployment rates are associated with involuntary work exit (Ebbinghaus & Radl, 2015; Hutchens, 1999). In addition, employment protection regulations seem to have a weak positive effect on involuntary work exit. Other studies found no evidence of the influence of push factors on work exit (De Preter et al., 2013; Ebbinghaus & Hofäcker, 2013).



Consensus has been reached that both incentives and constraints exert a significant influence on retirement timing (Schils, 2008; Vickerstaff & Cox, 2005). Debate has, however, not produced a clear winner (De Preter et al., 2013; Radl, 2013).

Axelrad & Luski (2022) further enrich this narrative by examining the link between economic indicators and retirement age. Their findings emphasize that factors like a country's Gross Domestic Product (GDP) significantly influence the actual retirement age. For instance, a higher GDP is correlated with a higher actual retirement age. Intriguingly, the influence of net household wealth and GDP on retirement age exhibited inconsistencies across different nations. This underscores the need for policymakers to tailor retirement-related strategies and policies based on the unique socio-economic fabric of their countries, ensuring that policies resonate with both individual characteristics and national economic indicators.

### **2.3.2. Labour market factors**

Strict Employment Protection Legislation (EPL) can act as a significant factor for late careers. While designed to protect employees, these regulations might inadvertently make it harder for older workers to remain employed, pushing them towards early retirement. In a study by Blossfeld and colleagues (2006), it was highlighted that older employees are becoming more expensive to retain, and their enhanced labor costs might not align with their output. Firms might promote retirement to older workers as a strategy to reduce the workforce in regions with strict EPL (De Preter et al., 2013; Ebbinghaus & Radl, 2015). In general, employers play a pivotal role in retirement decisions and 'filtering' the impact of institutions. This is particularly evident in "coordinated market economies," as described by Hall & Soskice (2001). These economies, characterized by initial-phase education, strict labor regulations, strong dismissal protections, and well-defined seniority pay structures, include countries like Germany and the Netherlands. Consequently, policymakers in such economies often collaborated with employers to devise ways for these older workers to leave their jobs in a socially acceptable manner, as observed by Ebbinghaus (2006).

Moreover, public benefits like unemployment or disability insurance have commonly acted as transitional tools to early retirement for those without jobs. Such pressures for older workers to exit are notably reduced in "liberal market economies" where there's a lesser focus on seniority, more varied job structures, and a malleable labour market, which facilitates easier adaptation and movement for older employees (Blossfeld et al., 2006; Hofäcker & Unt, 2013).

Technological changes leading to restructuring of occupational structure or skills needed, can be threatening the position of older workers if they are concentrated in sectors most affected by automatisisation. This perceived or actual productivity mismatch can push older workers out of labour market (Dorn & Sousa-Poza, 2005). The past decades have seen large-scale change in the sectoral structure of jobs, which is mostly characterised by a marked contraction in manufacturing employment and a simultaneous expansion in the services sector. This structural transition predominantly stems from an acceleration of technological change and advancements that have facilitated the automation of routine tasks, particularly in the manufacturing sector, enhancing productivity and diminishing the demand for traditional labour-intensive roles. Older workers are more likely to work in



routine manual occupations than younger workers, thus facing a higher risk of losing their job due to automation.

### **2.3.3. Education system and skill development factors**

Older workers can be particularly vulnerable to technological change as new technologies usually call for a higher level or different skills, requiring upskilling or reskilling of workers. The rapid pace of technological change can exacerbate skill obsolescence for older workers, making it harder for them to keep up with new technologies and industry standards compared to their younger counterparts (Brand, 2015). The matching theory (Jovanovic, 1979) predicts the increased risk of occupational downgrading and/or wage loss when getting older as it would take for older people longer to find a matching job. Older workers with less recent vintages of skills are particularly exposed to the risk of skills obsolescence (Yashiro et al., 2021), and are less likely to participate in job-related training compared to younger workers, often because opportunities are fewer (OECD, 2019).

Furthermore, the education profile of the aging workforce of a country can tilt the balance between early and late retirement. Older workers with advanced educational qualifications tend to have a competitive edge, making them more inclined to extend their professional journeys.

### **2.3.4. Family and care system factors**

Retirement decisions, while often perceived in the context of policy measures, are significantly influenced by the socio-demographic landscape of a country. For instance, Engelhardt and Schmidt (2011) assert that both explicit public policies and foundational socio-demographic attributes of a nation can profoundly shape the retirement behaviors of older workers. The correlation between work and health is evident in the context of life expectancy: workers in countries with sub-par health standards would naturally face challenges in extending their working years due to health constraints.

Life-course perspectives emphasize the interconnectedness of work and family spheres, suggesting that retirement decisions are shaped by both individual circumstances and family situations. The fact that life courses do not unfold in a “social vacuum” (Smyer & Pitt-Catsoupes, 2007) is the best captured in the concept of the “institutionalised life course” (Kohli, 1986), which emphasises that the retirement decision, shaped by educational and social security systems, is the result of a set of individual choices made in constrained situations (van Solinge & Henkens, 2007). Thus, retirement decisions, while influenced by individual choice and financial incentives from pull perspective, are also shaped by external structural constraints and labour market dynamics from push perspective. These “push” factors drive older workers involuntarily out of employment.

Care responsibilities, particularly for aging relatives or grandchildren, can significantly impact late careers by influencing work hours, job stability, and income trajectories. Many older workers, especially women, reduce their working hours, switch to part-time jobs, or exit the labor market entirely to provide care (Alcover et al., 2023; Bauer & Sousa-Poza, 2015; Van Bavel & De Winter, 2013). In many countries and occasions, a major share of such care is provided informally, meaning that it is not reflected in social statistics (Bettio & Verashchagina, 2010; Kemper et al., 2005). The variation in informal care among

countries can be accounted for, at least to some extent, by differences in the availability of public support and possible alternatives (Van Bavel & De Winter, 2013), which determine the opportunity costs of becoming a caregiver.

## 3. Data and methods

This section describes the data and methods used to examine regional variations in labour market attachment, income in/security and life satisfaction among elderly adults. Section 3.1 begins with an overview of the EU-SILC survey as the primary individual-level database used in this report, along with the sample restrictions implemented. Sections 3.2 and 3.3 detail the operationalisation of the variables used at both the individual and regional levels. Finally, Section 3.4 outlines our analytical strategy.

### 3.1. Data and sample

We use individual-level data from the *European Union Statistics on Income and Living Conditions* (EU-SILC).<sup>1</sup> EU-SILC is an international household survey, which was launched by the European Commission in 2004 with the declared aim of collecting “timely and comparable cross-sectional and longitudinal multidimensional microdata on income, poverty, social exclusion, and living conditions” (Eurostat, 2021a). Since then, data collection has been annual. Notably, data on life satisfaction, which is a central outcome variable examined in this report, has only been collected in four waves (2013, 2018, 2021, and 2022). We focus on the wave 2021 for the main analysis in order to obtain the maximum number of countries and regions belonging to the EU (see below). As a robustness check, we replicate all analyses for 2018 to verify that the results hold before the outbreak of the COVID-19 pandemic (see at the end of Sections 4.2, 4.3.1, and 4.3.2). However, due to missing regional information, Germany as the largest EU member state is excluded from these 2018 additional analyses.

Data collection for EU-SILC 2021 took place in all 27 EU member states plus in Norway, Switzerland, and Serbia. We exclude Norway because data files are not yet available (as of July 2024) and the Netherlands and Slovenia because of missing variables. Our country sample thus comprises a total of 27 European countries, 25 of which are EU member states. For regions within countries, we refer to major socio-economic regions, defined as NUTS 1 geocodes. More fine-grained information (e.g. at the NUTS 2 level) is not available for all countries. After excluding 12 countries from our country sample because they do not have distinct NUTS 1 regions (i.e. the administrative region is the same at the NUTS 1 and national level) and Finland because of missing regional coverage, we remain with 75 NUTS 1 regions in 14 countries for the within-country analysis (see Appendix, Table A 1).

For the analysis of later life, we focus on adults aged between 50 to 64 years. Moreover, we restrict our sample to individual respondents<sup>2</sup> and further exclude cases with missing information on key individual-level predictors (i.e. highest educational degree, gender, age,

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<sup>1</sup> For merging files, we used the Stata routine provided by GESIS

<sup>2</sup> The main sources are the personal respondent file (if information was not available there, we used information from the personal registers) and income data from household file.



migration background, family composition, health status, residential area; see Section 4.2 for more details).

A total of 119,510 cases meet the above sample restrictions, including 81,577 cases for the regional subsample. The final sample size varies depending on the specific outcome studied, due to additional sampling restrictions (e.g. focus on the labour force for unemployment analysis) and missing data on dependent variables. Consequently, the final sample ranges from 119,510 (81,577) cases for poverty to 85,968 (58,135) cases for unemployment.

The primary source for contextual-level variables at both the national and NUTS 1 level is Eurostat. Additional individual indicators come from various surveys and research centres (see Section 3.3). Due to limited data availability, particularly at the NUTS 1 level, different contextual domains required further adjustments to the individual-level sample for the between- and within-country analyses. More details are provided in Section 3.3.

## 3.2. Individual-level variables

### 3.2.1. Measures for late career outcomes

To operationalize labour market attachment and related outcomes in later life, we consider a total of six outcome variables (see **Error! Reference source not found.**). Both unemployment and non-employment are constructed on the basis of the main activity status reported by respondents. Unemployment is defined only for older adults who are part of the labour force (i.e. they are employed or actively seeking employment; they are not in education, training, or inactive). Individuals are classified as non-employed if they report being either unemployed or inactive, whereas the reference group is those being in employment. Occupational status is measured via ISEI scores and are calculated based on two-digit 2008 International Standard Classification of Occupation (ISCO) codes, following the framework established by Ganzeboom and Treiman (1996). An exception is made for Malta, where only one-digit information is available. For employed respondents, the ISEI score refers to the current job. For those who are not currently employed but have been employed before, we use information on their last job.

Regarding income in/security, we include two variables: equivalised disposable income as an absolute measure (for differences across Europe) and poverty risk (yes/no) as a relative measure (that account for differences in the national income distribution).<sup>3</sup> Both variables are supplied with the EU-SILC data and are generated from EU-SILC comprehensive income module. Equivalised disposable income is calculated from total disposable household income (i.e., income after social transfers), adjusted for household size and referring to a fixed 12-month period.<sup>4</sup> For the analysis, we use the logarithm of the equivalised disposable income, as common in income analyses to minimize over-proportional influence of outliers. Income data are not adjusted for purchasing power

<sup>3</sup> In addition, the ISEI score scale for measuring occupational attainment, which correlates with relative income positions within countries and regions, can also be considered as a proxy for differences in relative income positions.

<sup>4</sup> The income reference period is usually the previous calendar year. To standardise household income, EU-SILC uses an equivalence scale which gives a value of 0.5 for each additional adult household member and of 0.3 for each child. For more detailed information, see Eurostat (2021a)



parities. Poverty risk status is a measure of social exclusion within countries and regions (at least in economic terms). Respondents are considered “poor” if their income is below the 60 per cent of the median income in their country of residence.

In order to measure (subjective) well-being, life satisfaction measure is used. Life satisfaction measure is a global judgement of individuals’ perceived distance from personal aspirations (Diener et al., 1999; Van Hoorn, 2007) and an aggregate of its different evaluative dimensions (Bradford & Dolan, 2010). Life satisfaction is considered an important psychological resource for individuals to cope with problems (Gilman & Huebner, 2003). It correlates more strongly with important life circumstances than with the affective dimensions of subjective well-being. Life satisfaction is measured on a 10-point scale. After reverse coding the variable from the EU-SILC data for easier interpretation, its values range from (1) “not satisfied at all” to (10) “very satisfied”.

### 3.2.2. Measures for socio-demographic and socio-economic profiles

The operationalisation for socio-demographic and socio-economic profiles of 50-64-year-olds are summarised in **Error! Reference source not found.** Educational attainment distinguishes three broad categories: less-educated adults with formal qualifications corresponding to ISCED levels 0–2, intermediate-educated adults at ISCED levels 3 and 4, and tertiary-educated adults with qualifications at level 5 and above – based on the 2011 revision of the ISCED.

Our demographic and socio-economic characteristics include gender (male/female), age (grouped into four 5-year categories), and migration background (yes/no). Migration background indicates whether a respondent’s country of birth and/or citizenship is outside of the country of residence.

To study spill-overs (dynamic associations) between life domains, we include older adults’ family composition, where we constructed a variable with four categories distinguishing between couples without children, couples with children, unpartnered with dependent (child or elderly parents), and living alone.

Health status is measured on a 4-point scale ranging from (1) “very good” to (4) “(very) poor”.<sup>5</sup>

We also include a variable indicating the degree of urbanisation of the place of residence, distinguishing between cities, towns and suburbs, and rural areas (Eurostat, 2021b).<sup>6</sup>

For the analyses of occupational status, income in/security and life satisfaction, we also include (self-reported) employment status, indicating whether a person is employed, unemployed, or inactive. The models on life satisfaction additionally include the two income in/security measures (i.e., logarithm of disposable income and poverty status).

**Error! Reference source not found.** shows an overview of the individual-level socio-demographic and socio-economic profile variables used for the analysis and the sample specification for each of the six outcome variables. Descriptive statistics for the outcome variables are included in Section 4.1 and in the Appendix A, Table A. 1 (for NUTS 1-level

<sup>5</sup> We have merged the categories “poor” and “very poor” into one due to very small case numbers for both.

<sup>6</sup> For Estonia, Germany and Latvia, urban and suburban regions are combined into one category. For Malta, suburban and rural regions are combined.

statistics). Descriptive statistics for the socio-demographic and socio-economic profile variables are included in the Appendix A, Table A. 2 (for national-level statistics) and Table A. 3 (for NUTS 1-level statistics).

*Table 1. Individual-level variables used in the analyses*

	Operationalization	Sample specification
Late career outcome variables		
Unemployment	Unemployed / employed	Only labour force (excluding respondents who are inactive)
Non-employment	Unemployed or inactive / employed	All older adults
ISEI	Derived from 2-digit ISCO codes (current or last job) (Malta = 1-digit ISCO codes)	currently or previously employed
Equivalised disposable income	Total disposable household income (income after social transfers), adjusted for household size and referring to a fixed 12-month period	All older adults
Poverty	“Poor”: disposable household income below 60 per cent of median income	All older adults
Life satisfaction	10 categories (from 1 = not at all satisfied to 10 = completely satisfied)	All older adults
Variables for socio-demographic and socio-economic profiles		
Educational attainment	3 categories (ISCED 0–2, 3–4, 5+)	
Health status	4 categories (from 1= very good to 4 = (very) poor)	
Family composition	4 categories (couples without children, couples with children, unpartnered with dependent (child or elderly parent), living alone)	
Gender	Male/female	
Age	3 categories (50-54, 55-59, 60-64)	
Migration background	Yes: born in foreign country and/or foreign citizenship	
Residential area	3 categories (cities, towns/suburbs, rural areas)	
Individual-level variables partly included in the analyses		
Employment status (only for analyses of ISEI, income security and life satisfaction)	3 categories (employed, unemployed, inactive)	
Income security (only for analyses of life satisfaction)	Equivalized disposable income, poverty	

### 3.3. Contextual variables

As outlined in Section 2, we account for contextual indicators across four broad domains: economy, labour markets, education and skills development factors, and family and care systems. Table 2 provides an overview of the contextual variables used, including sources.

All contextual variables are measured at both the national and the NUTS 1 level, unless otherwise specified, and refer to 2021 or the closest year available for the main analysis, and to 2018 (or the closest year available) for the comparison to the pre-COVID-19 pandemic period.

In order to capture regional/country differences in the **economy**, following measures are used:

- GDP per capita
- Income inequality (only available at national level): ratio of disposable income at the top and bottom quintile (S80/S20)
- Total unemployment rate in the adult population (age 15-74)
- Demographic labour market competition: ratio of young adults aged 16–29 to adults aged 50-64.

For regional/country variation in **labour markets**, following indicators are used:

- Total employment rate in the adult population (age 16-64)
- Employment shares of economic sectors – indicator 1: percentage of employed adults working in the traditional primary sector
- Employment shares of economic sectors – indicator 2: percentage of employed adults working in large scale engineering
- Employment shares in larger enterprises (only at the national level): percentage of employed adults working in enterprises with more than 50 employees<sup>7</sup>
- Employment protection legislation (only at the national level): an indicator on regulation of dismissals constructed from the Cambridge Labour Regulation Indicator (CBR LRI; Adams et al., 2023).

For **education** and skill development system, following indicators are used:

- Total skills supply – indicator 1: Share of less-educated individuals (ISCED 0-2) in the adult population (age 25-64)
- Total skills supply – indicator 2: Share of tertiary-educated individuals (ISCED 5+) in the adult population
- Overall education expenditure (only at the national level): public expenditure on tertiary education in million purchasing power standards (PPS)<sup>8</sup>
- Educational gap – percentage of tertiary educated youth aged 25-34 minus percentage of tertiary educated adults aged 55-64

As measures for family and health (“**care**”) systems are used following indicators:

- Childcare: percentage of 0-2-year-olds in formal childcare or education (only available at national level; source: Eurostat). For the within-country analyses: an indicator of employment-related gender role attitudes calculated from the

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<sup>7</sup> This indicator is not included in the within-country analyses because of high correlations with the total employment rate (Pearson's  $r = 0.69$ ) and employment shares in traditional primary sector (Pearson's  $r = -0.64$ ).

<sup>8</sup> Pearson's  $r$  for the correlation with expenditure on primary and lower secondary education is 0.97, and 0.98, respectively.



EVS/WVS, which is very highly correlated with the childcare indicator (Pearson's  $r = -0.74$ ).<sup>9</sup>

- Health care system – indicator 1: number of physicians per 100,000 inhabitants
- Health care system – indicator 2 (only at national level): total health care expenditure (in € per inhabitant)<sup>10</sup>
- Health care system – indicator 3 (only at the national level): total long-term care expenditure (in percent of GDP). To control for the health care demand: inclusion of population median age.

Descriptive statistics and correlation matrices of the contextual variables are included in the Appendix A (see Table A. 4 to Table A. 7). Due to high correlation between contextual variables at the national and the NUTS 1 level, we include group-mean centred regional variables for the within-country variables. This means that we calculate the difference between each regional-level score and the mean of the national cluster to which it belongs (i.e. the national variables) (Finch et al., 2014, p. 34). In addition, we z-standardise all contextual variables before including them in our models with a mean of zero and a standard deviation of one. This ensures that each variable is measured on a consistent scale, enhancing the comparability and interpretability of the analysis.

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<sup>9</sup> Data are aggregated from NUTS 2 level. For Belgium, we use data from the European Social Survey (ESS).

<sup>10</sup> Data are aggregated from NUTS 2 level.

Table 2. Contextual variables used in the analyses

	Operationalization	Sample specification		Data source
		Country	NUTS 1	
Economy	GDP per capita	all 27 countries	all 75 regions	Eurostat
	Income inequality (S80/S20 disposable income)	all 27 countries	N/A	Eurostat
	Total unemployment rate	all 27 countries	all 75 regions	Eurostat
	Demographic competition (age ratio 16-34 to 35-64)	all 27 countries	all 75 regions	Eurostat
Labour markets	Total employment rate	25 countries (w/o EE, RS)	73 regions (w/o RS)	LFS
	Employment shares in economic sectors (traditional & engineering)	25 countries (w/o EE, RS)	73 regions (w/o RS)	LFS
	Employment shares in larger enterprises (>50 employees)	25 countries (w/o EE, RS)	Not included due to high correlation	LFS
	Employment Protection Legislation (EPL)	26 countries (w/o IE)	N/A	CBR
Education system	Share of less- and tertiary-educated adults	all 27 countries	all 75 regions	Eurostat
	Expenditure on tertiary education	all 27 countries	N/A	Eurostat
	Educational gap (percentage of tertiary educated youth aged 25-34 – percentage of tertiary educated adults aged 55-64)	all 27 countries	N/A	Eurostat
Care system	Share of young children in formal childcare	all 27 countries	71 regions (w/o PT and Corse/FR)	Eurostat / EVS and WVS, ESS for BE
	NUTS 1: Employment-related gender role attitudes (“When jobs are scarce, men should have more right to a job than women.”)			
	Health care expenditure	all 27 countries	N/A	Eurostat
	Number of physicians per 100.000 inhabitants	all 27 countries	59 regions (w/o DE)	Eurostat
	Demand for health care services (median age)	all 27 countries	all 75 regions	Eurostat
	Long-term care expenditure (in percentage of GDP)	21 countries (w/o BG, CY, HR, MT, RO, RS)	N/A	OECD

Notes: N/A not available; w/o without. For country codes see Section “ISO codes of countries included”



### 3.4. Analytical strategy

We estimate multilevel models to examine the associations of our six late career outcome variables with the individual-level socio-demographic and socio-economic profile variables as well as (country- and region-level) the contextual factors. We use linear multilevel models for the continuous and ordinal outcomes (ISEI, income, satisfaction) and generalised linear multilevel models with a logistic link function for the binary outcomes (unemployment, inactivity, poverty).<sup>11</sup> Some parts of our analysis include the smaller countries that consist of only one NUTS 1 region. In these cases, we ignore the regional level and treat individual as nested in 27 countries. Other parts of the analysis focus on the 14 (larger) countries with more than one NUTS 1 region. In these cases, we specify three-level models where individuals are nested in regions, which are themselves nested within countries. The multilevel approach allows us to specify random intercepts at the country and region levels, which capture the extent to which individuals from the same geographical unit share common characteristics or experiences that render them more similar than individuals from different units. A key advantage of the multilevel modelling approach is its greater accuracy in partitioning overall outcome variability into its lower- and upper-level components. (Raudenbush & Bryk, 2002). We refer to multilevel models that only include random intercepts at the regional level (and no contextual factor variables) as ‘empty models’ in the following. Depending on the research question addressed, we add further covariates at the individual and regional level (see below). We estimate all models using the R package lme4 (Bates et al., 2015). For better interpretability of the results of the multilevel logistic regressions, we report average marginal effects (AME).

The first part of the empirical analysis (Section 4.2) addresses research question 1, exploring how differences in late labour market attachment and related outcomes within regions (i.e. countries or NUTS 1 regions) are associated not only with standard demographic characteristics of elderly adults and their educational attainment but also with their health status and characteristics of other life domains. To examine these associations, we extend the empty models by including all socio-demographic and socio-economic profile variables (i.e., educational attainment, health status, family composition, gender, age, migration background, and residential area). Each of these variables is decomposed into its between and within-country component, i.e. the country mean of each predictor and the individual deviation from the country mean. The aim of this exercise, as described in more detail below, is to allow for potential differences in the between-country and individual-level (i.e., within-country) effect and obtain a clearer picture of how these factors contribute to within- and between-country variation. For the three-level models, where our main focus on identifying the contribution of each predictor to *within-regional* [NUTS 1] variation, we decompose the socio-demographic and socio-economic profile variables into the country mean, the deviation of the NUTS 1-level mean from the

<sup>11</sup> Several studies have demonstrated that using the OLS framework to analyse ordinal outcomes measured on a Likert scale – in this report, life satisfaction – is a robust approach that yields results comparable to those obtained from ordered probit/logit models. For a general discussion on this topic, see Norman (2010); for analyses focusing on individual well-being, see Ferrer-I-Carbonell and Frijters (2004), Ferrer-I-Carbonell and Ramos (2021), and Flavin et al. (2014).

corresponding country mean, and the individual deviation from the corresponding NUTS 1-level mean. Consistent with RQ1 focusing on *within-country* variation, our main interest in this step is on the coefficients of the within-country and within-region components of the predictors (i.e., on individual-level variation in our six late career outcomes).

In order to control for the labour market situation, we add (mean-centred) employment status in the analysis of ISEI, income, poverty and life satisfaction outcomes. For the analysis of life satisfaction, we include additionally (mean-centred) measures of income in/security.

In the second part of the empirical analysis (Section 4.3.1), we address research question 2 by turning to the analysis of regional and country-level variation in our late career outcome variables and examining whether compositional differences explain differences in late labour market inequalities and life satisfaction between and within countries. More specifically, we examine whether, and to what extent, the between-country and between-region components of the variables explain outcome variation at the respective levels. Given our focus on explained late career outcome variation, we are interested in  $R^2$ -like measures of explained variance for each of these two upper levels.

Our measures are based on the framework of Rights and Sterba (2019) and, more specifically, its application to model comparison problems (Rights & Sterba, 2020), in combination with its extension to three-level settings (Rights & Sterba, 2023) and its R implementation in the package *r2mlm* (Shaw et al., 2022). The framework differentiates between a total of 12 different measures of total, within-cluster, and between-cluster explained variance. The relevant one for our purposes is what the authors refer to as the “[p]roportion of between-cluster outcome variance explained by level-2 predictors via fixed slopes” (Rights & Sterba, 2019, p. 315). Intuitively, this measure captures how much of the total cluster-level (i.e., country or regional [NUTS 1] level) variation can be attributed to predictors at that level, based on models that separate all lower-level variables into their between- and within-cluster components. In the present case (see also Brincks et al., 2017), and as previously noted, this means that each individual-level socio-demographic and socio-economic profile variable is decomposed into its country-level component (i.e., the country mean), regional component (i.e., the deviation of the regional [NUTS 1] mean from the corresponding country mean) and individual-level component (i.e., the individual deviation from the respective regional [NUTS 1] level mean, i.e. focus of RQ1). Our  $R^2$  of interest is then defined as the between-cluster variance implied by the variables capturing variation at the level of interest (i.e., country or [NUTS 1] region) in combination with their associated coefficients/slopes, divided by the sum of this implied variance and the random effects variance at the level of interest (Rights & Sterba, 2019, p. 315).

As with the standard version of  $R^2$ , the increase in explained (between-cluster) variance due to an additional (set of) variable(s) depends on which, if any, other variables are already present in the model. We address this “path dependency” by using a computationally intensive Shapley decomposition approach that defines the contribution of a given set of variables as its average marginal contribution to the (between-cluster)  $R^2$  across all possible elimination sequences leading from the full model including all predictors to the empty model that includes none of them (Shorrocks, 2013).

The third part of our empirical analysis (Section 4.3.2) addresses research question 3, whether additional contextual factors, beyond compositional differences, influence elderly people's late careers and life satisfaction. To investigate this, we estimate multilevel models that include all individual-level socio-demographic and socio-economic profile variables (see above) and indicators from four contextual domains (i.e., education system, labour markets, economy, care). For the two-level models, we include national-level contextual factors, separately for each contextual domain analysed. For the three-level models, we include country-mean-centred regional variables at the NUTS 1 level alongside their respective national averages, again analysing each domain separately. This centering technique isolates the specific contribution of regional deviations from the national mean, thus allowing a more precise measurement of regional-level contextual associations within countries.

All our models are weighted using personal respondent weights provided by EU-SILC to ensure that our samples are representative of all individuals aged 50 to 64 residing within households in each country (Eurostat, 2022). However, since sample weights are scaled to population size in EU-SILC, using them without modification would skew pooled model estimates towards these larger regions and countries. To address this (and give all countries and regions, respectively, the same weight), we rescale the survey weights using the *rescale\_weights* function from the R package *easystats* (Lüdtke et al., 2022; see also Asparouhov, 2006; Carle, 2009).

Two different rescaling methods: Method A adjusts the sample weights by a factor that equals the proportion of the group size to the total of sampling weights within each group. This adjustment results in the new weights summing to the actual cluster sample size. In method B, the adjustment factor is calculated by dividing the sum of sample weights within each group by the sum of the squared sample weights within the same group. This results in the new weights summing to the effective cluster size, which is a measure reflecting the group's actual contribution to the overall sample variance (see Carle, 2009).

Following Carle's (2009) recommendations, we test each model both unweighted and weighted with the two rescaling methods to see if inference decisions are consistent across approaches. The results of these comparisons indicate that our estimations are quite robust. In the following we present results using method B, which is preferred for analyses that focus on the (residual) variance between groups (see Carle, 2009).

## 4. Results

We start the presentation of our empirical analyses with some descriptions on variations in late career outcomes between and within countries (Section 4.1). With further analysis we address our three research questions:

- RQ 1: the impact of socio-demographic/socio-economic profile characteristics on late career outcomes (Section 4.2)
- RQ 2: between- and within-country compositional differences in older adults' profile explaining variations in late career outcomes (Section 4.3.1)
- RQ 3: the influence of contextual factors (Section 4.3.2).



## 4.1. Regional variations in labour market outcomes of late career workers

This section details the six late career outcome variables of our study, focusing on variations between and within countries in labour market attachment, income in/security and life satisfaction among adults aged 50-64.

### 4.1.1. Differences between countries

Table 3 presents descriptive statistics for our six late career outcome variables across the 27 countries studied. Starting with labour market participation, there is considerable between-country variation in all three dimensions considered: unemployment rates range from 2 per cent in Romania to 34 per cent in Serbia, non-employment rates from 20 per cent in Sweden to 53 per cent in Serbia, and the average ISEI scores from 35 in Romania to 50 in Switzerland.

An examination of the average ISEI scores shows that high employment in late careers is not at the expense of occupational quality. Countries such as Switzerland, Denmark or Sweden show not only high employment of older adults, but also employment in on average high-status occupations. Conversely, countries with high non-employment rates among older workers often also have lower average ISEI scores among older, such as such as Serbia, Croatia or Greece.

Turning to income security, Table 3 again reveals considerable differences between countries. Average equivalised disposable income per year ranges from 4,729 euro in Serbia to 59,984 euro in Switzerland. It is important to note that disposable income is not adjusted for purchasing power parities, so the differences also reflect substantial differences in living standards between countries. More important however is the fact that disposable income depends on the composition of the household (and thus on the income contributions of the household members). In this respect, household composition is important aspect to be considered – in Latvia, 31% 50-64-year-olds live on their own, whereas in Slovakia it is only 9% (see Appendix, Table A 2). Poverty rates among this age group range from 6 per cent in Denmark to 24 per cent in Latvia.

Finally, average life satisfaction of 50-64-year-olds ranges from 5 in Bulgaria to 8 points in Finland, Austria, and Switzerland. Although in some cases countries perform poorly both in labour market participation and position, economic security, and general well-being level (such as Serbia or Croatia or Greece), it is not always the case. Some countries that perform poorly in terms of labour market integration and economic security do not necessarily have the lowest levels of satisfaction. For example, older workers in Romania have one of the highest average life satisfactions, despite having one of the highest poverty risks and below average occupational attainment. Conversely, despite its quite good employment opportunities and high disposable income, life satisfaction of older people in Italy is only slightly above the average. This distinctive country ranking of life satisfaction highlights regional variations that cannot be solely predicted by economic factors.



Table 3. Country variation in late career outcomes

Country	ISO codes	Unemployment rate (%)	Nonemployment rate (%)	Average ISEI scores	Equivalised disposable income per year (€)	Log disp. income	Poverty rate (%)	Life satisfaction (rating points)
Austria	AT	10.09	40.10	42.65	33699.43	10.27	10.91	7.87
Belgium	BE	8.27	37.97	44.94	31145.81	10.21	11.86	7.42
Bulgaria	BG	12.94	31.15	37.21	7551.88	8.67	16.34	5.55
Switzerland	CH	5.29	24.33	<b>50.19</b>	<b>59984.53</b>	<b>10.83</b>	11.15	7.81
Cyprus	CY	10.41	32.16	38.92	22661.06	9.86	9.86	6.53
Czechia	CZ	5.93	26.89	41.93	13453.13	9.39	7.30	7.09
Germany	DE	6.54	30.61	44.93	32342.25	10.21	13.35	7.05
Denmark	DK	7.14	23.99	47.41	46051.47	10.59	<b>6.18</b>	7.54
Estonia	EE	8.28	25.79	41.03	14427.20	9.41	19.05	6.97
Greece	EL	16.49	44.27	39.42	10579.42	9.07	20.27	6.63
Spain	ES	19.57	38.85	39.04	19625.93	9.67	19.34	7.04
Finland	FI	13.51	30.51	44.09	33801.06	10.29	8.70	<b>8.03</b>
France	FR	9.55	39.52	42.44	29368.13	10.11	14.34	6.65
Croatia	HR	16.46	48.21	38.14	9183.02	8.96	18.77	6.60
Hungary	HU	5.94	29.62	39.55	7728.94	8.80	13.45	6.40
Ireland	IE	9.76	35.39	42.42	35496.90	10.30	14.72	7.23
Italy	IT	8.41	33.42	42.01	21722.79	9.78	18.60	7.13
Lithuania	LT	13.82	29.21	42.56	12058.84	9.16	19.47	6.64
Luxembourg	LU	4.53	43.26	46.30	52408.80	10.71	14.53	7.33
Latvia	LV	10.27	28.57	39.11	10940.15	9.05	23.62	6.49
Malta	MT	2.66	38.38	40.29	20605.36	9.76	15.74	6.88
Poland	PL	5.80	39.14	36.41	9008.22	8.96	17.12	7.40
Portugal	PT	12.40	31.16	39.24	13526.02	9.31	17.97	6.87
Romania	RO	<b>1.78</b>	39.28	<b>35.10</b>	5763.52	8.43	20.29	7.57
Serbia	RS	<b>34.00</b>	<b>52.52</b>	35.95	<b>4729.71</b>	<b>8.21</b>	<b>22.74</b>	5.63
Sweden	SE	7.72	<b>20.21</b>	47.31	33199.22	10.26	11.49	7.56
Slovakia	SK	8.47	34.00	39.10	9707.53	9.09	9.65	6.68
Mean		10.22	34.39	41.40	22250.75	9.61	15.07	6.98
SD		6.36	7.68	3.76	14927.08	0.72	4.72	0.60

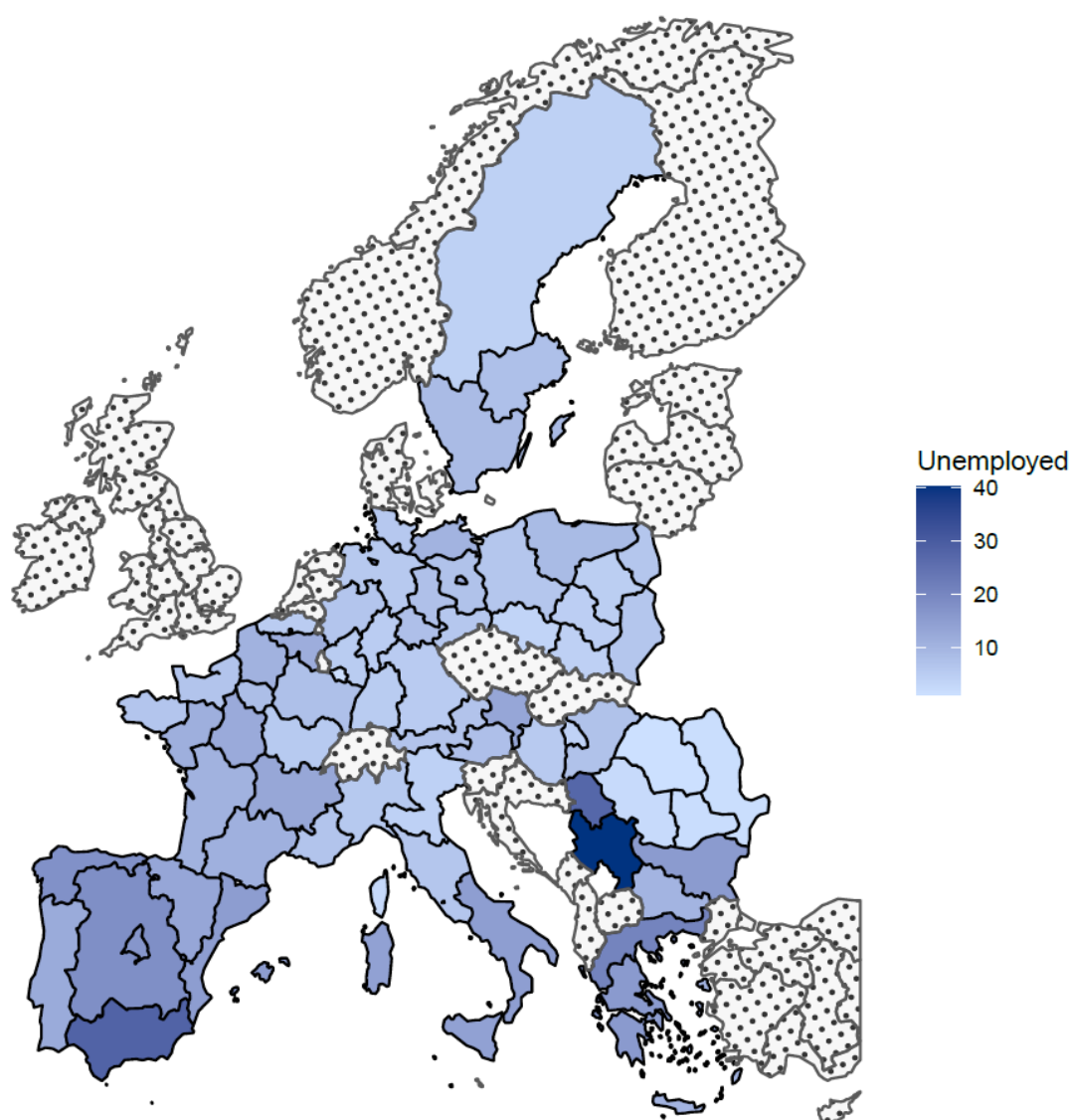
Notes: Highest and small values are in bold. SD standard deviation. Weighted results.

#### 4.1.2. Regional differences within countries

Next, we look at the within-country variation between NUTS 1 regions for the six late career outcomes. The aim is to provide a broad understanding of how outcomes vary not only between countries, but also within countries. We focus on graphical visualisations for selected outcomes (for the full table see Appendix A, Table A. 1).

Figure 1 shows regional differences in unemployment rates as an indicator of labour market security and integration. It highlights marked differences between regions across countries, with rates ranging from 0 per cent to 41 per cent.

*Figure 1. Regional variation in unemployment rates among 50-64-year-olds*



Notes: Focus on 14 countries with NUTS 1 regions. For full country sample, see Table 3 (Section 4.1.1). Weighted results.

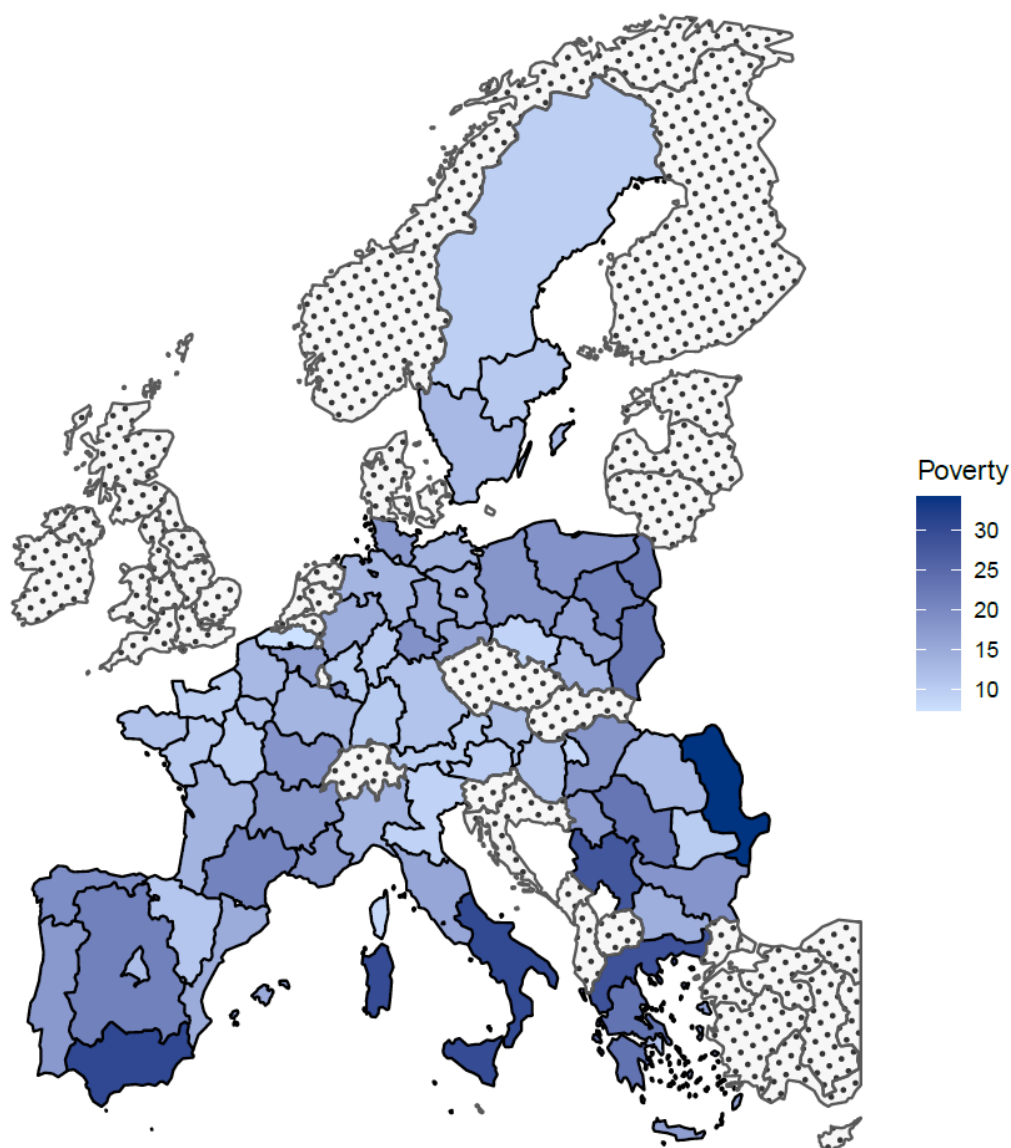
The figure reveals considerable regional variations within many countries, particularly in southern European countries such as Spain, Italy or Serbia. In Spain, unemployment rate among older workers ranges from 13 per cent to 35 per cent; in Italy from 4 per cent to 15



per cent; and in Serbia from 28 per cent in one region to 40 per cent in the other region. Such pronounced regional disparities within a single country illustrate the substantial regional differences that can exist within a uniform national framework and highlight the complex dynamics of labour market attachment within countries.

Figure 2 shows similar patterns for poverty, with significant regional variations both between and within countries. Again, this variation is particularly pronounced in Italy and Spain, but also Greece and Romania. Still, there are also considerable regional disparities in several continental European countries, including Belgium, France and Germany, and in Eastern Europe, such as Poland.

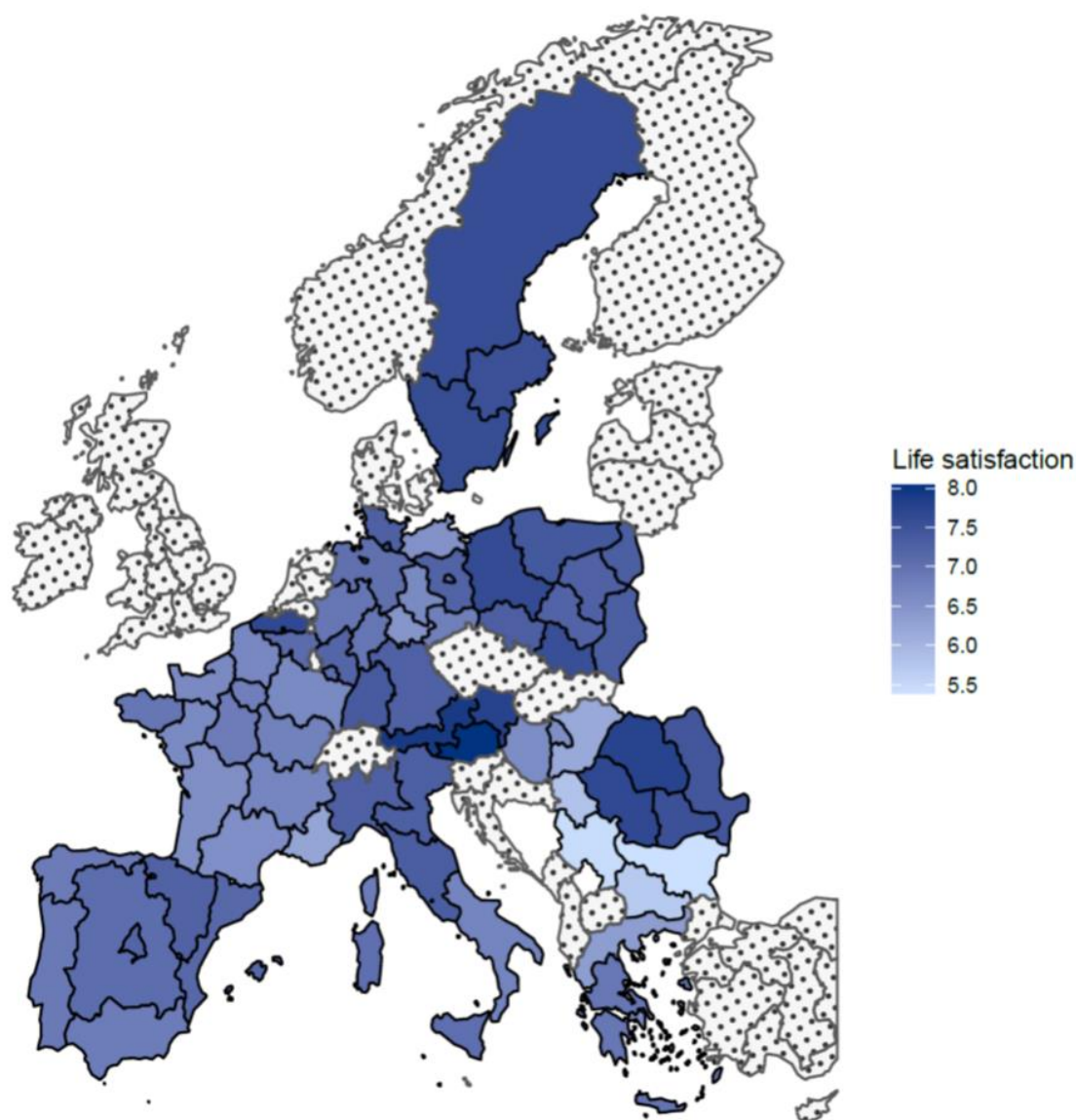
*Figure 2. Regional variation in poverty rates among 50-64-year-olds*



Notes: Focus on 14 countries with NUTS 1 regions. For full country sample, see Table 3 (Section 4.1.1) Weighted results.

Figure 3 illustrates the regional variations in average life satisfaction. Variations within countries are generally more moderate than those between countries. There are some notable differences within certain countries such as Germany, where the average life satisfaction of older working age people varies within 1 point between some regions.

*Figure 3. Regional variation in life satisfaction among 50-64-year-olds*



Notes: Focus on 14 countries with NUTS 1 regions. For full country sample, see Table 3 (Section 4.1.1). Weighted results.

Overall, the findings (see more Table A. 1 in Appendix A) highlight considerable regional variation, both between and within countries. The following sections explore possible explanations for these variations, focusing on the contributions of compositional differences and contextual factors.



## 4.2. The role of socio-demographic and socio-economic characteristics in late careers

Table 4 and Table 5 show the results of the multilevel regressions of the six late career outcome variables on the socio-demographic and socio-economic profile variables. Table 4 focuses on labour market attachment and status and Table 5 on disposable income, poverty and life satisfaction. These estimates are to be interpreted as average associations across our pooled sample of 27 countries in the two-level models (depicted in Table 4 and Table 5) and of 75 regions across 14 countries in the three-level models (presented in the Appendix B, Table B. 1 and Table B. 2). Notably, the coefficient estimates are largely similar across both regional level specification, highlighting the general relevance of the factors considered across different regions.

Starting with the labour market attachment of older adults, the results presented in Table 4 closely align with earlier findings indicating that *education* plays an important role in labour market attachment also for older workers: intermediate and higher educated workers are significantly less likely to be unemployed or in non-employment and in a considerably higher average ISEI level compared to their less-educated counterparts. This effect stands even when controlling for other characteristics, such as health, gender, age and migration background. Also, the effect of health on labour market attachment is as expected – the poorer the health, the more likely are older adults in unemployment or non-employment, and the less likely they are in a higher ISEI level.

Family composition is also significantly associated with all three labour market attachment outcomes. Those living alone are more likely in unemployment or non-employment or significantly lower ISEI level compared to couples without children. The latter may indicate though a selection effect, meaning it is not random who is single in their 50s and 60s in relation to their labour market and income situation. Couples with children are, in turn, less likely to be in unemployment or non-employment, whereas they do not differ from couples without children in terms of labour market position (measured in ISEI).

Regarding the effect of socio-demographic characteristics, we observe also gender differences: men are less likely to be unemployed or in non-employment, while they have a significantly lower mean ISEI score compared to women. The impact of age varies: the unemployment risk tends to increase with age, so does the non-activity risk. At the same time, the mean ISEI score for oldest age group here is significantly higher compared to the 50-54 age group, which may indicate the ‘career effect’ – older workers who have managed to remain in the labour market have been able to maintain their status.

Having a migration background increases the likelihood of being unemployed or in non-employment, while ‘reduces’ the ISEI score for older workers. Degree of urbanisation shows some mixed findings, indicating lower unemployment risk in rural areas and higher non-employment risks in towns and suburbs compared to those living in cities.

Table 4. Two-level regressions of labour market integration on socio-demographic and socio-economic profile characteristics

	Unemployment	Nonemployment	ISEI (score points)	
	(AME)	(AME)	(1)	(2)
<b>Educational attainment</b> (ref: less-educated)				
Intermediate-educated	-0.056***	-0.100***	9.233***	9.045***
	(0.005)	(0.005)	(0.134)	(0.134)
Tertiary-educated	-0.118***	-0.216***	33.174***	32.791***
	(0.008)	(0.006)	(0.148)	(0.149)
<b>Health status</b> (ref.: very good)				
Good	0.023***	0.035***	-1.505***	-1.443***
	(0.005)	(0.006)	(0.146)	(0.146)
Fair	0.069***	0.148***	-4.093***	-3.817***
	(0.007)	(0.006)	(0.163)	(0.164)
(Very) poor	0.155***	0.393***	-5.465***	-4.749***
	(0.011)	(0.008)	(0.208)	(0.213)
<b>Family composition</b> (ref.: couples without children)				
Couples with children	-0.013**	-0.042***	-0.058	-0.119
	(0.004)	(0.005)	(0.121)	(0.121)
Unpartnered with dependent	0.025***	0.001	-1.310***	-1.262***
	(0.005)	(0.006)	(0.173)	(0.173)
Living alone	0.057***	0.036***	-0.697***	-0.576***
	(0.005)	(0.005)	(0.139)	(0.139)
<b>Gender</b> (ref.: Women): Men	-0.009**	-0.115***	-0.712***	-0.814***
	(0.003)	(0.004)	(0.096)	(0.096)
<b>Age</b> (ref.: 50-54)				
55-59	0.001	0.048***	0.539***	0.591***
	(0.003)	(0.004)	(0.116)	(0.116)
60-64	0.020***	0.253***	0.921***	1.288***
	(0.004)	(0.005)	(0.122)	(0.128)
<b>Migration background</b> (ref.: no): Yes	0.047***	0.037***	-5.012***	-4.903***
	(0.005)	(0.005)	(0.154)	(0.154)
<b>Residential area</b> (ref.: cities)				
Towns and suburbs	-0.002	0.009+	-2.238***	-2.230***
	(0.004)	(0.005)	(0.124)	(0.124)
Rural areas	-0.011**	0.005	-4.234***	-4.253***
	(0.004)	(0.004)	-2.238***	(0.120)
<b>Employment status</b> (ref.: employed)				
Unemployed				-3.518***
				(0.190)
Inactive				-1.382***
				(0.129)
(Intercept)	-8.846**	-4.845	47.227**	26.237+
	(3.370)	(3.295)	(16.981)	(15.118)
Number of observations	85968	119509	112066	112066
AIC	25318.9	60346.6	970401.1	969997.8
BIC	25599.8	60637.3	970699.6	970334.8
ICC	0.1	0.0	0.0	0.0

Notes: + p < 0.1, \* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001.

With regard to income and poverty, Table 5 again shows that educational attainment is an important factor. Higher levels of educational attainment are positively associated with higher disposable income and thus with a lower risk of poverty. Part of this educational effect is mediated by employment status (see Models 2): unemployed older worker face significantly higher risk of low income and poverty, whereas those in inactivity face a somewhat lower, but still a significantly high risk as well, compared to those employed, while the effect of education is somewhat reduced from Models 1 to Models 2. But even beyond its role in influencing employment status and also health, educational attainment remains an important factor on its own. *Health* is also associated with lower disposable income and higher poverty risk, partly transmitted through older adults' employment status.

Family composition and economic situation are strongly related: those living alone have lowest average disposable income and highest poverty risk, closely followed by unpartnered adults living with dependents. Couples with children tend to have less disposable income than couples without children, but it does not translate into significant higher risk of poverty.

Gender also does appear to play a role in determining income security even when differences in education and living arrangements are taken into account. Men are more likely facing poverty, even when controlling for employment status. There are no significant gender differences in disposable income, unless employment status is controlled. Also, age shows some impact: disposable income is higher for older age groups, whereas poverty risk is lower (after controlling for other individual and compositional characteristics). Older adults with a migration background are found to have lower average disposable incomes and a higher risk of poverty, even after controlling for differences in educational attainment and employment status.

Finally, older adults living in rural areas or in towns/suburbs compared to cities have a lower average disposable income and a higher risk of poverty. This does not seem to be due to lower employment rates (the size of the coefficient remains largely unchanged in Models 2), but rather to poorer opportunities for higher status jobs (see Table 4 above, ISEI models).

As for life satisfaction, Table 5 shows that higher educational attainment is associated with higher life satisfaction, partly mediated by labour market success (see comparison of education effects in Models 1 and 2). Next to education health seems to be an important predictor for life-satisfaction – the worse the health, the lower the life-satisfaction –, which has a significant direct relationship, that is, independent of any indirect effects, such as through labour market situation and income.

Table 5. Two-level regressions of income security and life satisfaction on socio-demographic and socio-economic profile characteristics

	Log yearly equivalent disposable income (€)		Poverty (AME)		Life satisfaction (rating points)	
	(1)	(2)	(1)	(2)	(1)	(2)
<b>Educational attainment</b> (ref: less-educated)						
Intermediate-educated	0.247***	0.210***	-0.092***	-0.075***	0.234***	0.093***
	(0.005)	(0.004)	(0.004)	(0.004)	(0.015)	(0.015)
Tertiary-educated	0.537***	0.466***	-0.168***	-0.131***	0.511***	0.231***
	(0.005)	(0.005)	(0.006)	(0.005)	(0.016)	(0.017)
<b>Health status</b> (ref.: very good)						
Good	-0.062***	-0.051***	0.019***	0.012*	-0.524***	-0.493***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.016)	(0.016)
Fair	-0.164***	-0.119***	0.065***	0.038***	-1.295***	-1.201***
	(0.006)	(0.006)	(0.006)	(0.005)	(0.018)	(0.018)
(Very) poor	-0.297***	-0.182***	0.122***	0.063***	-2.573***	-2.399***
	(0.007)	(0.007)	(0.007)	(0.006)	(0.023)	(0.023)
<b>Family composition</b> (ref.: couples without children)						
Couples with children	-0.047***	-0.056***	-0.003	0.002	-0.041**	-0.031*
	(0.004)	(0.004)	(0.004)	(0.004)	(0.014)	(0.013)
Unpartnered with dependent	-0.197***	-0.190***	0.053***	0.048***	-0.557***	-0.464***
	(0.006)	(0.006)	(0.005)	(0.005)	(0.019)	(0.019)
Living alone	-0.326***	-0.310***	0.142***	0.132***	-0.568***	-0.400***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.015)	(0.015)
<b>Gender</b> (ref.: Women): Men	0.003	-0.022***	0.005+	0.017***	-0.049***	-0.047***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.011)	(0.011)
<b>Age</b> (ref.: 50-54)						
55-59	0.048***	0.056***	-0.011**	-0.016***	0.049***	0.028*
	(0.004)	(0.004)	(0.004)	(0.003)	(0.013)	(0.013)
60-64	0.029***	0.089***	-0.008*	-0.034***	0.161***	0.145***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.014)	(0.014)
<b>Migration background</b>	-0.196***	-0.177***	0.084***	0.075***	-0.137***	-0.027
(ref.: no): Yes	(0.005)	(0.005)	(0.004)	(0.004)	(0.017)	(0.017)
<b>Residential area</b> (ref.: cities)						
Towns and suburbs	-0.051***	-0.050***	0.005	0.005	0.020	0.036**
	(0.004)	(0.004)	(0.004)	(0.004)	(0.014)	(0.014)
Rural areas	-0.116***	-0.117***	0.037***	0.038***	0.043**	0.083***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.014)	(0.013)
<b>Employment status</b> (ref.: employed)						
Unemployed		-0.509***		0.201***		-0.709***
		(0.006)		(0.006)		(0.021)
Inactive		-0.238***		0.115***		-0.046***
		(0.004)		(0.004)		(0.014)
<b>Log. equalised disposable income</b>						0.375***
						(0.012)
<b>Poverty</b> (ref.: no): Yes						-0.092***
						(0.020)
(Intercept)	6.044	3.971	2.076	4.548*	8.437+	-1.259

	Log yearly equivalent disposable income (€)		Poverty (AME)		Life satisfaction (rating points)	
	(1)	(2)	(1)	(2)	(1)	(2)
	(4.447)	(3.796)	(2.467)	(1.992)	(4.612)	(6.673)
Number of observations	118973	118972	119510	119509	108989	108470
AIC	243305.7	235742.9	44852.2	42261.5	462363.3	455860.7
BIC	243606.0	236081.9	45142.9	42591.0	462660.9	456234.9
ICC	0.4	0.3	0.0	0.0	0.1	0.1

Notes: + p < 0.1, \* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001.

*Family composition* is also associated with older people's life satisfaction – those living alone or those unpartnered with a dependent have on average considerably (and significantly) lower life satisfaction compared to couples with children.

*Gender* also seems to be associated with life-satisfaction: for men, the average life-satisfaction is significantly lower compared to women, even when controlling for employment, income and poverty risk (Models 1 and 2).

*Age* is significantly positively associated with life satisfaction – older age groups have on average higher life-satisfaction compared to younger age groups, even after controlling for differences in family composition, employment, disposable income, and poverty risk – confirming the overall age U-shaped distribution of life satisfaction found in research (Galambos et al., 2020). Satisfaction is also lower for older adults with *migration backgrounds*, partly due to differences in employment status and poverty risk (see comparison of migration coefficients in Models 1 and 2).

Furthermore, older adults *living in rural or suburban areas* are slightly more satisfied than those living in urban areas – although it should be noted that this is the case especially when controlling for employment status, income and poverty risk.

Finally, and importantly, we find substantial negative associations with *unemployment, inactivity, and poverty risks*, and positively with older adults' *disposable income* (see Model 2). Unemployed and inactive older adults are less satisfied with their life than those who are employed, and poor are less satisfied than those with more income resources.

These findings point to the importance of addressing educational and health inequalities among older adults, as well as labour market attachment and reducing income insecurity, to reduce inequalities in their life satisfaction.

We also conducted these analyses for 2018 to rule out the possibility that these results were driven by the COVID-19 pandemic. The results are presented in the Appendix C (Table C 5 and Table C 6). The results for 2018 are very similar to those for 2021.

In summary, the results of the analyses presented in this section highlight the importance of educational attainment, health, and family situation for older adults' labour market attachment, income, and life satisfaction. Thus, in answer to research question 1 of this report, we find that differences in late career outcomes and well-being (life satisfaction) are related not only to standard demographic characteristics (such as gender, age, migration background) and educational attainment, but also health status and other life domains (such as partnership).

### 4.3. Explanations for regional differences

The aim of this section is to explain regional differences in older adults' labour market attachment and related outcomes. Descriptive statistics indicate the prevalence of compositional differences in individual-level predictors, both between and within countries (see Appendix A, Table A. 2 and Table A. 3). Section 4.3.1 therefore examines whether these compositional differences partly explain regional variations in the six late career outcomes (research question 2). Section 4.3.2 looks at the role of additional contextual factors (beyond compositional differences) for regional variations (research question 3).

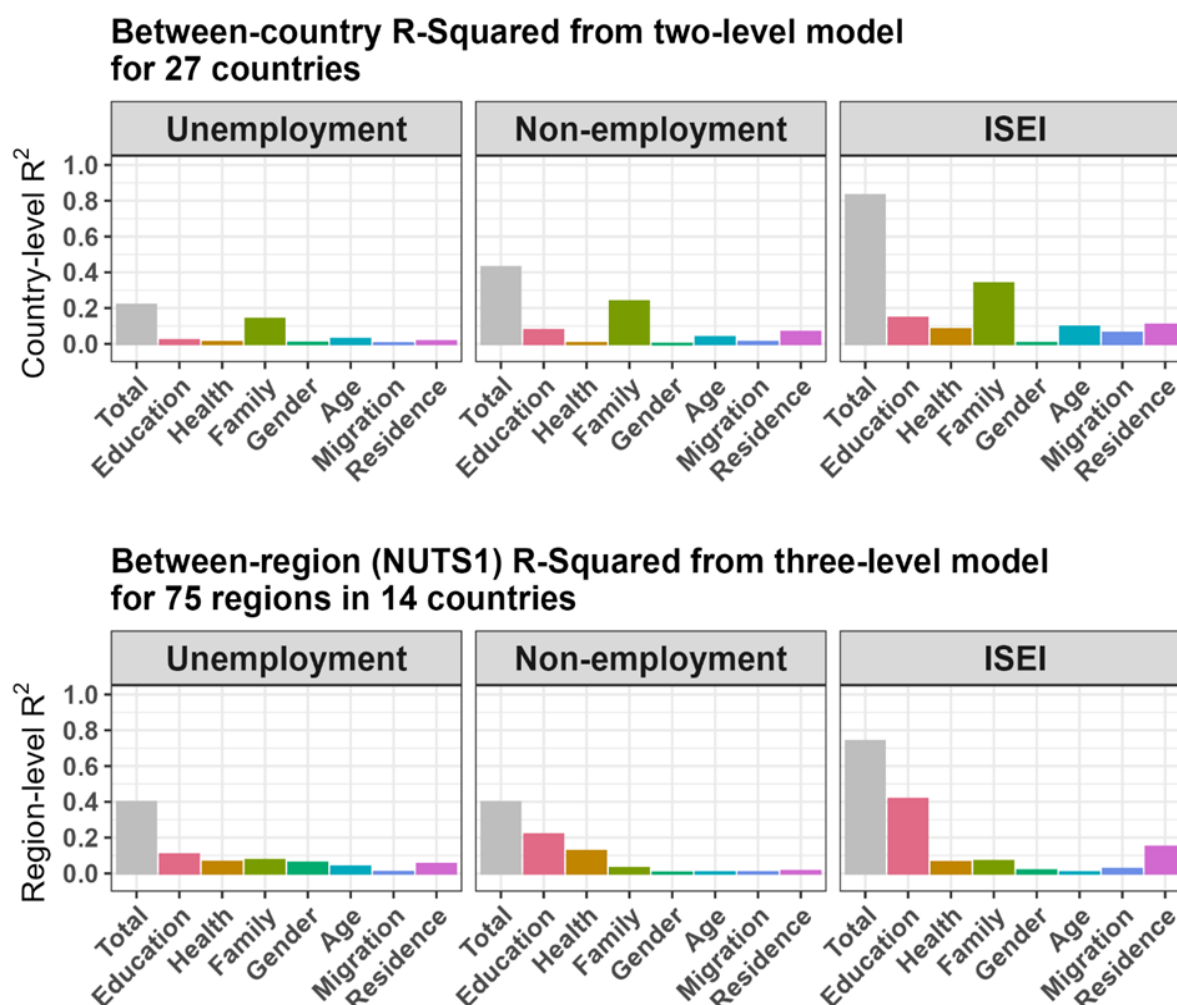
#### 4.3.1. The role of compositional differences

**Error! Reference source not found.** (labour market outcomes) and Figure 5 (income in/security and life satisfaction) show decomposition results for the between-country and between-region (NUTS1)  $R^2$ . It is important to recall from Section 4 that these decomposition results are based on different country samples and models: country-level results (shown in the upper halves of the figures) are based on two-level models for the full sample of 27 countries, whereas regional-level results (shown in the lower halves of the figures) are based on 75 regions in the 14 countries that provide information on respondent's region of residence. While our approach to estimating explained variance at the country level could, in principle, be applied also to this latter sample of only 14 countries, this is not possible in the present case where we are interested in 16 variables capturing compositional differences (i.e., the country means of older adults' socio-demographic and socio-economic profiles capturing educational attainment, health, household composition, gender, age, migration background, and urban residence). Obviously, 16 country means are a large number of predictors even for the 27-country sample, so while these models are estimable, they likely suffer from some overfitting, and the absolute levels of the  $R^2$  estimates should be taken with a grain of salt.

That said, the decompositions reveal some noteworthy patterns. For older adults' labour market outcomes in **Error! Reference source not found.**, the first general result is that a substantial portion of both between-country and between-region variation can be attributed to compositional differences even if one allows for substantial overfitting in the country-level analysis. The overall  $R^2$  values range from around 20% for unemployment at the country level to over 80% for the ISEI at the regional level. Interestingly, family composition (incl. whether respondents live with a couple and/or have dependents/children in household) and, to a lesser extent, education seem to be the most important factors shaping cross-national variation in labour market attainment in older age, whereas variation across regions within countries is primarily attributable to educational composition, and in the case of the non-employment to health and in the case of the ISEI, also to urbanisation/place of residence (i.e., the share of respondents living in cities), reflecting the fact that high-status occupations tend to be concentrated in urban centres. (For contextualization of Shapley decomposition findings on Figure 4 see Appendix D Table D. 1 and Table D. 2).



Figure 4. Decompositions of regional variations in labour market outcomes



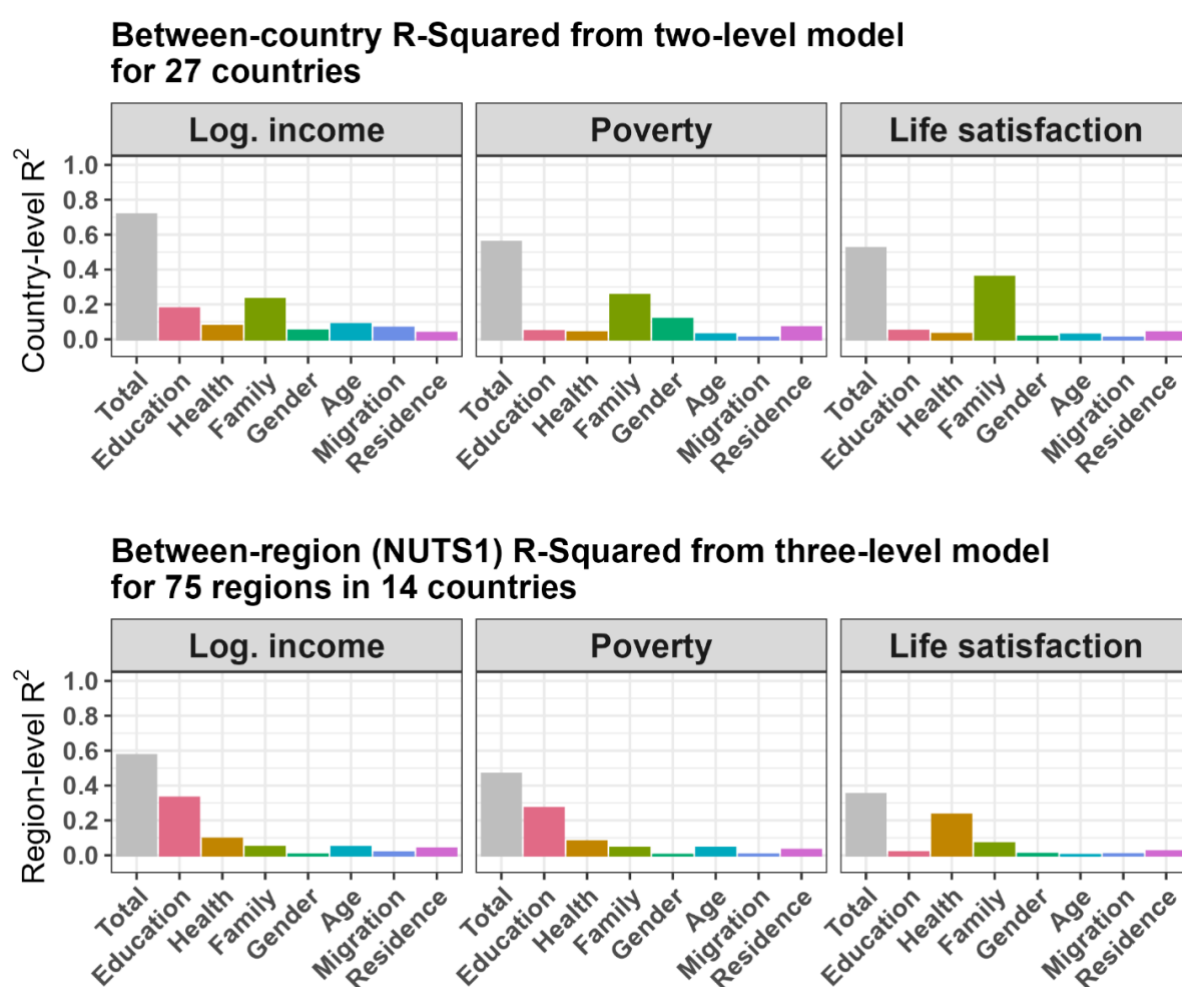
Note: Weighted results.

Turning to economic in/security and life satisfaction in Figure 5, there are some parallels to Figure 4 in that total explained variation tends to be quite substantial and, in some cases, even very high, now ranging between almost 40% for between-region variation in life satisfaction to over 70% for between-country (logged) disposable income. There are also some similarities when it comes to the importance of different profile characteristics. At the country level, family composition emerges also here as the most relevant one. For the level of disposable income, we also find important roles of country-average education. Turning to regional differences, educational composition emerges as the most important factors (income and poverty), while health and family composition being the only additional variables that account for more than a small portion of regional variation in at least one case. (For contextualization of Shapley decomposition findings on Figure 5 see Appendix D Table D. 3 and Table D. 4).

Taken together, these results provide interesting and novel insights into the compositional factors associated with cross-country and cross-regional variation in the labour market, economic security and well-being outcomes of older adults – with family composition being the most important factor “explaining” cross-country variation in both types of outcomes

and educational composition playing the biggest role for within-country variation across regions. However, these findings clearly need to be interpreted carefully: First, because they are the “remaining” contributions controlled for all these other variables. For example, educational attainment and gender are important, but part of their total contribution is mediated by differences in health or family composition, respectively. Second, in part because the decompositions are of a purely associational, non-causal nature. For example, the higher levels of education in regions with better labour market outcomes will partly be a consequence of higher-educated adults migrating to these regions (where their skills are in demand) – and not of higher-educated workers moving to or trained in these regions generating this kind of demand as well as associated changes in the occupational structure and levels of pay.

Figure 5. Decompositions of regional variations in income security and life satisfaction



Note: Weighted results.

We find similar decomposition results for 2018 (instead of 2021) (see Appendix C, Figure C. 1 and Figure C. 2). Still, in 2018, health seems to have been playing a slightly more important role compared to 2021, especially regarding labour market attachment and position, both for between-country as well for between-region variation, Germany and its 16 regions had to be removed from the analysis due to the non-availability of key measures in this wave of EU-SILC. Despite this difference in the underlying sample and the marked



change in contextual conditions between (pre- pandemic) 2018 and (pandemic) 2021, results are relatively similar across the two time points. In particular, the same factors consistently emerge as the main compositional correlates of labour market and well-being outcomes at both the national and subnational levels.

#### **4.3.2. The role of contextual factors**

We now explore the role of additional contextual factors (beyond compositional differences) in shaping both between-country and within-country regional variations in late careers, income in/security, and ultimately, life satisfaction to address research question 3. We begin with results from two-level models regarding between-country variation (Section 4.3.2.1), and then present results from three-level models to examine within-country regional variation (Section 4.3.2.2).

##### **4.3.2.1. Differences between countries**

###### **Labour market attachment**

The results for cross-national variation in older adults' labour market attachment are presented in Table 6. Accounting for individual-level characteristics, educational factors such as public spending on tertiary education, share of low- or high-educated population, and educational gap between younger and older age groups are not associated with labour market attachment outcomes of older workers.

Somewhat more pronounced associations between labour market attachment outcomes and structural factors can be observed in case of labour market factors. Higher general employment rate associates with significantly lower non-activity rate (but not unemployment rate) among older working-age population, suggesting that late career drop-out from labour market is associated (also) with inactivity. From sectoral employment, higher share in employment in large-scale engineering sector relates with lower non-employment levels among older workers, which seems to be also mostly inactivity-driven process. Higher share of labour force in primary sector in country associates with lower average ISEI score for older workers, suggesting that many elderly workers are (still) occupied in these sectors. Higher share of employment in large firms (50+ workers) associates with higher non-employment risk among older workers – gain seemingly inactivity-related association. Somewhat surprisingly, employment protection legislation level does not have any significant association with labour market attachment of older workers in these models.

Economic conditions have an effect on labour market participation of older adults. Older adults in countries with higher GDP per capita have on average higher ISEI score, which may indicate partly the occupational structure/needs of this type of economies. In countries with higher general unemployment rate also the unemployment risk of older adults is higher. The same association can be observed for non-employment risk, which includes the risk for being either inactive or unemployed. Higher income inequality seems to have a negative association with late career workers' unemployment risk. At the same time, higher shares of young adults relative to those aged 50–64 do not seem to increase labour market exclusion risks for older workers.

Finally, as regards family and health care factors, in countries with higher long-term care expenditures older workers are less likely in non-employment (which, in turn, is associated with inactivity). At the same time, higher levels of public expenditure on health care associates with higher nonemployment rates for older working-aged adults, as well with higher average ISEI score. The latter may, again, be an indicator of certain types of economies and respectively occupational structure. Other factors indicated in these models show no significant association with the selected late career outcomes.



Table 6. Two-level regressions of labour market attachment on national contextual factors

	Unemployment (AME)				Non-employment (AME)				ISEI scores			
	Education system	Labour market	Economy	Care	Education system	Labour market	Economy	Care	Education system	Labour market	Economy	Care
<i>Individual-level predictors included</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Public spending on tertiary education (PPS mil)	-0.008 (0.012)				0.000 (0.016)				0.614 (0.583)			
% ISCED 5+	0.002 (0.012)				-0.015 (0.017)				0.546 (0.615)			
% ISCED 0–2	-0.003 (0.013)				0.001 (0.017)				1.003 (0.636)			
Tertiary gap 15–29 vs 55–64 (in % points)	-0.009 (0.013)				0.018 (0.017)				0.661 (0.639)			
Employment rate (%)		-0.016 (0.014)				-0.047** (0.015)				-0.420 (0.748)		
% employment in primary sector		-0.006 (0.014)				0.023 (0.015)				-2.092** (0.723)		
% employment in large-scale engineering sector		0.005 (0.011)				-0.030* (0.012)				-0.276 (0.597)		
% employment in large firms (>50 employees)		-0.019+ (0.011)				0.023+ (0.012)				0.373 (0.585)		
EPL		-0.003 (0.012)				-0.004 (0.013)				-0.509 (0.629)		
GDP per capita (€)			-0.014 (0.009)				0.009 (0.016)				1.639** (0.596)	
Income inequality (P80/P20)			-0.018+ (0.010)				0.001 (0.018)				-0.485 (0.669)	
Unemployment rate (%)			0.042*** (0.009)				0.036* (0.015)				-0.261 (0.559)	
Age ratio: 15–29/50–64			-0.009 (0.010)				0.005 (0.018)				-0.350 (0.652)	
% 0–2 childcare				0.004 (0.009)				0.004 (0.019)				0.384 (0.588)
LTC (% GDP)				0.004 (0.015)				-0.052+ (0.032)				-0.243 (1.008)
Public spending on healthcare per inhabitant (€)				-0.020 (0.015)				0.043 (0.032)				2.159* (1.016)
				0.021*				0.009				0.159

Num. of physicians per 100 000 inhabitants				(0.008)				(0.018)				(0.572)
Median age				-0.009				-0.011				0.655
				(0.010)				(0.022)				(0.703)
(Intercept)	-	-	-	-	-	-	-	-	33.015***	33.412***	33.028***	33.427***
	2.344***	2.425***	2.352***	2.400***	0.966***	0.982***	0.965***	1.150***				
	(0.151)	(0.138)	(0.119)	(0.129)	(0.098)	(0.074)	(0.093)	(0.112)	(0.595)	(0.533)	(0.561)	(0.603)
Num. of observations	85968	79176	85968	71987	119509	110431	119509	98642	112066	103670	112066	93048
AIC	25323.1	22105.4	25302.9	20449.9	60357.7	54659.5	60354.1	49589.0	970114.5	897606.8	970111.1	811107.0
BIC	25510.3	22300.3	25490.1	20642.8	60551.5	54861.4	60548.0	49788.5	970335.9	897836.0	970332.5	811333.5
ICC	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Notes: + p < 0.1, \* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001; w/o without. For binary dependent variables, AME reported. For individual-level predictors included see Table 1. Weighted results.



### *Income in/security*

Table 7 shows the results for differences between countries in older adults' income in/security. Here educational spending and educational distribution seem to have some role to play. Both the higher spending on tertiary education and higher share of tertiary educated people relates with higher disposable income levels of older people. At the same time, higher share of tertiary educated population relates with lower poverty risk. Somewhat surprisingly, higher proportions of less-educated adults seem to be also associated with higher income. Again, this finding should be interpreted with caution as the models control for the strong negative associations between low levels of educational attainment and labour market integration at the individual level.

Regarding labour market conditions, both higher employment shares in the traditional primary and large-scale engineering sectors are associated with lower levels of disposable income among older adults.<sup>12</sup> As for poverty, higher share of employment in primary sector, but also higher share of employment in large firms increases the poverty risk for older adults. At the same time, general employment rate seems not to be related to income or poverty levels of older adults in this context.

National economic conditions also influence older adults' income in/security. As expected, higher GDP per capita is associated with higher levels of disposable income, but also lower levels of poverty among older adults. Older adults tend to face lower disposable income and higher poverty risks in countries with higher income inequality.

Regarding (family and health) care conditions, there is a positive association of health expenditure with disposable income and a corresponding negative association with poverty (which remain stable even after adjusting for GDP per capita). It is also worth noting that the share of very young children in external childcare is positively associated with disposable income.

### *Life satisfaction*

Looking at the variation in life satisfaction between countries, Table 7 shows that none of the contextual indicators considered are associated with levels of life satisfaction beyond their impact on individual-level characteristics of older adults.

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<sup>12</sup> This relationship persists even after controlling for differences in GDP per capita.

Table 7. Two-level regressions of income security and life satisfaction on national contextual factors

	Equivalised disposable income				Poverty (AME)				Life satisfaction			
	Education system	Labour market	Economy	Care	Education system	Labour market	Economy	Care	Education system	Labour market	Economy	Care
<i>Individual-level predictors included</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Education</b>												
Public spending on tertiary education (PPS mil)	0.214* (0.097)				-0.003 (0.008)				-0.014 (0.096)			
% ISCED 0-2	0.195+ (0.105)				0.002 (0.009)				-0.026 (0.105)			
% ISCED 5+	0.532*** (0.101)				-0.015+ (0.009)				-0.027 (0.101)			
Tertiary gap 15-29 vs 55-64 (in % points)	-0.025 (0.105)				-0.002 (0.009)				-0.066 (0.105)			
<b>Labour markets</b>												
Employment rate (%)		0.074 (0.113)				-0.007 (0.009)				0.186 (0.145)		
% employment in primary sector		-0.339** (0.109)				0.032*** (0.008)				0.184 (0.140)		
% employment in large- scale engineering sector		-0.360*** (0.090)				-0.004 (0.007)				-0.001 (0.116)		
% employment in large firms (>50 employees)		-0.017 (0.088)				0.012+ (0.007)				0.043 (0.113)		
EPL		0.046 (0.095)				0.003 (0.007)				0.141 (0.122)		
<b>Economy</b>												
GDP per capita (€)			0.562*** (0.081)				-0.011* (0.006)				0.017 (0.098)	
Income inequality (P80/P20)			-0.170+ (0.092)				0.027*** (0.006)				-0.158 (0.110)	
Unemployment rate (%)			0.066 (0.077)				0.003 (0.005)				-0.072 (0.092)	
Age ratio: 15-29/50-64			-0.029 (0.089)				-0.003 (0.006)				-0.170 (0.107)	



# Decomposition of between and within- country (regional) differences in the labour market attachment and earnings in late career

<b>Care systems</b>												
% 0–2 childcare				0.117*				0.002				0.002
				(0.046)				(0.009)				(0.094)
LTC (% GDP)				-0.046				-0.014				0.113
				(0.079)				(0.015)				(0.161)
Public spending on healthcare per inhabitant (€)				0.579***				-0.011				-0.102
				(0.079)				(0.015)				(0.163)
Num. of physicians per 100 000 inhabitants				-0.033				-0.002				0.008
				(0.045)				(0.008)				(0.092)
Median age				0.009				0.013				-0.010
				(0.055)				(0.010)				(0.113)
(Intercept)	9.690***	9.732***	9.691***	9.744***	-2.491***	-2.529***	-2.505***	-2.642***	4.233***	4.334***	4.241***	4.408***
	(0.092)	(0.073)	(0.071)	(0.044)	(0.093)	(0.082)	(0.075)	(0.101)	(0.149)	(0.155)	(0.146)	(0.159)
Num. of observations	118972	109912	118972	98182	119509	110431	119509	98642	108470	99637	108470	87889
AIC	235804.7	217970.5	235793.0	193278.0	42276.6	38158.7	42249.9	34575.7	455922.8	418303.8	455919.3	369505.9
BIC	236027.5	218201.1	236015.8	193505.9	42489.8	38379.8	42463.1	34794.2	456162.7	418551.1	456159.1	369749.9
ICC	0.5	0.4	0.4	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1

Notes: +  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ ; w/o without. For binary dependent variables, AME reported. For individual-level predictors included see **Error! Reference source not found..** Weighted results.

#### 4.3.2.2. *Regional differences within countries*

This section looks at regional variations within countries and asks whether regional differences in contextual factors are related to variations in young adults' labour market attainment within countries. Table 8 and Table 9 present results from three-level regression models, focusing on coefficient estimates for NUTS 1 level deviations from national averages. These estimates provide insights into how regional contextual conditions, relative to the national average, are correlated with our six STWT outcome variables. It should be noted that, due to data availability, the analyses now only cover 14 countries.

##### *Labour market attachment*

Table 8 reveals some significant associations between regional variations in the education system and the labour market attachment of older adults within countries, more precisely their labour market position (measured by ISEI). Regions with higher share of tertiary educated people relate with higher mean score in ISEI for older adults. Surprisingly, same association can be found regarding the share of low-educated population, which also associates with higher mean ISEI scores for older workers.

Regional differences in the labour market are notably linked to labour market outcomes. Higher general employment rate relates to lower unemployment and non-employment rate for late career. Higher employment shares in the primary sector are associated with slightly lower non-activity risks and lower occupational status, suggesting age-segregated employment in primary sector on the one hand and limited opportunities for upward mobility in these regions on the other hand.

As regards economic conditions, our analysis suggests that unemployment and non-employment risks are higher for older workers in regions with above average unemployment rates for the total adult population. At the same time, higher general region unemployment rate relates to lower mean ISEI score for older adults. Mean ISEI score for late career workers associates positively also with the age ratio between younger (15-29 years old) and older (50-64 years old) adults. The latter may indicate the still somewhat stronger labour market position for older adults especially in a situation of bigger labour market entry cohorts.

Regional variations in care-related factors do not seem to play a key role in the labour market attachment of older adults. Most notably, there is a negative association between median age for demand in health care services and occupational position (ISEI scores) of older adults.

Table 8. Three-level regressions of labour market integration on regional contextual factors

	Unemployment (AME)				Nonemployment (AME)				ISEI scores			
	Education system	Labour market	Economy	Care	Education system	Labour market	Economy	Care	Education system	Labour market	Economy	Care
Individual-level predictors included	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Resp. national-level indicators incl.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Education system</b>												
% ISCED 0–2	0.004 (0.005)				0.009 (0.006)				0.815*** (0.219)			
% ISCED 5+	-0.004 (0.005)				-0.008 (0.006)				1.066*** (0.211)			
<b>Labour markets</b>												
Employment rate (%)		-0.015*** (0.004)				-0.030*** (0.005)				0.014 (0.241)		
% employment in primary sector		0.000 (0.003)				-0.009* (0.004)				-0.487* (0.216)		
% employment in large-scale engineering sector		-0.005 (0.004)				0.000 (0.005)				-0.014 (0.249)		
<b>Economy</b>												
GDP per capita (€)			-0.002 (0.005)				-0.009 (0.007)				0.261 (0.269)	
Unemployment rate (%)			0.021*** (0.004)				0.021*** (0.006)				-0.400+ (0.217)	
Age ratio: 15–29/50–64			-0.006 (0.005)				-0.001 (0.008)				0.892** (0.293)	
<b>Care system</b>												
Conservative gender role attitudes				0.003 (0.005)				0.008 (0.006)				-0.091 (0.192)
Num. of physicians per 100 000 inhabitants				0.000 (0.006)				0.006 (0.007)				0.192 (0.214)
Median age				-0.009 (0.007)				0.001 (0.008)				-0.444+ (0.257)
(Intercept)	-2.302*** (0.220)	-2.472*** (0.158)	-2.475*** (0.182)	-2.268*** (0.236)	-0.818*** (0.147)	-0.974*** (0.103)	-0.926*** (0.134)	-0.711*** (0.144)	31.775*** (0.921)	32.592*** (0.781)	32.753*** (0.791)	31.199*** (0.875)
Number of observations	58135	55648	58135	46828	81576	78083	81576	66672	75641	72638	75641	61391
AIC	18635.8	16733.3	18592.9	14361.0	44422.1	41821.7	44404.2	32903.1	647551.8	622981.9	647544.4	525953.8
BIC	18824.2	16938.6	18799.2	14562.4	44617.6	42034.8	44618.3	33112.6	647773.5	623220.9	647784.5	526188.4
ICC	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.1

Notes: 14 countries (see Section 4.1). +  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ . For binary dependent variables, AME reported. For individual-level predictors included see Table 1 and for national-level contextual predictors see Table 2.

### *Income in/security*

Table 9 presents the results for regional variation in income in/security for older adults. Regarding the educational distribution, older adults have higher disposable incomes in regions with higher educational attainment than the national average.

Concerning the labour market conditions, variations in overall employment rates again emerge as an influential contextual factor for older adults' disposable income and poverty risks: older adults experience higher economic security and lower poverty risks in regions with above-average overall employment rates. In addition, regional disparities in employment shares within different economic sectors are significantly associated with income levels: higher employment shares in the traditional primary sector are associated with lower average disposable incomes and higher poverty risk for older adults; conversely, above-average employment in large- scale engineering sectors is positively correlated with disposable income and negatively related to poverty risk of older adults. This latter finding contrasts somewhat with the association at the national level (see Section 4.3.2.1), which may be due to specific regional industrial policies or labour market conditions, or to differences in the (number of) countries included in the analyses, which warrant further investigation.

Regional economic performance is also significantly related to income security. Older adults have higher disposable incomes in regions with higher GDP per capita, while they have higher poverty risks and lower incomes in regions with higher overall unemployment. These findings highlight how macroeconomic conditions at the regional level directly influence the financial well-being of older adults. For the care domain, we find no significant associations beyond the national level.

### *Life satisfaction*

The results presented in Table 9 show also some significant associations regarding regional variation in macro-indicators and life-satisfaction of older adults. Life satisfaction among older adults is lower in more affluent regions (as indicated by higher GDP), but also in regions with higher general unemployment levels, indicating the importance of regional economic conditions for the well-being of older adults. Also, the age ratio of 15-29-year-olds to 50-64-year-olds seems to have an impact: where the share is higher, life-satisfaction of older adults also tends to be higher.

Regarding health and care factors, higher number of physicians per 100 000 inhabitants in the region has a negative association with life-satisfaction level of older adults.

In concluding Section 4.3.2, educational system and educational distribution (higher share of higher educated people), country's economic structure with innovative industries, good overall employment levels, good childcare provision and higher health expenditure provide favourable contextual factors for late career outcomes, over and above their impact at the individual level. Characteristics of favourable regions within countries are again high(er) educational attainment and good overall employment levels. The analysis also underlines that variations in older adults' life satisfaction are to be associated rather with structural factors on regional than national levels. Importantly, the analyses for 2018 presented in Appendix C (Table C. 7 and Table C. 8) show very similar results.

Table 9. Three-level regressions of income security and life satisfaction on regional contextual factors

	Equivalised disposable income				Poverty				Life satisfaction			
	Education system	Labour market	Economy	Care	Education system	Labour market	Economy	Care	Education system	Labour market	Economy	Care
<i>Individual-level predictors included</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Respective national-level indicators included</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Education system</b>												
% ISCED 5+	0.043** (0.013)				-0.009 (0.007)				0.005 (0.025)			
% ISCED 0–2	-0.007 (0.014)				0.008 (0.006)				0.046+ (0.026)			
<b>Labour markets</b>												
Employment rate (%)		0.033** (0.010)				-0.010* (0.005)				0.005 (0.025)		
% employment in primary sector		- 0.037*** (0.009)				0.014*** (0.004)				0.022 (0.023)		
% employment in large- scale engineering sector		0.022* (0.011)				-0.013** (0.005)				0.020 (0.027)		
<b>Economy</b>												
GDP per capita (€)			0.045*** (0.013)				-0.008 (0.006)				-0.063* (0.031)	
Unemployment rate (%)			- 0.050*** (0.011)				0.025*** (0.005)				-0.060* (0.025)	
Age ratio: 15–29/50–64			0.008 (0.014)				-0.007 (0.007)				0.107** (0.034)	
<b>Care system</b>												
Conservative gender role attitudes				-0.015 (0.014)				0.004 (0.006)				-0.030 (0.019)
Num. of physicians per 100 000 inhabitants				0.024 (0.016)				-0.006 (0.007)				-0.066** (0.021)
Median age				-0.007 (0.019)				-0.003 (0.008)				0.000 (0.026)
(Intercept)	9.631*** (0.167)	9.737*** (0.105)	9.799*** (0.066)	9.448* (3.700)	- 2.367*** (0.087)	- 2.409*** (0.078)	- 2.414*** (0.080)	- 2.345*** (0.098)	4.444*** (0.225)	4.506*** (0.234)	4.564*** (0.235)	4.793*** (0.247)
Number of observations	81148	77658	81148	66272	81576	78083	81576	66672	71601	68157	71601	61180
AIC	162251.3	154153.8	162206.9	135884.6	32506.6	30443.7	32472.5	24357.7	299386.4	283813.1	299389.3	253571.0
BIC	162474.6	154394.6	162448.8	136121.2	32720.7	30675.3	32705.2	24585.4	299625.0	284068.8	299646.3	253823.6
ICC	0.6	0.4	0.2	1.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2

Notes: 14 countries (see Section 4.1). +  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ . For individual-level predictors included see Table 1 and for national-level contextual predictors see Table 2.

## 5. Summary and conclusions

This report explored inequalities in late careers of older adults' by analysing both individual (i.e. educational attainment, health, family composition) and contextual (i.e., regional resources in four different policy areas) factors across 27 European countries, and for 14 countries also across regions within countries. We examined whether and how these individual and regional characteristics influence older adults' labour market attachment (unemployment and nonemployment risks, and occupational attainment), economic in/security, and life satisfaction. By looking at these six different outcomes and examining multifaceted and multi-layered influences, we have developed a more comprehensive understanding of the factors that shape late careers.

Our analyses revealed some significant differences between and within countries in the labour market attachment, income in/security and life satisfaction of older adults. Unemployment and non-employment rates vary widely, with countries like Sweden and Switzerland demonstrating both high employment and occupational quality, while Serbia and Greece exhibit high non-employment and lower-status occupations. Income security also differs considerably, with disposable income ranging from €4,729 in Serbia to €59,984 in Switzerland, whereas household composition plays an important role in income distribution. In this respect, household composition is an important aspect to be considered – in Latvia, 31% 50-64-year-olds live on their own, whereas in Slovakia it is only 9% (see Appendix A, Table A. 2). Also poverty rates vary considerably across countries, with Denmark having the lowest (6%) and Latvia the highest (24%) rate. Life satisfaction of older people follows unique patterns, with some countries—such as Romania—reporting high satisfaction despite economic challenges, whereas Italy sees only moderate satisfaction despite strong economic indicators. These findings suggest that economic conditions alone do not fully determine well-being in later careers, highlighting the influence of broader social and cultural factors.

What are the characteristics of older adults that influence the late career outcomes (research question 1)? Education is a crucial determinant, with higher education levels linked to lower unemployment and non-employment risks and higher occupational status (ISEI). Education is also positively associated with disposable income and lower poverty risk, even after accounting for employment status and health. Also, life satisfaction is positively linked to education. Labour market attachment is also closely linked to health: poor health relates to the likelihood of being unemployed or in non-employment. At the same time, health is positively linked to life satisfaction, and it is a strong independent predictor beyond employment and income in/security effects. Family composition also tends to matter in explanation of labour market attachment trends: those living alone face higher labour market exclusion risks, while couples with children are more likely to be employed. Also, individuals living alone or without partner (but with dependents) face higher poverty risk, whereas couples with children face lower disposable income but no significantly higher poverty risk. Also gender differences emerge in labour market attachment patterns, with men being less likely unemployed but having lower occupational





status than women. Gender differences persist also in income in/security measures, with men being more likely in poverty risk, even after controlling for employment status.

While ageing increases unemployment and non-employment risks, those remaining in the workforce tend to hold their (higher-status) jobs. Migration background affect negatively labour market attachment, increasing unemployment risks and relating to lower occupational status. It also associates with lower income security and higher poverty risks. Lastly, urbanization effects are mixed, with rural areas showing lower unemployment risks but higher non-employment risks compared to cities. Living in rural areas or suburbs is also related to lower disposable income and higher poverty risk, likely due to fewer opportunities for high-status/high-paid jobs rather than differences in employment rates. Overall, the findings emphasize the importance of educational attainment and health, but also potential spill-overs with household situation in late careers.

Given that countries and regions differ widely on individual characteristics, do country or regional compositional differences in these characteristics of older adults explain, at least in part, between- and within-country differences in late career inequalities and life satisfaction (research question 2)? Our decomposition analysis indicates that this is indeed the case, although results have to be interpreted cautiously due to the associational nature of the analysis and the large number of predictors that likely results in some overfitting. With these caveats in mind, some interesting patterns are worth repeating. Family composition accounts for a substantial part of cross-national variation in older adults' labour market attachment, economic in/security and well-being. Even though the causality likely runs partly from labour market outcomes to family composition, these findings do underline how important family/household domain is for late career outcomes as well as well-being of older adults. To somewhat lesser extent, but still also education contributes to cross-country variations, especially in non-employment, occupational status and income outcomes. Health and residence also contribute to cross-country variations, especially in occupational status and income outcomes.

The picture looks somewhat different for regional differences within countries, where educational attainment consistently emerges as the most important factor, accounting for 10% to 40% of regional variation in all outcomes, except life satisfaction. Also, health seems to contribute to within-country variation, both for labour market attachment and disposable income, but especially for life-satisfaction. All other compositional factors play relatively minor roles – with the degree of urbanisation for occupational status (ISEI) as an exception. While the importance of education, too, needs to be interpreted with caution, it indicates a high degree covariation between economic opportunities and the educational composition of a region's older population. Even if a good portion of this is likely due to former migration and relocation decisions of older adults (especially highly educated adults who have more likely closer to the jobs that require higher skills), it also suggests that regional characteristics can have meaningful positive impacts on labour market and well-being outcomes for older people at the individual and aggregate level.

Countries differ not only in the characteristics of older adults, but also in macro-level factors that may influence the late careers beyond the direct impact of older adults' skills, health or family situation. Our analysis on the effect of contextual factors on late careers

(beyond compositional differences), as poses research question 3, showed that some contextual factors indeed influence older adults' labour market attachment, income in/security, and life satisfaction. As expected, cross-national variation in older adults' labour market attachment is influenced more by economic and labour market factors than by educational factors. Higher general employment rates and employment in large-scale engineering sectors are linked to lower non-employment among older workers, while a larger primary sector workforce is associated with lower occupational status and lower levels of disposable income, and with higher poverty risk. Economic conditions matter as well—higher GDP per capita is linked to higher average occupational status of older workers, higher disposable income and lower poverty risks, while higher general unemployment rates increase both unemployment and non-employment risks for older workers. Surprisingly, employment protection laws did not indicate any significantly impact older adults' labour market attachment in our analysis. Social spending plays some role in late careers as well: higher long-term care expenditures relate to lower non-employment risks among older people.

At regional level, similar patterns emerge. Regional variations in education, economic conditions, and employment sectors significantly influence older adults' labour market attachment, income security, and life satisfaction. Regions with higher shares of tertiary-educated individuals have higher occupational status (ISEI) scores and disposable incomes among older workers, while strong overall employment rates relate to lower unemployment, non-employment and poverty risks. Employment in the primary sector is linked to lower non-employment risks, but also lower ISEI scores, lower incomes and higher poverty risk, while large-scale engineering employment relates, just the opposite, with higher income and lower poverty levels. Next to economic structure, also actual economic conditions play a crucial role for late careers — higher general unemployment level increases also older workers unemployment risk and non-employment risk, while 'reduces' the average occupational attainment level. Life satisfaction is paradoxically lower in wealthier regions but higher where youth-to-older-adult ratios are greater. Surprisingly, more physicians per capita correlate with lower life satisfaction. Overall, more favourable late-career outcomes are found in regions with higher educational levels, innovation-driven industries, high employment rates, and supportive care expenditures. Moreover, regional economic structures appear more influential than national factors in shaping older adults late career outcomes and well-being.

These findings have important policy implications. The challenges to older adults' labour market attachment are shared by many countries and regions, with some countries/regions performing better than others, which offers opportunities for mutual learning. Investment in older workers' labour market and career prospects is crucial to tackling unemployment and non-employment, and respectively the economic in/security and well-being of late career workers. The observed findings highlight the need not only for labour market policies, but also for health/care and education policies. In addition, it is important to address regional disparities, with a particular focus on older adults in economically disadvantaged and with less innovative industries. This may involve targeted interventions in (adult) education, employment opportunities and (formal) care availability. Furthermore, policies that promote lifelong learning and continuous skills development are

important to provide better labour market chances for older adults facing challenges in their late careers. Finally, and importantly, direct poverty reduction strategies should also be prioritised, given that older adults living alone (especially with dependants) face higher poverty risks that are likely to spread to the older age in terms of lower pension income, personal savings, etc.



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## Appendix

### Section A: Descriptive Statistics

Table A. 1. Regional variation in outcome variables at NUTS 1 level for 50-64-year-olds

Country, NUTS 1	Unemployment rate (%)	Nonemployment rate (%)	Average ISEI scores	Equivalised disposable income per year (€)	Log. equiv. disp. income	Poverty rate (%)	Life satisfaction (rating points)
Austria							
AT1	13.28	40.05	44.80	34616.15	10.27	11.84	7.76
AT2	7.93	40.83	40.88	33954.87	10.31	10.06	8.04
AT3	7.11	39.74	40.98	32400.27	10.25	10.27	7.90
Belgium							
BE1	17.73	42.38	44.10	30295.48	10.06	25.59	6.98
BE2	5.30	33.48	45.55	33149.56	10.29	7.42	7.66
BE3	11.74	45.43	43.97	27494.39	10.09	16.56	7.10
Bulgaria							
BG3	15.70	33.64	35.89	6843.50	8.60	18.33	5.40
BG4	10.28	28.73	38.48	8240.05	8.73	14.40	5.71
Germany							
DE1	5.38	22.27	45.51	33706.88	10.27	10.53	7.36
DE2	5.51	30.40	47.38	36839.06	10.33	11.42	7.25
DE3	11.57	31.38	48.63	31435.47	10.20	12.70	7.03
DE4	7.49	26.15	43.11	29703.25	10.15	14.60	7.23
DE5	16.15	38.96	40.77	27173.02	10.06	18.55	7.06
DE6	5.41	30.36	50.89	34448.18	10.30	9.76	7.39
DE7	5.24	31.25	46.85	39107.22	10.32	10.50	6.92
DE8	10.62	28.76	39.76	29086.47	10.15	13.90	6.50
DE9	5.94	34.51	41.51	30415.97	10.18	13.46	7.01
DEA	6.74	37.06	45.25	32266.75	10.20	14.58	6.91
DEB	5.42	27.42	44.97	33994.42	10.28	10.38	7.18
DEC	1.35	36.67	43.14	29906.04	10.11	20.14	7.06
DED	6.30	23.97	43.78	27303.95	10.10	15.71	6.78
DEE	7.78	31.64	41.07	27648.57	10.10	15.44	6.63
DEF	6.08	36.39	44.42	28721.02	10.13	17.43	7.27
DEG	7.93	29.25	43.20	28752.76	10.10	18.77	6.45





# Decomposition of between and within- country (regional) differences in the labour market attachment and earnings in late career

Country, NUTS 1	Unemployment rate (%)	Nonemployment rate (%)	Average ISEI scores	Equivalised disposable income per year (€)	Log. equiv. disp. income	Poverty rate (%)	Life satisfaction (rating points)
Greece							
EL3	15.07	44.29	45.54	12419.11	9.24	12.32	6.59
EL4	10.27	38.80	37.14	11252.72	9.11	16.78	6.96
EL5	20.86	46.08	36.29	8917.65	8.91	28.72	6.32
EL6	15.95	44.37	34.59	9527.23	8.97	23.50	6.89
Spain							
ES1	17.92	42.28	36.87	17752.13	9.60	19.41	6.83
ES2	13.31	31.97	40.99	23655.23	9.89	11.03	7.24
ES3	16.74	33.00	44.95	23634.83	9.88	12.22	7.18
ES4	18.31	37.07	35.73	17669.81	9.59	21.26	7.06
ES5	15.35	34.50	39.78	20976.54	9.77	14.91	7.14
ES6	28.41	47.97	36.37	16055.75	9.46	30.51	6.82
ES7	35.23	51.96	36.98	16711.52	9.45	27.78	7.07
France							
FR1	8.34	28.15	51.51	40853.78	10.34	12.16	6.77
FRB	12.44	40.43	44.44	27369.57	10.11	9.84	6.82
FRC	5.79	45.12	40.88	27836.63	10.05	18.29	6.75
FRD	7.02	36.29	39.70	28591.77	10.13	9.78	6.62
FRE	10.69	40.91	40.37	25514.72	10.03	12.90	6.65
FRF	7.87	44.49	38.57	28747.96	10.10	13.57	6.63
FRG	11.43	43.83	38.43	27038.60	10.10	10.64	6.63
FRH	6.69	40.25	42.82	27623.21	10.09	11.57	6.91
FRI	10.84	45.34	38.53	25972.40	10.05	13.65	6.54
FRJ	11.14	41.73	39.84	25258.57	9.99	21.01	6.54
FRK	13.14	40.93	40.79	26317.91	10.02	18.06	6.69
FRL	6.90	40.58	43.67	27592.09	10.06	17.96	6.23
FRM	2.62	61.85	37.02	25363.65	10.07	8.51	6.82
Hungary							
HU1	4.07	23.17	45.23	8842.26	8.95	8.68	6.54
HU2	5.70	31.15	39.02	7736.23	8.81	11.64	6.58
HU3	7.50	32.68	36.25	6983.24	8.71	18.07	6.17
Italy							
ITC	6.04	28.51	42.54	24160.54	9.90	13.56	7.26
ITF	15.09	44.94	38.73	16493.15	9.49	30.21	6.71
ITG	14.34	42.53	41.65	17660.99	9.53	29.85	7.04
ITH	4.35	27.52	42.57	25627.63	9.99	9.31	7.28



# Decomposition of between and within- country (regional) differences in the labour market attachment and earnings in late career

Country, NUTS 1	Unemployment rate (%)	Nonemployment rate (%)	Average ISEI scores	Equivalised disposable income per year (€)	Log. equiv. disp. income	Poverty rate (%)	Life satisfaction (rating points)
ITI	6.52	28.37	43.85	22474.17	9.84	15.67	7.31
Poland							
PL2	4.44	44.41	36.93	9496.74	9.02	13.16	7.55
PL4	6.49	39.47	34.14	8631.77	8.94	18.08	7.61
PL5	3.65	34.48	39.47	10028.22	9.09	9.09	7.28
PL6	8.94	42.68	35.70	8783.73	8.93	18.53	7.40
PL7	4.87	35.74	35.24	8881.75	8.93	16.10	7.22
PL8	6.58	39.14	34.88	7927.28	8.84	22.54	7.30
PL9	5.01	33.50	39.32	9476.84	8.97	21.12	7.26
Portugal							
PT1	12.31	30.85	39.37	13615.90	9.31	17.65	6.87
PT2	14.94	39.10	37.29	12179.30	9.22	22.08	7.23
PT3	13.33	35.05	36.20	11517.02	9.17	25.56	6.75
Romania							
RO1	1.24	39.79	36.89	6166.29	8.56	13.00	7.74
RO2	1.73	32.93	32.87	4706.05	8.15	34.19	7.42
RO3	1.85	41.74	37.95	6820.07	8.66	10.42	7.52
RO4	2.46	44.18	31.95	5326.47	8.37	22.94	7.66
Serbia							
RS1	27.50	47.67	38.92	5564.98	8.35	17.35	5.81
RS2	40.33	57.22	32.87	3921.58	8.07	27.95	5.46
Sweden							
SE1	7.90	18.03	48.12	34223.29	10.29	10.64	7.52
SE2	8.89	23.08	46.79	32339.74	10.22	13.00	7.58
SE3	4.38	17.91	46.74	33053.71	10.32	9.65	7.59

Note: Weighted.



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Table A. 2. Descriptive statistics of individual-level socio-demographic and socio-economic profile variables at national level for 50-64-year-olds

Country code	Educational degree (%)			Mean age	Men (%)	Migration background (%)	Family composition (%)			
	ISCED 0-2	ISCED 3-4	ISCED 5+				Couples w/o children	Couples with children	Unpartnered with dependent	Living alone
AT	15.4	58.4	26.2	57.0	50.0	17.6	37.6	33.3	6.3	22.8
BE	22.3	38.5	39.2	57.0	49.9	17.6	34.1	32.9	9.9	23.1
BG	18.6	58.6	22.8	56.9	49.4	0.5	30.1	38.9	14.6	16.4
CH	10.7	47.7	41.6	56.9	51.3	33.7	33.9	35.2	7.8	23.2
CY	24.0	49.5	26.5	57.0	48.6	16.9	33.5	45.2	11.5	9.8
CZ	5.9	74.0	20.1	56.8	47.7	4.8	39.1	35.2	9.3	16.4
DE	13.9	56.0	30.1	57.1	49.8	14.9	43.2	23.8	5.6	27.3
DK	17.3	48.3	34.4	56.8	49.0	6.7	44.3	21.0	6.7	28.0
EE	7.1	51.9	40.9	57.0	47.1	21.9	37.2	26.2	8.8	27.9
EL	33.4	41.0	25.6	56.6	48.4	7.8	24.0	56.3	9.9	9.8
ES	42.8	24.5	32.6	56.7	49.2	12.2	22.6	50.2	12.6	14.6
FI	11.8	48.4	39.9	57.2	52.7	3.4	40.2	21.6	7.1	31.2
FR	26.6	43.9	29.6	57.2	48.4	15.3	38.0	31.2	9.1	21.7
HR	18.9	63.7	17.4	57.1	48.5	13.2	20.6	56.6	12.7	10.1
HU	15.2	62.1	22.7	56.8	48.1	1.8	37.3	31.4	12.2	19.2
IE	27.7	35.2	37.1	56.6	49.7	16.2	17.9	49.1	13.2	19.8
IT	43.5	40.3	16.2	56.7	49.7	12.2	18.7	49.2	14.3	17.8
LT	3.0	62.3	34.7	57.0	39.6	7.9	36.7	18.1	11.9	33.4
LU	26.3	30.9	42.8	56.4	53.0	57.2	30.6	37.6	7.4	24.5
LV	4.7	65.7	29.6	57.1	43.3	25.0	33.9	26.8	14.8	24.4
MT	63.7	22.7	13.7	55.0	53.1	9.7	15.3	52.2	16.7	15.8
PL	9.6	73.5	16.9	57.3	47.3	0.8	27.1	50.6	10.7	11.6
PT	60.8	20.5	18.7	56.9	46.7	9.7	24.3	50.1	14.3	11.3
RO	18.8	68.6	12.6	56.6	49.3	0.0	31.8	40.3	10.3	17.6
RS	19.7	63.2	17.2	57.2	48.4	12.1	19.9	52.5	17.6	10.0
SE	15.8	54.2	30.0	56.7	49.9	19.1	40.4	26.5	7.5	25.5
SK	8.0	75.1	17.0	57.0	49.0	1.4	27.9	48.3	14.2	9.5
Mean	21.7	51.1	27.3	56.8	48.8	13.3	31.1	38.5	11.0	19.4
SD	15.6	15.7	9.4	0.4	2.7	12.0	8.3	11.9	3.3	7.1

Note: Weighted.



Table A. 2. (continued) Descriptive statistics of individual-level socio-demographic and socio-economic profile variables at national level for 50-64-year-olds

Country code	Health status (%)				Residential area (%)			N (max)
	Very good	Good	Fair	(very) poor	Cities	Towns & suburbs	Rural	
AT	23.0	41.7	25.8	9.5	28.2	29.3	42.4	3031
BE	19.8	50.0	19.6	10.6	27.0	57.1	15.8	3543
BG	6.2	58.4	27.6	7.8	40.5	27.1	32.4	4152
CH	29.5	47.2	17.2	6.1	28.7	52.9	18.5	3797
CY	25.6	46.4	22.8	5.1	59.0	22.5	18.6	2133
CZ	10.9	50.8	28.7	9.7	26.8	32.8	40.4	3680
DE	12.5	46.3	27.5	13.7	78.3	0.0	21.7	8199
DK	14.4	46.2	27.0	12.4	29.7	32.2	38.1	1919
EE	5.1	43.7	38.3	12.9	62.1	0.0	37.9	2960
EL	39.8	42.8	12.2	5.1	37.2	31.2	31.6	6364
ES	10.1	56.3	25.3	8.2	55.0	31.1	13.9	12743
FI	14.2	51.7	27.2	6.9	34.5	33.7	31.8	2638
FR	17.7	44.0	27.9	10.5	34.3	30.7	35.0	6711
HR	13.1	41.1	31.5	14.2	28.6	33.2	38.3	5086
HU	6.8	49.5	34.8	8.9	29.1	37.5	33.4	3959
IE	34.5	41.1	16.4	8.0	32.8	24.6	42.6	2625
IT	13.1	61.7	19.1	6.1	36.9	44.9	18.1	8542
LT	1.9	32.7	53.7	11.7	36.8	15.7	47.5	2365
LU	14.4	55.0	20.7	9.9	18.6	47.5	33.9	2333
LV	1.7	36.7	47.9	13.6	61.3	0.0	38.7	3204
MT	12.5	53.8	29.3	4.4	47.6	52.4	0.0	2093
PL	5.4	49.4	33.9	11.3	29.3	28.8	41.9	8182
PT	6.0	32.7	49.1	12.2	45.3	30.0	24.8	6656
RO	14.8	55.4	23.9	5.9	29.4	30.1	40.5	3910
RS	7.3	46.5	34.8	11.4	31.9	27.7	40.5	3493
SE	23.0	44.2	23.4	9.4	37.4	40.8	21.8	2092
SK	6.6	45.2	32.0	16.1	19.8	33.4	46.8	3100
Mean	14.4	47.1	28.8	9.7	38.0	30.6	31.4	
SD	9.7	7.2	9.9	3.1	14.2	14.6	11.7	

Note: Weighted.

Table A. 3. Descriptive statistics of individual-level socio-demographic and socio-economic profile variables at NUTS 1 level for 50-64-year-olds

NUTS 1	Educational degree (%)			Mean age	Men (%)	Migration background (%)	Family composition (%)				
	ISCED 0-2	ISCED 3-4	ISCED 5+				Couples children	w/o children	Couples with dependent	Unpartnered with dependent	Living alone
AT1	15.2	54.0	30.9	57.1	50.6	23.3	37.3	31.7	6.6	24.4	
AT2	13.3	64.4	22.2	57.1	48.7	10.2	40.4	30.7	7.5	21.4	
AT3	16.9	60.3	22.8	56.9	49.9	14.9	36.2	37.0	5.1	21.7	
BE1	32.0	26.6	41.4	56.3	48.8	64.0	19.3	33.0	16.8	31.0	
BE2	17.7	39.5	42.8	57.1	50.3	10.8	38.0	33.8	8.2	20.1	
BE3	28.4	39.9	31.7	56.9	49.6	17.5	30.8	31.3	11.3	26.7	
BG3	20.0	60.7	19.3	56.9	49.9	0.5	33.6	34.7	13.2	18.4	
BG4	17.3	56.6	26.2	56.9	48.8	0.5	26.7	43.0	15.9	14.4	
DE1	16.8	55.5	27.7	57.0	49.4	22.0	39.2	28.6	7.1	25.1	
DE2	13.7	51.7	34.6	56.9	52.6	14.1	38.5	28.4	5.4	27.7	
DE3	12.4	47.6	40.0	57.1	52.2	21.7	33.2	17.6	5.9	43.3	
DE4	5.9	58.0	36.1	57.4	47.7	5.8	50.8	21.1	4.9	23.3	
DE5	33.1	45.2	21.7	56.9	47.4	32.0	37.1	26.6	4.6	31.6	
DE6	8.3	54.7	37.1	56.7	57.0	21.5	36.5	21.5	3.3	38.6	
DE7	18.4	51.0	30.7	57.0	51.1	22.6	41.2	24.1	7.8	26.9	
DE8	3.5	66.4	30.1	57.2	49.2	1.0	55.0	18.1	4.9	21.9	
DE9	17.6	58.4	24.0	57.1	50.8	13.8	42.1	24.7	4.5	28.7	
DEA	19.6	51.8	28.6	57.2	47.9	19.8	41.7	26.4	6.2	25.6	
DEB	15.2	52.2	32.6	57.4	49.4	14.2	41.1	26.7	5.5	26.7	
DEC	21.0	52.7	26.3	58.1	41.5	13.4	46.4	26.7	1.9	24.9	
DED	3.0	67.2	29.9	57.3	50.3	3.5	52.6	16.1	5.2	26.1	
DEE	5.8	67.5	26.7	56.9	49.2	4.1	53.5	14.4	4.0	28.1	
DEF	12.2	67.1	20.8	57.2	47.9	5.5	47.7	18.7	4.8	28.8	
DEG	3.7	61.7	34.6	57.1	49.1	4.0	56.2	15.9	3.7	24.2	
EL3	17.1	46.8	36.1	56.6	47.4	10.5	17.8	60.4	11.2	10.7	
EL4	42.2	38.8	19.0	56.2	48.7	5.7	28.0	55.3	8.6	8.1	
EL5	40.3	38.2	21.5	56.6	48.6	8.5	28.0	54.5	8.2	9.3	
EL6	45.6	36.9	17.5	56.8	49.6	3.7	26.8	53.0	10.4	9.9	
ES1	46.1	24.9	29.1	56.9	48.8	8.0	23.0	47.8	15.0	14.2	
ES2	34.1	24.4	41.4	56.7	49.9	9.6	20.1	51.5	10.7	17.7	
ES3	28.3	27.7	44.0	56.6	47.4	18.3	19.6	51.1	14.2	15.1	
ES4	51.5	21.8	26.7	56.9	50.6	5.5	25.0	48.2	11.4	15.5	



NUTS 1	Educational degree (%)			Mean age	Men (%)	Migration background (%)	Family composition (%)				
	ISCED 0-2	ISCED 3-4	ISCED 5+				Couples children	w/o	Couples with children	Unpartnered with dependent	Living alone
ES5	39.8	27.5	32.7	56.6	49.5	14.1	22.7		50.3	12.5	14.4
ES6	54.1	18.8	27.1	56.6	49.1	10.4	22.2		54.2	11.0	12.6
ES7	42.1	29.5	28.4	56.4	49.2	22.7	29.5		37.5	16.8	16.3
FR1	24.1	30.9	44.9	57.0	47.5	30.5	26.3		41.5	11.5	20.8
FRB	24.0	46.4	29.6	56.9	46.5	12.4	43.6		29.0	8.2	19.3
FRC	31.0	46.4	22.5	57.6	49.8	15.0	46.3		23.3	11.2	19.1
FRD	27.9	50.1	22.0	56.8	49.7	6.3	38.9		33.0	9.0	19.1
FRE	33.1	42.9	24.0	57.3	49.8	6.0	35.5		33.2	9.2	22.1
FRF	30.3	46.1	23.5	57.6	45.9	11.3	46.5		26.0	6.1	21.4
FRG	21.6	53.2	25.1	57.2	49.4	2.3	47.4		22.7	4.7	25.2
FRH	16.9	54.3	28.8	57.5	51.9	4.3	39.0		27.7	6.0	27.3
FRI	26.6	48.5	24.9	57.6	47.5	11.4	43.1		25.5	7.1	24.2
FRJ	26.9	42.3	30.8	57.4	46.2	17.3	46.5		19.3	11.0	23.1
FRK	25.6	46.5	27.8	56.6	51.8	16.5	33.9		35.8	9.1	21.2
FRL	27.3	42.8	29.9	56.9	45.6	21.0	34.9		34.8	11.8	18.5
FRM	61.4	24.0	14.6	57.5	30.9	40.7	26.2		54.7	7.1	12.0
HU1	7.6	60.5	32.0	56.3	48.0	2.6	33.2		34.7	12.5	19.6
HU2	17.1	63.1	19.8	56.9	48.5	2.0	37.0		32.1	12.2	18.6
HU3	18.8	62.4	18.8	57.0	47.8	1.2	40.2		28.6	11.9	19.3
ITC	40.0	45.2	14.8	56.7	49.8	14.3	19.6		48.1	13.9	18.4
ITF	53.7	33.6	12.7	56.8	49.7	10.8	15.6		52.5	14.3	17.6
ITG	52.1	32.3	15.6	56.6	49.9	6.7	19.7		49.8	14.3	16.2
ITH	38.2	43.7	18.1	56.6	50.1	14.2	19.2		48.6	13.7	18.6
ITI	37.5	41.8	20.6	56.7	48.8	11.7	20.0		47.2	15.6	17.2
PL2	6.3	76.0	17.7	57.3	47.6	1.6	27.0		50.1	10.9	12.0
PL4	10.3	77.5	12.2	57.3	47.2	0.4	29.9		49.2	9.3	11.5
PL5	7.3	72.9	19.8	57.5	47.1	1.3	31.5		44.8	12.3	11.4
PL6	14.1	71.5	14.4	57.3	47.0	0.8	27.2		52.8	9.6	10.4
PL7	10.3	73.6	16.1	57.3	47.7	0.1	27.2		50.0	11.8	11.0
PL8	11.4	72.9	15.7	57.3	46.8	0.1	24.1		54.7	11.1	10.2
PL9	7.9	68.7	23.4	57.2	47.4	1.3	23.9		51.1	10.6	14.4
PT1	60.1	20.9	19.0	56.9	46.8	10.0	24.4		50.0	14.3	11.3
PT2	74.9	11.3	13.8	56.8	47.0	3.4	23.5		54.1	14.5	7.8
PT3	71.0	15.1	13.9	56.8	45.3	6.7	20.0		49.7	17.1	13.2
RO1	18.6	67.7	13.7	56.8	48.7	0.0	32.3		42.8	8.4	16.4



NUTS 1	Educational degree (%)			Mean age	Men (%)	Migration background (%)	Family composition (%)			
	ISCED 0-2	ISCED 3-4	ISCED 5+				Couples w/o children	Couples with children	Unpartnered with dependent	Living alone
RO2	27.0	63.7	9.4	56.3	52.3	0.0	31.1	41.0	8.7	19.2
RO3	12.8	70.4	16.8	56.6	46.3	0.0	30.8	39.3	13.4	16.6
RO4	15.7	74.1	10.1	56.7	50.0	0.0	33.6	37.8	10.5	18.0
RS1	16.0	62.9	21.0	57.3	47.6	21.5	20.1	50.3	19.1	10.6
RS2	23.2	63.4	13.4	57.1	49.1	3.0	19.7	54.6	16.2	9.5
SE1	13.1	54.8	32.1	56.4	49.1	21.5	34.1	30.5	9.0	26.3
SE2	19.4	51.4	29.2	56.8	50.1	21.2	43.1	24.2	7.1	25.6
SE3	12.8	59.8	27.4	57.0	51.5	8.4	48.1	23.4	5.2	23.4

Note: Weighted.





Table A. 3. (continued) Descriptive statistics of individual-level socio-demographic and socio-economic profile variables at NUTS 1 level for 50-64-year-olds

NUTS 1	Health status (%)				Residential area (%)			N (max)
	Very good	Good	Fair	(Very) poor	Cities	Towns & suburbs	Rural	
AT1	22.1	39.1	28.4	10.4	46.3	20.8	33.0	1359
AT2	23.2	41.2	25.7	9.8	19.3	25.8	54.9	675
AT3	23.9	45.4	22.7	8.1	11.0	42.2	46.8	997
BE1	31.9	37.2	19.3	11.6	100.0	0.0	0.0	573
BE2	19.4	54.0	18.1	8.5	18.6	71.9	9.5	1732
BE3	17.0	45.8	22.8	14.4	22.4	44.9	32.7	1238
BG3	4.9	55.3	30.0	9.8	34.8	27.9	37.3	2132
BG4	7.5	61.5	25.2	5.8	46.0	26.3	27.6	2020
DE1	14.0	46.7	27.3	12.0	82.5	0.0	17.5	1166
DE2	14.5	47.9	26.0	11.5	69.4	0.0	30.6	1008
DE3	14.2	45.6	26.0	14.1	100.0	0.0	0.0	322
DE4	13.0	50.9	23.1	12.9	65.7	0.0	34.3	317
DE5	14.9	38.7	26.3	20.1	100.0	0.0	0.0	88
DE6	15.4	51.5	24.7	8.4	100.0	0.0	0.0	136
DE7	16.9	43.5	23.5	16.1	84.7	0.0	15.3	601
DE8	7.2	47.2	33.7	11.9	47.6	0.0	52.4	209
DE9	9.2	43.2	31.3	16.4	71.5	0.0	28.5	861
DEA	11.6	42.3	29.5	16.6	93.2	0.0	6.8	1457
DEB	12.8	43.7	28.3	15.2	66.4	0.0	33.6	402
DEC	13.7	46.4	26.5	13.4	92.0	0.0	8.0	95
DED	7.3	59.1	25.7	7.9	67.9	0.0	32.1	714
DEE	12.1	41.7	30.9	15.3	63.5	0.0	36.5	301
DEF	15.7	47.2	24.6	12.5	65.2	0.0	34.8	236
DEG	9.7	47.7	27.8	14.8	65.1	0.0	34.9	286
EL3	37.1	43.7	14.0	5.3	64.9	31.8	3.3	1515
EL4	40.4	44.8	10.1	4.7	17.7	33.7	48.6	1044
EL5	35.8	46.2	13.0	4.9	23.5	35.6	40.9	1959
EL6	48.2	37.0	9.5	5.3	20.6	24.4	55.0	1846
ES1	6.0	56.1	28.1	9.9	42.4	33.6	23.9	1492
ES2	10.9	60.5	22.0	6.6	54.2	29.4	16.3	1728
ES3	12.1	58.4	23.5	6.0	82.2	15.0	2.8	1292
ES4	9.6	58.8	25.2	6.4	34.6	28.7	36.8	1955

NUTS 1	Health status (%)				Residential area (%)			N (max)
	Very good	Good	Fair	(Very) poor	Cities	Towns & suburbs	Rural	
ES5	11.8	55.0	25.1	8.1	57.0	32.7	10.3	3616
ES6	8.0	55.3	26.1	10.6	51.5	38.9	9.6	2261
ES7	12.6	49.1	30.6	7.7	60.5	35.6	3.9	399
FR1	20.7	45.6	25.3	8.4	87.9	9.8	2.3	991
FRB	17.0	45.7	28.1	9.1	23.2	19.0	57.7	298
FRC	15.1	44.6	28.4	11.9	14.3	31.7	54.0	392
FRD	20.8	43.1	25.9	10.2	25.6	20.8	53.6	421
FRE	13.5	43.5	30.5	12.5	33.0	42.7	24.3	616
FRF	12.8	46.6	30.8	9.8	18.6	35.0	46.4	672
FRG	18.6	50.5	25.3	5.6	11.7	34.8	53.5	373
FRH	20.5	51.9	19.4	8.2	15.8	35.4	48.8	385
FRI	15.7	42.5	31.1	10.7	13.1	27.6	59.3	652
FRJ	20.6	37.6	29.6	12.2	18.0	46.8	35.2	551
FRK	16.6	40.6	30.7	12.1	27.2	34.7	38.1	848
FRL	19.4	42.8	26.4	11.4	41.4	45.0	13.6	463
FRM	14.6	22.2	17.5	45.7	0.0	71.8	28.2	49
HU1	7.5	54.0	31.1	7.4	54.7	38.7	6.6	827
HU2	7.9	49.5	33.2	9.3	19.8	33.5	46.7	1311
HU3	5.5	46.4	38.6	9.5	19.4	40.0	40.6	1821
ITC	13.1	65.0	15.3	6.6	39.4	44.3	16.3	1887
ITF	12.8	57.6	21.9	7.7	41.7	41.4	16.8	1800
ITG	12.8	61.9	19.3	6.0	30.0	49.7	20.3	770
ITH	10.3	69.6	15.9	4.3	28.4	52.7	18.9	1931
ITI	16.2	53.8	24.4	5.6	40.2	39.6	20.1	2154
PL2	7.2	50.9	31.3	10.6	40.4	29.7	29.9	1123
PL4	4.3	48.4	34.9	12.4	24.3	35.8	39.9	1291
PL5	8.2	51.0	32.1	8.7	31.9	34.2	33.9	840
PL6	4.8	48.3	36.5	10.4	30.0	25.9	44.1	1558
PL7	3.9	50.1	36.8	9.3	28.2	22.2	49.6	984
PL8	3.6	48.0	35.0	13.4	18.0	22.0	59.9	1497
PL9	5.4	49.6	31.5	13.5	29.8	30.8	39.3	889
PT1	6.0	32.9	48.9	12.1	45.6	30.0	24.3	4403
PT2	5.3	29.0	52.3	13.4	29.9	17.5	52.6	881
PT3	4.4	27.0	54.0	14.6	46.3	39.0	14.7	1372
RO1	17.3	51.8	24.5	6.4	27.5	27.9	44.6	982



NUTS 1	Health status (%)				Residential area (%)			N (max)
	Very good	Good	Fair	(Very) poor	Cities	Towns & suburbs	Rural	
RO2	12.3	56.2	25.8	5.7	25.6	26.0	48.5	1108
RO3	15.4	54.0	24.1	6.5	41.1	33.4	25.5	822
RO4	14.7	60.4	20.4	4.5	21.7	34.2	44.1	998
RS1	7.9	46.3	32.2	13.6	39.4	32.4	28.2	1430
RS2	6.8	46.7	37.3	9.2	24.6	23.0	52.4	2063
SE1	25.5	43.4	21.8	9.3	58.1	29.3	12.6	762
SE2	22.2	44.6	23.3	9.9	31.3	45.6	23.1	833
SE3	19.1	45.3	27.4	8.2	5.7	55.1	39.2	497

Note: Weighted.



Table A. 4. Descriptive statistics of contextual factors at national level

Country codes	Education system				Labour market institutions				
	Public spending on tertiary education (PPS mil)	% ISCED 0–2	% ISCED 5+	Tertiary gap (% points)	% employment in traditional primary sector	% employment in large-scale engineering sector	% employment in larger enterprises	EPL	Employment rate (%)
AT	6197.4	14.1	34.6	16.6	3.4	26.5	43.8	0.5	73.4
BE	6664.1	18.5	44.9	15.5	1.0	23.0	47.4	0.7	66.3
BG	945.2	16.6	29.6	9.8	6.4	32.0	21.3	0.5	69.1
CH	5745.8	12.6	45.0	18.1	1.6	18.9	34.8	0.3	80.2
CY	229.9	15.4	47.0	28.7	2.1	15.8	24.3	0.5	72.3
CZ	2953.6	5.6	26.4	16.7	2.6	39.0	36.5	0.7	74.5
DE	42720.0	16.3	32.1	8.8	1.1	30.4	51.2	0.7	76.9
DK	5687.9	17.9	41.9	18.5	1.8	21.2	11.6	0.4	76.5
EE	387.5	10.5	41.2	5.2	N/A	N/A	N/A	0.6	N/A
EL	1588.7	20.2	34.6	17.9	10.6	20.9	15.5	0.4	58.4
ES	12835.3	36.6	40.4	19.2	4.0	22.4	29.6	0.8	63.5
FI	2986.6	11.1	42.3	2.8	3.3	24.8	28.8	0.5	73.6
FR	27264.2	17.8	40.7	23.7	2.3	21.1	43.7	0.6	68.4
HR	743.4	12.8	24.9	18.9	6.5	30.4	31.1	0.6	64.5
HU	1646.0	13.7	29.3	10.4	4.3	33.4	40.0	0.4	74.2
IE	2625.3	12.5	52.9	25.3	3.7	24.0	39.9	N/A	69.9
IT	14654.5	37.3	20.0	15.6	3.8	28.7	28.1	0.7	59.1
LT	680.4	5.1	45.4	26.0	5.2	30.7	48.7	0.5	73.4
LU	228.6	19.7	50.5	30.5	1.0	11.5	33.4	0.5	70.1
LV	346.5	7.8	39.0	15.6	5.6	28.7	25.6	0.5	71.1
MT	224.5	37.1	32.1	28.4	0.8	21.2	55.9	0.6	75.5
PL	9981.9	6.7	33.7	24.5	8.3	32.8	37.4	0.8	71.3
PT	2056.0	43.8	28.5	30.6	2.4	26.8	32.0	0.6	71.3
RO	3367.6	19.0	18.8	13.3	11.2	32.9	34.0	0.6	62.8
RS	902.4	17.1	24.9	16.8	N/A	N/A	N/A	0.5	N/A
SE	7253.7	12.5	46.6	14.4	1.3	21.3	42.0	0.6	76.7
SK	1050.2	6.7	27.9	21.2	2.4	37.6	27.9	0.6	69.4
Mean	5998.8	17.2	36.1	18.3	3.9	26.2	34.6	0.6	70.5
SD	9458.9	10.2	9.3	7.3	2.9	6.7	10.8	0.1	5.6

Note: N/A not available. Weighted.

Table A 4. (continued) Descriptive statistics of contextual factors at national level

Country code	(Family & health) Care system					Economy				
	% 0-2 in childcare	Gender role attitudes	LTC expenditure (% GDP)	Public spending on healthcare per inhabitant (€)	Physicians per 100 000 inhabitants	GDP per capita (€)	Income inequality (P80/P20)	Unemployment rate (%)	Ratio 15-29/50-64	Median age
AT	39.7	2.1	1.5	5485.6	540.9	45300	4.0	6.2	77.4	43.6
BE	63.2	1.8	2.5	4789.6	324.8	43800	3.4	6.3	88.2	41.8
BG	24.7	2.8	N/A	884.2	429.6	10300	7.5	5.3	69.1	45.0
CH	37.0	2.0	2.4	9175.3	443.6	75200	4.9	5.1	79.6	42.7
CY	36.5	3.0	N/A	2515.2	427.2	27700	4.2	7.5	116.4	38.0
CZ	6.7	2.6	1.0	2151.9	425.6	22300	3.4	2.8	79.3	43.6
DE	43.9	1.9	2.3	5599.5	453.0	43500	5.0	3.7	69.8	45.9
DK	90.7	1.5	2.2	6223.0	437.7	58600	3.9	5.1	97.5	42.2
EE	44.3	2.0	0.6	1769.7	346.9	23400	5.0	6.2	78.8	42.5
EL	32.7	2.9	0.1	1576.8	629.2	17100	5.8	14.7	75.4	45.5
ES	67.1	1.9	0.9	2733.6	448.7	25800	6.2	14.9	72.6	44.7
FI	54.8	1.6	1.6	4590.3	361.1	45200	3.6	7.7	89.5	43.3
FR	67.2	1.8	1.8	4542.3	318.3	36700	4.4	7.9	90.8	42.0
HR	49.6	2.4	N/A	1195.1	371.1	14800	4.8	7.6	78.3	45.3
HU	21.0	2.5	0.2	1170.7	329.8	15900	4.2	4.1	87.5	43.6
IE	19.6	1.7	1.5	5688.6	402.4	86500	3.8	6.2	104.7	38.5
IT	44.0	2.6	0.9	2837.0	410.5	30800	5.9	9.5	66.2	47.6
LT	29.8	2.6	0.5	1568.4	447.5	20100	6.1	7.1	74.8	44.1
LU	78.4	N/A	1.0	6402.1	298.5	113100	4.6	5.3	94.5	39.6
LV	39.1	2.5	0.3	1612.1	326.7	17700	6.6	7.6	70.8	43.9
MT	31.6	N/A	N/A	3064.2	397.2	29600	5.0	3.8	107.9	40.1
PL	25.1	2.5	0.4	983.1	344.1	15100	4.0	3.4	83.8	41.9
PT	53.0	2.4	0.5	2308.1	562.0	21000	5.7	6.7	75.8	45.8
RO	13.6	3.1	N/A	817.5	350.9	12600	7.1	5.6	79.7	43.0
RS	23.7	2.6	N/A	781.3	302.9	7800	6.0	11.1	80.6	44.0
SE	79.2	1.4	2.9	5812.6	431.9	51900	4.0	8.9	99.7	40.6
SK	3.1	3.1	0.0	1427.5	368.0	18400	3.2	6.8	85.2	41.4
Mean	41.5	2.3	1.2	3248.3	404.8	34451.9	4.9	6.9	84.2	43.0
SD	22.3	0.5	0.9	2244.4	80.0	25099.4	1.2	3.0	12.6	2.3

Note: N/A not available. Weighted.



Table A. 5. Descriptive statistics of contextual factors at NUTS 1 level

NUTS 1	Education system		Labour market institutions			
	% ISCED 0–2	% ISCED 5+	% employment in traditional primary sector	% employment in large-scale engineering sector	% employment in larger enterprises	Employment rate (%)
AT1	14.8	39.0	2.6	23.8	44.9	70.8
AT2	12.2	31.3	4.8	26.8	40.6	73.2
AT3	14.2	31.0	3.6	29.5	44.2	76.5
BE1	24.1	52.2	0.0	17.0	47.5	57.8
BE2	15.9	45.4	1.1	24.9	48.5	71.1
BE3	21.2	41.3	1.1	20.9	44.9	60.7
BG3	20.2	23.9	8.3	32.5	21.8	66.5
BG4	13.2	35.1	4.8	31.5	20.9	71.6
DE1	17.3	34.2	0.7	37.8	54.6	79.1
DE2	13.2	34.9	1.3	33.9	53.3	80.4
DE3	15.0	46.7	0.1	23.6	49.3	74.7
DE4	9.3	31.3	1.7	23.0	46.6	79.3
DE5	23.9	33.4	0.1	29.2	52.2	71.2
DE6	14.3	41.3	0.1	25.1	48.7	75.3
DE7	19.5	32.1	0.7	29.7	50.9	74.5
DE8	9.8	27.4	2.5	20.3	46.3	77.2
DE9	19.8	28.5	2.3	28.8	50.4	76.5
DEA	20.9	29.4	0.8	29.2	52.4	73.5
DEB	18.9	29.7	1.0	30.8	50.8	76.8
DEC	18.8	27.3	0.6	25.5	49.7	75.5
DED	5.8	31.7	1.4	29.2	46.1	79.1
DEE	7.5	25.1	1.6	28.1	43.8	77.1
DEF	14.5	28.2	1.8	24.4	47.8	78.6
DEG	7.4	28.4	1.8	30.0	48.0	78.2
EL3	11.2	45.0	0.8	24.2	22.7	61.9
EL4	26.2	26.6	11.7	15.5	8.7	56.8
EL5	23.1	30.8	14.1	21.7	10.0	55.5
EL6	27.7	26.7	22.5	16.8	12.1	56.8
ES1	34.7	42.4	4.9	22.8	28.3	64.0
ES2	27.5	48.7	2.8	29.3	33.7	68.1
ES3	25.6	49.7	0.1	21.0	39.8	69.9
ES4	42.8	34.3	7.3	23.3	26.9	63.2
ES5	36.3	40.4	1.5	25.5	27.9	66.0



NUTS 1	Education system		Labour market institutions			
	% ISCED 0-2	% ISCED 5+	% employment in traditional primary sector	% employment in large-scale engineering sector	% employment in larger enterprises	Employment rate (%)
ES6	45.1	33.9	9.5	16.4	24.8	56.6
ES7	39.1	35.6	4.0	14.2	26.9	53.0
FR1	17.1	54.4	0.1	19.8	52.2	71.5
FRB	19.1	32.7	3.0	24.1	46.1	68.6
FRC	18.2	34.5	3.3	23.8	40.6	69.8
FRD	18.7	34.1	5.4	23.8	41.9	67.4
FRE	20.7	34.5	2.1	24.5	48.7	64.7
FRF	19.6	33.5	2.6	26.1	44.0	65.4
FRG	14.1	38.6	4.1	24.4	46.2	72.4
FRH	12.9	40.4	3.0	20.8	42.0	70.7
FRI	15.1	37.7	4.7	17.7	33.7	70.1
FRJ	16.4	41.5	2.8	16.4	40.2	66.4
FRK	15.0	42.3	1.9	23.6	41.7	69.5
FRL	19.2	40.8	0.8	16.7	38.5	67.9
FRM	27.5	27.8	2.2	14.3	28.0	70.7
HU1	7.0	45.9	1.2	28.7	39.3	78.3
HU2	14.3	23.1	4.8	37.8	42.2	74.6
HU3	18.8	20.3	6.6	33.9	38.7	70.6
ITC	34.9	20.9	2.0	33.6	32.2	66.9
ITF	44.8	16.8	6.8	22.2	22.1	45.9
ITG	47.2	15.5	8.0	15.6	19.9	44.8
ITH	32.3	21.2	3.2	34.1	29.7	68.3
ITI	31.2	23.7	2.9	26.6	28.8	63.4
PL2	5.6	33.8	2.9	36.6	40.7	69.5
PL4	6.3	28.6	8.1	35.7	35.1	72.4
PL5	6.0	34.5	6.0	34.7	42.3	72.6
PL6	8.7	30.3	9.5	32.1	35.5	70.8
PL7	8.6	30.3	11.6	33.9	35.4	71.2
PL8	7.5	31.2	14.7	28.2	32.4	67.6
PL9	5.3	46.1	8.2	27.8	40.0	75.9
PT1	43.0	29.0	2.3	27.5	32.2	71.5
PT2	62.1	15.7	7.4	15.9	25.2	65.6
PT3	51.7	23.5	3.5	11.9	31.0	67.0
RO1	18.4	18.0	8.7	36.5	37.5	64.3
RO2	25.8	12.6	20.1	26.7	27.3	60.8





NUTS 1	Education system		Labour market institutions			
	% ISCED 0-2	% ISCED 5+	% employment in traditional primary sector	% employment in large-scale engineering sector	% employment in larger enterprises	Employment rate (%)
RO3	14.9	26.9	5.1	31.4	33.4	66.8
RO4	16.1	16.9	11.4	39.5	40.0	58.2
RS1	13.9	29.9	N/A	N/A	N/A	N/A
RS2	20.6	19.4	N/A	N/A	N/A	N/A
SE1	11.6	51.6	0.7	21.2	46.0	77.7
SE2	13.6	44.8	1.5	21.8	40.8	76.1
SE3	12.0	38.7	2.6	20.1	35.2	75.9

Notes: Weighted

Table A 5. (continued) Descriptive statistics of contextual factors at NUTS 1 level

NUTS 1	(Family & health) Care system		Economy			
	Gender role attitudes	Physicians per 100 000 inhabitants	GDP per capita (€)	Unemployment rate (%)	Ratio 15-29/50-64	Median age
AT1	1.9	587.9	45000	8.6	80.8	42.9
AT2	2.3	516.0	40800	4.7	69.5	46.0
AT3	2.2	497.8	48000	4.2	78.1	43.1
BE1	1.7	399.8	73400	12.4	124.6	36.0
BE2	1.8	303.8	45200	3.9	81.6	43.3
BE3	1.8	337.9	31500	8.8	90.6	41.6
BG3	2.9	382.4	7500	7.0	66.2	46.1
BG4	2.8	441.4	13100	3.7	72.2	43.9
DE1	1.9	N/A	48700	3.2	76.4	44.4
DE2	1.9	N/A	50800	2.8	73.5	44.8
DE3	1.6	N/A	45200	5.8	84.0	41.2
DE4	2.0	N/A	31900	3.1	43.6	50.6
DE5	1.8	N/A	52100	6.5	86.1	43.5
DE6	1.6	N/A	71000	4.6	90.8	40.9
DE7	1.9	N/A	48600	3.9	73.5	45.0
DE8	1.8	N/A	30900	3.8	47.3	50.7
DE9	2.0	N/A	39500	3.4	70.2	46.7
DEA	1.9	N/A	41700	4.2	72.6	45.6
DEB	1.8	N/A	39600	3.6	67.2	46.9
DEC	2.1	N/A	37000	3.2	61.8	49.4
DED	1.7	N/A	33400	3.4	57.2	49.0
DEE	1.9	N/A	31400	4.3	48.0	51.4
DEF	1.7	N/A	36100	3.2	65.6	48.0
DEG	1.9	N/A	31400	3.5	49.9	50.6
EL3	2.7	804.3	23300	11.9	74.4	44.9
EL4	2.7	502.7	14100	16.6	89.6	42.3
EL5	3.2	609.7	13100	16.8	75.0	46.4
EL6	3.1	455.1	14200	15.9	71.3	46.8
ES1	1.9	473.9	23700	11.7	55.5	48.9
ES2	1.7	540.0	30900	10.5	65.9	46.4
ES3	2.3	555.7	35400	11.70	78.3	43.4
ES4	2.3	353.4	22400	14.8	65.1	46.7
ES5	1.9	438.9	26900	13.5	76.5	44.1



NUTS 1	(Family & health) Care system		Economy			
	Gender role attitudes	Physicians per 100 000 inhabitants	GDP per capita (€)	Unemployment rate (%)	Ratio 15-29/50-64	Median age
ES6	1.9	382.9	19700	20.9	78.5	43.0
ES7	1.1	502.3	19700	23.5	73.2	44.2
FR1	1.5	358.9	61100	8.0	108.9	37.8
FRB	1.9	241.5	30000	7.2	81.3	44.6
FRC	1.9	285.9	28900	7.1	81.2	45.3
FRD	1.6	275.5	30100	7.1	86.2	43.6
FRE	2.3	282.7	28900	9.1	98.0	40.3
FRF	1.9	304.6	29800	8.1	85.8	43.0
FRG	1.7	277.9	32500	6.0	91.7	42.4
FRH	1.7	315.7	31000	5.8	83.8	44.6
FRI	1.7	326.0	30900	7.6	79.5	46.2
FRJ	1.8	331.7	30100	8.5	85.4	44.5
FRK	1.6	322.4	35300	7.2	92.4	41.7
FRL	1.8	383.5	37000	8.1	80.9	44.9
FRM	N/A	296.2	28900	9.1	71.6	46.1
HU1	2.1	417.7	24300	2.9	94.8	42.6
HU2	2.7	277.4	13400	2.9	80.4	44.5
HU3	2.6	291.7	10900	6.0	88.1	43.8
ITC	2.5	387.0	38300	6.5	63.1	48.2
ITF	3.0	391.7	20600	16.0	74.6	46.0
ITG	3.0	453.1	19900	17.2	69.7	47.0
ITH	2.4	391.1	36600	5.3	63.4	48.1
ITI	2.4	459.5	32600	8.6	61.9	48.2
PL2	2.6	351.1	14700	3.1	81.7	42.0
PL4	2.6	288.6	14600	2.6	85.3	41.5
PL5	2.3	340.7	15700	3.7	79.6	42.6
PL6	2.4	305.2	12800	3.4	84.8	41.4
PL7	2.5	367.3	13200	4.5	76.9	43.8
PL8	2.6	327.9	10500	4.6	83.2	42.2
PL9	2.3	449.6	24000	2.8	93.1	40.6
PT1	N/A	568.2	21100	6.7	75.0	46.0
PT2	N/A	383.1	18800	7.3	97.5	40.6
PT3	N/A	501.3	19800	8.1	84.9	43.6
RO1	3.3	359.7	11800	4.0	83.1	42.1
RO2	3.0	255.9	8900	6.5	87.8	42.7



NUTS 1	(Family & health) Care system		Economy			
	Gender role attitudes	Physicians per 100 000 inhabitants	GDP per capita (€)	Unemployment rate (%)	Ratio 15-29/50-64	Median age
RO3	3.1	409.9	18400	5.6	72.0	43.2
RO4	3.0	403.5	11100	6.4	74.3	44.5
RS1	2.5	310.3	10000	9.2	80.4	43.1
RS2	2.7	295.1	5500	13.1	80.8	45.1
SE1	1.3	457.7	59900	8.9	104.3	39.2
SE2	1.5	422.2	46800	9.3	99.3	40.8
SE3	1.4	396.3	46300	8.0	90.4	44.0

Notes: N/A not available. % 0-2 childcare, Public spending in healthcare, and income inequality (P80/P20) are not available. Weighted.



Table A. 6. Correlation matrix of contextual factors at national level

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1: Public spending in tertiary education (PPS mil)	1.00																
2: % ISCED 0-2	0.13	1.00															
3: % ISCED 5+	-0.05	-0.24	1.00														
4: Tertiary gap (% points)	-0.17	0.29	0.23	1.00													
5: Employment rate (%)	0.05	-0.34	0.37	-0.01	1.00												
6: % employment in traditional primary sector	-0.22	-0.15	-0.43*	-0.18	-0.59**	1.00											
7: % employment in large-scale engineering sector	0.02	-0.32	-0.70***	-0.37	-0.06	0.37	1.00										
8: % employment in larger enterprises	0.34	-0.02	0.09	0.12	0.34	-0.35	0.07	1.00									
9: EPL	0.40*	0.17	-0.24	0.03	-0.33	0.01	0.31	0.29	1.00								
10: GDP per capita (€)	0.10	-0.01	0.68***	0.23	0.32	-0.53**	-0.65***	0.12	-0.22	1.00							
11: Income inequality (P80/P20)	-0.05	0.34	-0.34	-0.08	-0.39	0.53**	0.07	-0.21	-0.03	-0.40*	1.00						
12: Unemployment rate (%)	-0.04	0.31	0.04	-0.01	-0.63***	0.28	-0.31	-0.39	0.06	-0.19	0.33	1.00					
13: Ratio 15-29/50-64	-0.23	-0.06	0.51**	0.41*	0.34	-0.41*	-0.52**	0.13	-0.21	0.41*	-0.55**	-0.21	1.00				
14: % 0-2 childcare	0.25	0.30	0.48*	0.05	0.07	-0.42*	-0.67***	-0.10	0.02	0.47*	-0.12	0.22	0.18	1.00			
15: Gender role attitudes	-0.36	-0.02	-0.58**	0.21	-0.43*	0.58**	0.46*	-0.31	-0.04	-0.71***	0.43*	0.06	-0.27	-0.74***	1.00		
16: LTC expenditure (% GDP)	0.41	-0.04	0.45*	-0.22	0.44*	-0.65**	-0.45*	0.32	-0.04	0.55**	-0.37	-0.18	0.40	0.55**	-0.83***	1.00	
17: Public spending healthcare per inhabitant (€)	0.32	0.02	0.61***	0.06	0.49*	-0.64***	-0.62**	0.19	-0.25	0.87***	-0.42*	-0.17	0.31	0.54**	-0.74***	0.84***	1.00
18: Number of physicians per 100 000 inhabitants	0.04	0.30	-0.04	0.13	-0.06	0.14	-0.07	-0.22	-0.26	-0.07	0.14	0.29	-0.21	0.01	0.08	-0.05	0.10
19: Median age	0.27	0.27	-0.63***	-0.41*	-0.36	0.34	0.45*	-0.18	0.12	-0.49**	0.51**	0.28	-0.89***	-0.06	0.19	-0.28	-0.32

Notes: \* p &lt; 0.05, \*\* p &lt; 0.01, \*\*\* p &lt; 0.001.

Table A. 7. Correlation matrix of contextual factors at NUTS 1 level

	1	2	3	4	5	6	7	8	9	10	11	12
1: % ISCED 0-2	1.00											
2: % ISCED 5+	-0.32**	1.00										
3: Employment rate (%)	-0.61***	0.27*	1.00									
4: % employment in traditional primary sector	0.14	-0.48***	-0.49***	1.00								
5: % employment in large-scale engineering sector	-0.44***	-0.26*	0.38**	0.02	1.00							
6: % employment in larger enterprises	-0.50***	0.33**	0.69***	-0.64***	0.29*	1.00						
7: GDP per capita (€)	-0.14	0.55***	0.41***	-0.68***	-0.16	0.64***	1.00					
8: Unemployment rate (%)	0.62***	0.04	-0.80***	0.27*	-0.63***	-0.63***	-0.18	1.00				
9: Ratio 15-34/35-64	-0.01	0.40***	-0.13	0.00	-0.21	0.11	0.23*	0.11	1.00			
10: Gender role attitudes	0.14	-0.65***	-0.45***	0.67***	0.37**	-0.59***	-0.68***	0.07	-0.15	1.00		
11: Number of physicians per 100 000 inhabitants	0.19	0.21	-0.17	-0.08	-0.18	-0.40**	0.12	0.35**	-0.25	0.09	1.00	
12: Median age	0.07	-0.42***	0.11	-0.03	0.08	-0.11	-0.17	-0.07	-0.94***	0.08	0.20	1.00

Notes: \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .



## Section B: Three-level regressions 2021

Table B. 1. Three-level regressions of labour market attachment on socio-demographic and socio-economic profile characteristics, 2021

	Unemployment	Nonemployment	ISEI (score points)	
	(AME)	(AME)	(1)	(2)
<b>Educational attainment</b> (ref: less-educated)				
Intermediate-educated	-0.055***	-0.099***	9.458***	9.300***
	(0.004)	(0.005)	(0.150)	(0.150)
Tertiary-educated	-0.125***	-0.218***	33.615***	33.280***
	(0.006)	(0.005)	(0.168)	(0.169)
<b>Health status</b> (ref.: very good)				
Good	0.025***	0.032***	-1.315***	-1.261***
	(0.006)	(0.006)	(0.174)	(0.174)
Fair	0.070***	0.140***	-3.881***	-3.644***
	(0.007)	(0.007)	(0.194)	(0.195)
(Very) poor	0.154***	0.377***	-4.957***	-4.337***
	(0.008)	(0.008)	(0.247)	(0.253)
<b>Family composition</b> (ref.: couples without children)				
Couples with children	-0.013**	-0.040***	-0.510***	-0.565***
	(0.005)	(0.005)	(0.142)	(0.142)
Unpartnered with dependent	0.035***	-0.001	-1.267***	-1.216***
	(0.006)	(0.007)	(0.204)	(0.204)
Living alone	0.050***	0.020***	-0.620***	-0.538**
	(0.005)	(0.005)	(0.167)	(0.167)
<b>Gender</b> (ref.: Women): Men	-0.014***	-0.129***	-0.465***	-0.572***
	(0.004)	(0.004)	(0.113)	(0.114)
<b>Age</b> (ref.: 50-54)				
55-59	0.001	0.051***	0.812***	0.867***
	(0.004)	(0.005)	(0.137)	(0.137)
60-64	0.031***	0.266***	1.449***	1.824***
	(0.005)	(0.004)	(0.143)	(0.151)
<b>Migration background</b> (ref.: no): Yes	0.059***	0.052***	-5.623***	-5.505***
	(0.005)	(0.006)	(0.198)	(0.198)
<b>Residential area</b> (ref.: cities)				
Towns and suburbs	-0.004	0.008+	-1.895***	-1.890***
	(0.004)	(0.005)	(0.149)	(0.149)
Rural areas	-0.019***	-0.005	-3.987***	-4.025***
	(0.005)	(0.005)	(0.150)	(0.150)
<b>Employment status</b> (ref.: employed)				
Unemployed				-2.928***
				(0.220)
Inactive				-1.279***
				(0.152)
(Intercept)	-24.748***	6.230	47.896	50.490
	(3.178)	(4.421)	(368.065)	(357.231)
Number of observations	58135	81576	75641	75641
AIC	18589.9	44394.4	647600.6	647382.5
BIC	18984.6	44804.0	648016.1	647834.9
ICC	0.0	0.1	0.1	0.1

Notes: + p < 0.1, \* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001. Weighted.

Table B. 2. Three-level regressions of income security and life satisfaction on socio-demographic and socio-economic profile characteristics, 2021

	Log yearly equivalent disposable income (€)		Poverty (AME)		Life satisfaction (rating points)	
	(1)	(2)	(1)	(2)	(1)	(2)
<b>Educational attainment</b> (ref: less-educated)						
Intermediate-educated	0.242***	0.210***	-0.093***	-0.076***	0.247***	0.114***
	(0.005)	(0.005)	(0.004)	(0.004)	(0.017)	(0.017)
Tertiary-educated	0.540***	0.476***	-0.175***	-0.140***	0.537***	0.266***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.019)	(0.020)
<b>Health status</b> (ref.: very good)						
Good	-	-	0.021***	0.016**	-	-
	0.058***	0.049***	(0.006)	(0.006)	0.529***	0.501***
	(0.006)	(0.006)			(0.020)	(0.020)
Fair	-	-	0.065***	0.044***	-	-
	0.155***	0.118***	(0.006)	(0.006)	1.286***	1.202***
	(0.007)	(0.007)			(0.022)	(0.022)
(Very) poor	-	-	0.119***	0.073***	-	-
	0.278***	0.184***	(0.007)	(0.007)	2.592***	2.435***
	(0.009)	(0.009)			(0.029)	(0.029)
<b>Family composition</b> (ref.: couples without children)						
Couples with children	-	-	0.007+	0.009*	-0.043**	-0.027+
	0.066***	0.074***	(0.004)	(0.005)	(0.017)	(0.016)
	(0.005)	(0.005)				
Unpartnered with dependent	-	-	0.055***	0.046***	-	-
	0.201***	0.192***	(0.005)	(0.006)	0.592***	0.498***
	(0.008)	(0.007)			(0.023)	(0.023)
Living alone	-	-	0.130***	0.121***	-	-
	0.303***	0.290***	(0.005)	(0.005)	0.580***	0.431***
	(0.006)	(0.006)			(0.019)	(0.019)
<b>Gender</b> (ref.: Women): Men	-0.004	-	0.007*	0.019***	-	-
	(0.004)	0.027***	(0.003)	(0.003)	0.051***	0.048***
		(0.004)			(0.013)	(0.013)
<b>Age</b> (ref.: 50-54)						
55-59	0.054***	0.061***	-0.014***	-0.018***	0.035*	0.014
	(0.005)	(0.005)	(0.004)	(0.004)	(0.016)	(0.016)
60-64	0.040***	0.091***	-0.014***	-0.034***	0.124***	0.109***
	(0.005)	(0.005)	(0.004)	(0.004)	(0.017)	(0.017)
<b>Migration background</b>	-	-	0.113***	0.102***	-	-0.019
	0.251***	0.226***			0.159***	
(ref.: no): Yes	(0.007)	(0.007)	(0.005)	(0.005)	(0.023)	(0.023)
<b>Residential area</b> (ref.: cities)						
Towns and suburbs	-	-	0.006	0.004	-0.041*	-0.032+
	0.039***	0.039***	(0.004)	(0.005)	(0.017)	(0.017)
	(0.006)	(0.005)				
Rural areas	-	-	0.032***	0.036***	-0.011	0.018
	0.100***	0.105***	(0.004)	(0.004)	(0.018)	(0.017)
	(0.006)	(0.005)				
<b>Employment status</b> (ref.: employed)						
Unemployed		-		0.199***		-
		0.481***		(0.006)		0.705***
		(0.008)				(0.025)
Inactive		-		0.097***		-0.055**
		0.197***		(0.004)		(0.017)
		(0.005)				
<b>Log. equalised disposable income</b>						0.355***
						(0.014)

	Log yearly equivalent disposable income (€)		Poverty (AME)		Life satisfaction (rating points)	
	(1)	(2)	(1)	(2)	(1)	(2)
<b>Poverty</b> (ref.: no): Yes						-0.085***
						(0.024)
(Intercept)	-2.154	-2.119	6.901	10.079***	12.231	11.542
	(160.648)	(107.049)	(7.076)	(1.796)	(9.255)	(13.919)
Number of observations	81149	81148	81577	81576	72013	71601
AIC	166442.2	162173.6	34139.9	32499.0	303854.8	299311.4
BIC	166860.9	162629.5	34549.5	32945.8	304268.1	299797.9
ICC	1.0	1.0	0.1	0.0	0.1	0.2

Notes: + p < 0.1, \* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001.

## Section C: Results for 2018

Table C. 1. Two-level regressions of labour market integration on socio-demographic and socio-economic profile characteristics, 2018

	Unemployment	Nonemployment	ISEI (score points)	
	(AME)	(AME)	(1)	(2)
<b>Educational attainment</b> (ref.: less-educated)				
Intermediate-educated	-0.050*** (0.005)	-0.078*** (0.004)	9.802*** (0.129)	9.669*** (0.129)
Tertiary-educated	-0.125*** (0.011)	-0.209*** (0.005)	34.215*** (0.148)	33.891*** (0.149)
<b>Health status</b> (ref.: very good)				
Good	0.019*** (0.005)	0.033*** (0.005)	-1.230*** (0.155)	-1.176*** (0.155)
Fair	0.076*** (0.008)	0.149*** (0.006)	-3.406*** (0.172)	-3.162*** (0.173)
(Very) poor	0.158*** (0.014)	0.391*** (0.007)	-4.837*** (0.213)	-4.293*** (0.219)
<b>Family composition</b> (ref.: couples without children)				
Couples with children	-0.015*** (0.004)	-0.031*** (0.004)	-0.391** (0.122)	-0.439*** (0.122)
Unpartnered with dependent	0.031*** (0.006)	0.002 (0.006)	-1.491*** (0.176)	-1.433*** (0.176)
Living alone	0.047*** (0.006)	0.021*** (0.005)	-0.870*** (0.150)	-0.786*** (0.150)
<b>Gender</b> (ref.: Women): Men	0.000 (0.003)	-0.124*** (0.003)	-0.430*** (0.099)	-0.493*** (0.100)
<b>Age</b> (ref.: 50-54)				
55-59	0.010** (0.003)	0.064*** (0.004)	0.549*** (0.119)	0.615*** (0.120)
60-64	0.032*** (0.005)	0.296*** (0.004)	1.359*** (0.125)	1.648*** (0.133)
<b>Migration background</b> (ref.: no): Yes	0.042*** (0.006)	0.009+ (0.006)	-5.571*** (0.167)	-5.479*** (0.167)
<b>Residential area</b> (ref.: cities)				
Towns and suburbs	0.002 (0.004)	0.017*** (0.004)	-1.837*** (0.125)	-1.823*** (0.125)
Rural areas	-0.010** (0.004)	0.003 (0.004)	-4.395*** (0.122)	-4.419*** (0.122)
<b>Employment status</b> (ref.: employed)				
Unemployed				-3.154*** (0.183)
Inactive				-1.038*** (0.128)
(Intercept)	-7.674 (7.039)	-15.562*** (3.195)	53.216* (24.355)	35.983 (25.125)
Number of observations	74178	110241	100431	100431
AIC	24450.8	59076.5	860692.3	860374.9
BIC	24727.2	59364.8	860987.3	860708.0
ICC	0.1	0.0	0.0	0.0

Notes: + p < 0.1, \* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001; w/o without. For binary dependent variables, AME reported. Weighted.

Table C 2. Two-level regressions of income security and life satisfaction on socio-demographic and socio-economic profile characteristics, 2018

	Log yearly equivalent disposable income (€)		Poverty (AME)		Life satisfaction (rating points)	
	(1)	(2)	(1)	(2)	(1)	(2)
<b>Educational attainment</b> (ref: less-educated)						
Intermediate-educated	0.273***	0.243***	-	-	0.379***	0.218***
	(0.005)	(0.005)	0.104***	0.089***	(0.015)	(0.015)
Tertiary-educated	0.572***	0.502***	-	-	0.702***	0.377***
	(0.006)	(0.005)	0.195***	0.156***	(0.018)	(0.018)
<b>Health status</b> (ref.: very good)						
Good	-	-	0.024***	0.017***	-	-
	0.061***	0.051***	(0.005)	(0.005)	0.545***	0.515***
	(0.006)	(0.006)			(0.018)	(0.018)
Fair	-	-	0.067***	0.040***	-	-
	0.173***	0.126***	(0.005)	(0.005)	1.252***	1.140***
	(0.006)	(0.006)			(0.020)	(0.020)
(Very) poor	-	-	0.130***	0.075***	-	-
	0.318***	0.212***	(0.006)	(0.006)	2.614***	2.399***
	(0.008)	(0.008)			(0.025)	(0.025)
<b>Family composition</b> (ref.: couples without children)						
Couples with children	-	-	-0.007*	-0.002	-	-
	0.048***	0.057***	(0.004)	(0.003)	0.125***	0.115***
	(0.005)	(0.004)			(0.015)	(0.014)
Unpartnered with dependent	-	-	0.043***	0.037***	-	-
	0.166***	0.157***	(0.005)	(0.004)	0.755***	0.667***
	(0.006)	(0.006)			(0.021)	(0.020)
Living alone	-	-	0.135***	0.127***	-	-
	0.317***	0.306***	(0.005)	(0.004)	0.696***	0.517***
	(0.006)	(0.005)			(0.017)	(0.017)
<b>Gender</b> (ref.: Women): Men	-	-	0.015***	0.024***	-	-
	0.015***	0.035***	(0.003)	(0.003)	0.061***	0.044***
	(0.004)	(0.004)			(0.012)	(0.012)
<b>Age</b> (ref.: 50-54)						
55-59	0.052***	0.066***	-	-	0.025+	0.009
	(0.004)	(0.004)	0.012***	0.019***	(0.014)	(0.014)
			(0.003)	(0.003)		
60-64	0.062***	0.123***	-	-	0.169***	0.144***
	(0.005)	(0.005)	0.023***	0.048***	(0.015)	(0.015)
			(0.003)	(0.004)		
<b>Migration background</b>						
(ref.: no): Yes	-	-	0.093***	0.087***	-	-
	0.201***	0.185***	(0.005)	(0.004)	0.229***	0.099***
	(0.006)	(0.006)			(0.020)	(0.020)
<b>Residential area</b> (ref.: cities)						
Towns and suburbs	-	-	-0.001	0.000	0.054***	0.075***
	0.050***	0.047***	(0.004)	(0.003)	(0.015)	(0.015)
	(0.005)	(0.005)				
Rural areas	-	-	0.044***	0.047***	0.038**	0.093***
	0.135***	0.138***	(0.003)	(0.003)	(0.015)	(0.014)
	(0.005)	(0.004)				
<b>Employment status</b> (ref.: employed)						
Unemployed		-		0.231***		-
		0.585***				0.771***
		(0.007)		(0.006)		(0.022)
Inactive		-		0.109***		-
		0.220***				0.080***

	Log yearly equivalent disposable income (€)		Poverty (AME)		Life satisfaction (rating points)	
	(1)	(2)	(1)	(2)	(1)	(2)
		(0.004)		(0.004)		(0.015)
Log. equalised disposable income						0.395***
Poverty (ref.: no): Yes						-0.193***
						(0.022)
(Intercept)	15.174**	8.777	-4.341	0.846	17.200*	3.007
	(5.697)	(7.806)	(2.661)	(3.408)	(8.651)	(5.803)
Number of observations	109723	109723	110241	110241	96034	95554
AIC	228282.7	220221.0	43925.5	41032.2	409323.5	402053.2
BIC	228580.5	220557.2	44213.8	41359.0	409617.2	402422.5
ICC	0.4	0.4	0.0	0.0	0.1	0.0

Notes: + p < 0.1, \* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001; w/o without. For binary dependent variables, AME reported. Weighted.



Table C 3. Three-level regressions of labour market integration on socio-demographic and socio-economic profile characteristics, 2018

	Unemployment	Nonemployment	ISEI (score points)	
	(AME)	(LPM)	(1)	(2)
<b>Educational attainment</b> (ref: less-educated)				
Intermediate-educated	-0.052***	-0.087***	9.997***	9.891***
	(0.004)	(0.004)	(0.143)	(0.143)
Tertiary-educated	-0.139***	-0.215***	34.855***	34.594***
	(0.006)	(0.005)	(0.166)	(0.168)
<b>Health status</b> (ref.: very good)				
Good	0.016**	0.028***	-1.246***	-1.211***
	(0.006)	(0.005)	(0.179)	(0.178)
Fair	0.073***	0.144***	-3.229***	-3.066***
	(0.006)	(0.006)	(0.199)	(0.200)
(Very) poor	0.143***	0.367***	-4.763***	-4.457***
	(0.008)	(0.007)	(0.248)	(0.253)
<b>Family composition</b> (ref.: couples without children)				
Couples with children	-0.017***	-0.036***	-0.437**	-0.474***
	(0.005)	(0.004)	(0.139)	(0.139)
Unpartnered with dependent	0.036***	0.001	-1.227***	-1.161***
	(0.006)	(0.006)	(0.202)	(0.202)
Living alone	0.037***	-0.008	-0.522**	-0.464**
	(0.006)	(0.005)	(0.180)	(0.180)
<b>Gender</b> (ref.: Women): Men	0.001	-0.138***	-0.209+	-0.221+
	(0.004)	(0.003)	(0.113)	(0.114)
<b>Age</b> (ref.: 50-54)				
55-59	0.010*	0.074***	0.692***	0.731***
	(0.004)	(0.004)	(0.137)	(0.137)
60-64	0.037***	0.337***	1.707***	1.843***
	(0.005)	(0.004)	(0.143)	(0.154)
<b>Migration background</b> (ref.: no): Yes	0.049***	0.007	-6.198***	-6.082***
	(0.006)	(0.006)	(0.220)	(0.220)
<b>Residential area</b> (ref.: cities)				
Towns and suburbs	0.000	0.010*	-1.606***	-1.605***
	(0.004)	(0.004)	(0.143)	(0.143)
Rural areas	-0.019***	-0.015***	-4.176***	-4.213***
	(0.005)	(0.004)	(0.146)	(0.146)
<b>Employment status</b> (ref.: employed)				
Unemployed				-2.690***
				(0.205)
Inactive				-0.560***
				(0.146)
(Intercept)	-6.666	7.944	140.599	142.574
	(4.196)	(35.377)	(128.771)	(106.169)
Number of observations	49743	75102	70421	70421
AIC	19200.8	102666.5	594668.5	594493.9
BIC	19579.8	103072.5	595071.6	594933.7
ICC	0.0	0.1	0.0	0.0

Notes: + p < 0.1, \* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001; w/o without. For unemployment, AME reported. For non-employment, estimates from a linear probability model (LPM) are reported due to persistent convergence issues in the generalized linear model. Weighted.

Table C. 4. Three-level regressions of income security and life satisfaction on socio-demographic and socio-economic profile characteristics, 2018

	Log yearly equivalent disposable income (€)		Poverty (LPM)		Life satisfaction (rating points)	
	(1)	(2)	(1)	(2)	(1)	(2)
<b>Educational attainment</b> (ref: less-educated)						
Intermediate-educated	0.275***	0.249***	-0.127***	-0.113***	0.374***	0.232***
	(0.006)	(0.006)	(0.003)	(0.003)	(0.018)	(0.018)
Tertiary-educated	0.587***	0.525***	-0.185***	-0.152***	0.745***	0.444***
	(0.007)	(0.007)	(0.004)	(0.004)	(0.021)	(0.022)
<b>Health status</b> (ref.: very good)						
Good	-0.062***	-0.054***	0.013**	0.009*	-0.565***	-0.538***
	(0.007)	(0.007)	(0.004)	(0.004)	(0.022)	(0.022)
Fair	-0.168***	-0.130***	0.054***	0.034***	-1.207***	-1.107***
	(0.008)	(0.008)	(0.005)	(0.005)	(0.025)	(0.024)
(Very) poor	-0.292***	-0.216***	0.130***	0.094***	-2.492***	-2.317***
	(0.010)	(0.010)	(0.006)	(0.006)	(0.031)	(0.031)
<b>Family composition</b> (ref.: couples without children)						
Couples with children	-0.060***	-0.068***	-0.001	0.003	-0.123***	-0.112***
	(0.006)	(0.005)	(0.003)	(0.003)	(0.018)	(0.017)
Unpartnered with dependent	-0.163***	-0.151***	0.043***	0.037***	-0.790***	-0.712***
	(0.008)	(0.008)	(0.005)	(0.005)	(0.025)	(0.024)
Living alone	-0.281***	-0.274***	0.135***	0.129***	-0.717***	-0.571***
	(0.007)	(0.007)	(0.004)	(0.004)	(0.022)	(0.022)
<b>Gender</b> (ref.: Women): Men	-0.022***	-0.036***	0.018***	0.022***	-0.055***	-0.032*
	(0.005)	(0.005)	(0.003)	(0.003)	(0.014)	(0.014)
<b>Age</b> (ref.: 50-54)						
55-59	0.064***	0.075***	-0.015***	-0.020***	0.017	-0.006
	(0.006)	(0.005)	(0.003)	(0.003)	(0.017)	(0.017)
60-64	0.088***	0.134***	-0.037***	-0.056***	0.143***	0.096***
	(0.006)	(0.006)	(0.003)	(0.003)	(0.018)	(0.019)
<b>Migration background</b> (ref.: no): Yes						
	-0.265***	-0.244***	0.137***	0.124***	-0.269***	-0.112***
	(0.009)	(0.009)	(0.005)	(0.005)	(0.027)	(0.027)
<b>Residential area</b> (ref.: cities)						
Towns and suburbs	-0.045***	-0.044***	0.002	0.002	0.027	0.039*
	(0.006)	(0.006)	(0.003)	(0.003)	(0.018)	(0.018)
Rural areas	-0.136***	-0.143***	0.047***	0.051***	0.035+	0.083***
	(0.006)	(0.006)	(0.003)	(0.003)	(0.018)	(0.018)
<b>Employment status</b> (ref.: employed)						
Unemployed		-0.546***		0.309***		-0.736***
		(0.008)		(0.005)		(0.027)
Inactive		-0.169***		0.076***		-0.051**
		(0.006)		(0.003)		(0.018)
<b>Log. equalised disposable income</b>						0.350***
						(0.015)
<b>Poverty</b> (ref.: no): Yes						-0.196***
						(0.026)
(Intercept)	-185.377	-185.015	8.945	9.038	25.596	32.624
	(187.233)	(206.486)	(20.406)	(17.964)	(97.225)	(100.709)
SD (Intercept iso3166:nuts1)	0.542	0.599	0.074	0.066	0.595	0.540
SD (Intercept iso3166)	0.082	0.070	0.036	0.027	0.136	0.108
SD (Observations)	0.507	0.492	0.296	0.288	1.475	1.438
Number of observations	74684	74684	75102	75102	64675	64283
R2 Marg.	0.502	0.493	0.138	0.199	0.316	0.356

	Log yearly equivalent disposable income (€)		Poverty (LPM)		Life satisfaction (rating points)	
	(1)	(2)	(1)	(2)	(1)	(2)
R2 Cond.	0.771	0.797	0.200	0.245	0.416	0.438
AIC	155937.7	151449.8	76299.8	72158.7	273017.2	268118.4
BIC	156343.4	151892.4	76705.7	72601.6	273416.6	268590.1
ICC	0.5	0.6	0.1	0.1	0.1	0.1
RMSE	0.61	0.60	0.36	0.35	1.77	1.73

Notes: +  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ ; w/o without. For binary dependent variables, estimates from linear probability models (LPM) are reported due to persistent convergence issues in the generalized linear models. Weighted.

Table C. 5. Two-level regressions of labour market integration on national contextual factors, 2018

	Unemployment (AME)				Nonemployment (AME)				ISEI scores			
	Education system	Labour market	Economy	Care	Education system	Labour market	Economy	Care	Education system	Labour market	Economy	Care
<i>Individual-level predictors included</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Public spending on tertiary education	0.008 (0.019)				-0.004 (0.017)				0.359 (0.683)			
% ISCED 5+	0.008 (0.019)				-0.017 (0.017)				0.851 (0.741)			
% ISCED 0–2	-0.011 (0.020)				0.013 (0.018)				0.932 (0.766)			
Tertiary gap 15–29 vs 55–64 (in % points)	-0.016 (0.019)				0.031+ (0.017)				0.470 (0.708)			
Employment rate		-0.029 (0.019)				-0.067*** (0.015)				0.159 (0.733)		
% employment in primary sector		-0.044* (0.018)				0.005 (0.013)				-1.301+ (0.696)		
% employment in large- scale engineering sector		0.013 (0.016)				-0.021 (0.014)				-1.034 (0.720)		
% employment in large firms (>50 employees)		-0.040* (0.018)				0.009 (0.014)				0.914 (0.694)		
EPL		-0.013 (0.016)				-0.001 (0.013)				0.318 (0.638)		
GDP per capita			-0.012 (0.016)				0.007 (0.018)				2.379*** (0.605)	
Income inequality (P80/P20)			-0.013 (0.017)				0.010 (0.019)				-0.391 (0.667)	
Unemployment rate			0.054** (0.018)				0.048** (0.017)				-0.204 (0.561)	
Age ratio: 15–29/50–64			-0.016 (0.017)				0.011 (0.019)				-0.769 (0.631)	
% 0–2 childcare				0.010 (0.010)				0.013 (0.023)				0.514 (0.806)
LTC				0.002 (0.016)				-0.070+ (0.037)				-0.794 (1.258)
Public spending on healthcare				-0.028+ (0.016)				0.050 (0.038)				2.961* (1.270)
Num. of physicians per 100 000 inhabitants				0.011 (0.009)				-0.003 (0.022)				-0.235 (0.766)
Median age				0.005 (0.011)				-0.001 (0.027)				0.987 (0.965)
(Intercept)	-2.563***	-2.637***	-2.558***	-2.482***	-1.013***	-1.011***	-1.026***	-1.218***	32.123***	32.346***	32.163***	32.145***

## Decomposition of between and within- country (regional) differences in the labour market attachment and earnings in late career

	(0.204)	(0.169)	(0.160)	(0.128)	(0.101)	(0.078)	(0.096)	(0.125)	(0.705)	(0.610)	(0.563)	(0.758)
Num. of observations	74178	68252	74178	60817	110241	101863	110241	88839	100431	92650	100431	80679
AIC	24457.0	21865.2	24444.0	18857.9	59094.5	54470.9	59091.4	46205.6	860490.1	793115.9	860479.3	696602.3
BIC	24641.3	22056.9	24628.3	19047.2	59286.7	54671.1	59283.6	46402.9	860709.0	793342.3	860698.2	696825.5
ICC	0.2	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0

Notes: +  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ ; w/o without. For binary dependent variables, AME reported. For individual-level predictors included see **Error! Reference source not found..** Weighted.



Table C. 6. Two-level regressions of income security and life satisfaction on national contextual factors, 2018

	Equivalent disposable income				Poverty (AME)				Life satisfaction			
	Education system	Labour market	Economy	Care	Education system	Labour market	Economy	Care	Education system	Labour market	Economy	Care
<i>Individual-level predictors included</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Public spending on tertiary education	0.209+ (0.108)				-0.011 (0.008)				0.082 (0.103)			
% ISCED 5+	0.591*** (0.112)				-0.011 (0.008)				0.055 (0.107)			
% ISCED 0–2	0.230* (0.116)				0.000 (0.009)				-0.044 (0.111)			
Tertiary gap 15–29 vs 55–64 (in % points)	-0.027 (0.110)				0.002 (0.008)				0.031 (0.105)			
Employment rate		0.123 (0.117)				-0.003 (0.008)				0.218+ (0.118)		
% employment in primary sector		-0.341** (0.105)				0.025*** (0.007)				0.154 (0.105)		
% employment in large-scale engineering sector		-0.419*** (0.106)				0.002 (0.008)				-0.096 (0.107)		
% employment in large firms (>50 employees)		0.051 (0.109)				-0.003 (0.008)				0.083 (0.109)		
EPL		0.044 (0.102)				0.006 (0.007)				0.252* (0.102)		
GDP per capita			0.605*** (0.075)				-0.017** (0.007)				0.089 (0.095)	
Income inequality (P80/P20)			-0.295*** (0.080)				0.024*** (0.007)				-0.176+ (0.101)	
Unemployment rate			0.137+ (0.072)				-0.002 (0.006)				-0.139 (0.091)	
Age ratio: 15–29/50–64			-0.017 (0.081)				0.003 (0.007)				-0.041 (0.102)	
% 0–2 childcare				0.106+ (0.058)				0.000 (0.009)				-0.099 (0.090)
LTC				-0.036 (0.095)				-0.005 (0.015)				0.096 (0.145)
Public spending on healthcare				0.635*** (0.097)				-0.022 (0.015)				0.072 (0.149)
Num. of physicians per 100 000 inhabitants				-0.058 (0.058)				-0.002 (0.009)				-0.138 (0.089)
Median age				0.054 (0.070)				0.007 (0.011)				-0.070 (0.107)
(Intercept)	9.506*** (0.104)	9.566*** (0.089)	9.506*** (0.066)	9.579*** (0.053)	-2.393*** (0.092)	-2.411*** (0.084)	-2.396*** (0.078)	-2.489*** (0.101)	4.121*** (0.159)	4.091*** (0.158)	4.134*** (0.149)	4.554*** (0.159)
Num. of observations	109723	101461	109723	88473	110241	101863	110241	88839	95554	88172	95554	77683
AIC	220282.8	202808.7	220262.7	178393.9	41041.3	37404.4	41023.8	31710.7	402122.2	371432.3	402113.9	325612.0

BIC	220503.7	203037.3	220483.6	178619.3	41252.8	37623.6	41235.3	31926.7	402358.9	371676.3	402350.6	325852.8
ICC	0.6	0.5	0.3	0.2	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1

Notes: +  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ ; w/o without. For binary dependent variables, AME reported. For individual-level predictors included see **Error! Reference source not found..** Weight





Table C. 7. Three-level regressions of labour market integration on regional contextual factors, 2018

	Unemployment (AME)				Nonemployment (AME)				ISEI scores			
	Education system	Labour market	Economy	Care	Education system	Labour market	Economy	Care	Education system	Labour market	Economy	Care
Individual-level predictors included	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Resp. national-level indicators incl.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
% ISCED 5+	0.006 (0.007)				-0.010 (0.009)				0.499** (0.181)			
% ISCED 0-2	0.017* (0.008)				0.008 (0.009)				0.138 (0.192)			
Employment rate		-0.019*** (0.004)				-0.033*** (0.004)				0.267* (0.122)		
% employment in primary sector		-0.007* (0.004)				-0.007+ (0.004)				-0.324** (0.117)		
% employment in large- scale engineering sector		-0.003 (0.004)				0.004 (0.005)				-0.203 (0.149)		
GDP per capita			0.006 (0.004)				-0.009 (0.006)				0.265+ (0.149)	
Unemployment rate			0.027*** (0.005)				0.027*** (0.006)				-0.282+ (0.145)	
Age ratio: 15-29/50-64				-0.008+ (0.004)			-0.002 (0.006)				0.327* (0.166)	
Conservative gender role attitudes				-0.001 (0.005)				0.003 (0.007)				-0.167 (0.140)
Num. of physicians per 100 000 inhabitants				0.003 (0.005)				0.001 (0.007)				0.102 (0.134)
Median age				-0.007 (0.006)				-0.003 (0.008)				-0.443** (0.150)
(Intercept)	-2.256*** -2.256***	-2.456*** -2.456***	-2.522*** (0.250)	-2.615*** (0.309)	-0.793*** (0.156)	-0.966*** (0.094)	-0.928*** (0.127)	-0.800*** (0.150)	31.054*** (1.026)	31.924*** (0.851)	31.989*** (0.805)	31.398*** (0.883)
Number of observations	49743	47255	49743	43921	75102	71356	75102	67104	70421	67191	70421	62744
AIC	19246.1	17167.6	19213.0	15752.5	45269.9	42475.0	45242.1	38569.3	594661.9	568152.4	594653.0	532098.5
BIC	19431.2	17369.2	19415.7	15952.4	45463.7	42686.1	45454.3	38778.9	594881.8	568389.4	594891.2	532333.7
ICC	0.2	0.1	0.1	0.2	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0

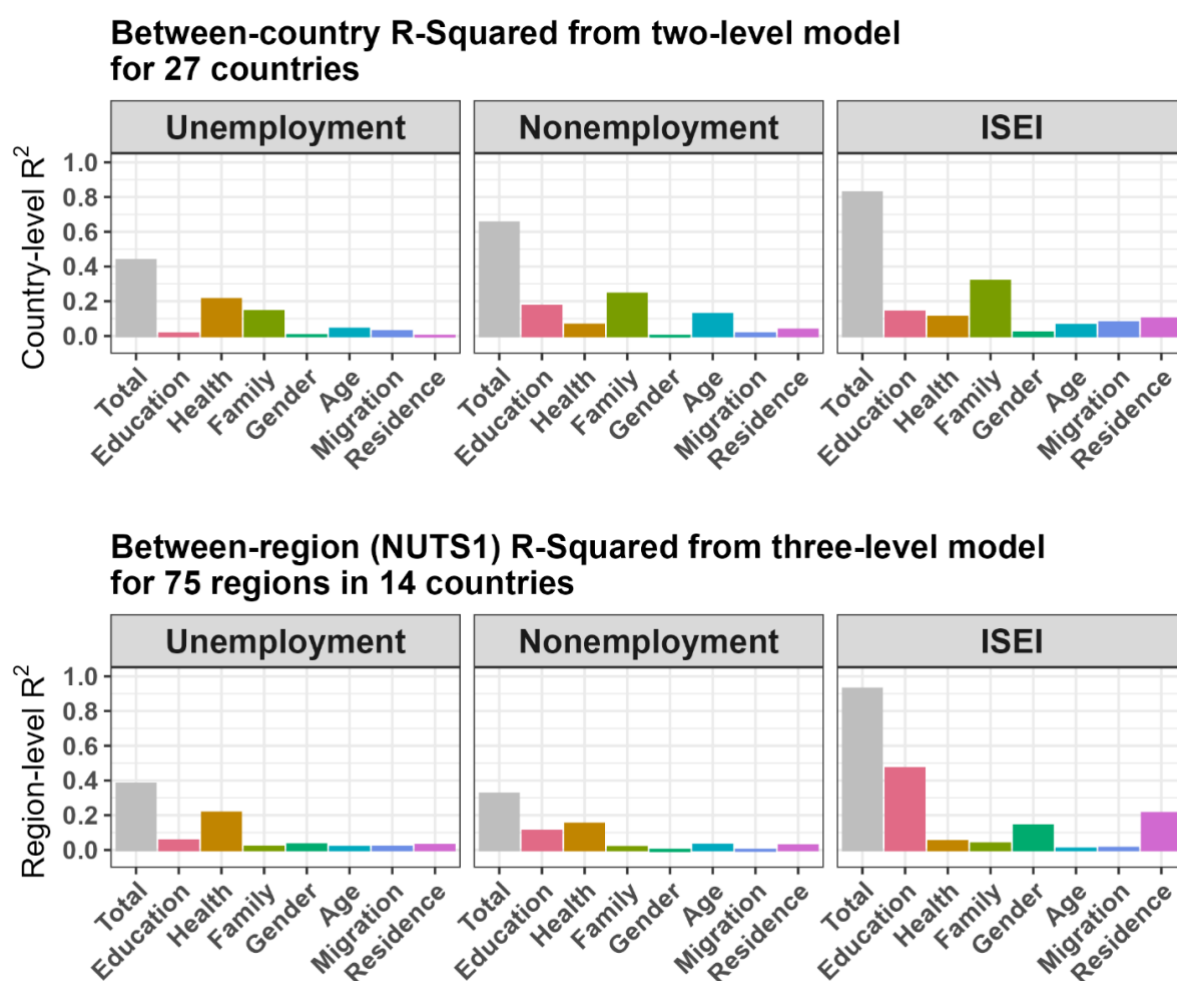
Notes: 14 countries (see Section 4.1). +  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ . For individual-level predictors included see Table 1 and for national-level contextual predictors see Table 2. For binary dependent variables, AME reported. Weighted.

Table C. 8. Three-level regressions of income security and life satisfaction on regional contextual factors, 2018

	Equivalised disposable income				Poverty				Life satisfaction			
	Education system	Labour market	Economy	Care	Education system	Labour market	Economy	Care	Education system	Labour market	Economy	Care
<i>Individual-level predictors included</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Respective national-level indicators included</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
% ISCED 5+	0.006 (0.016)				0.009 (0.007)				-0.065* (0.028)			
% ISCED 0–2	-0.060*** (0.017)				0.039*** (0.007)				-0.056+ (0.030)			
Employment rate		0.051*** (0.007)				-0.026*** (0.003)				0.034 (0.022)		
% employment in primary sector		-0.030*** (0.007)				0.007* (0.003)				0.005 (0.021)		
% employment in large- scale engineering sector		0.025** (0.009)				-0.011** (0.004)				0.005 (0.026)		
GDP per capita			0.036*** (0.011)				-0.010* (0.004)				-0.053** (0.021)	
Unemployment rate			-0.057*** (0.011)				0.028*** (0.004)				-0.093*** (0.020)	
Age ratio: 15–29/50–64			-0.014 (0.013)				0.013** (0.004)				0.063** (0.023)	
Conservative gender role attitudes				-0.024+ (0.015)				0.012* (0.006)				-0.052* (0.021)
Num. of physicians per 100 000 inhabitants				0.015 (0.016)				-0.006 (0.006)				-0.055** (0.021)
Median age				0.010 (0.016)				-0.020** (0.006)				0.009 (0.022)
(Intercept)	9.433*** (0.189)	9.576*** (0.124)	9.622*** (0.069)	9.255*** (0.159)								
Number of observations	74684	71036	74684	66686	75102	71356	75102	67104	64283	60913	64283	58613
AIC	151517.4	143154.8	151483.0	135283.8	32420.9	29993.4	32382.3	27365.8	268204.8	254362.0	268202.7	241929.1
BIC	151738.7	143393.3	151722.7	135520.6	32633.1	30222.7	32613.0	27593.6	268440.6	254614.5	268456.7	242180.5
ICC	0.6	0.4	0.2	0.5	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.2

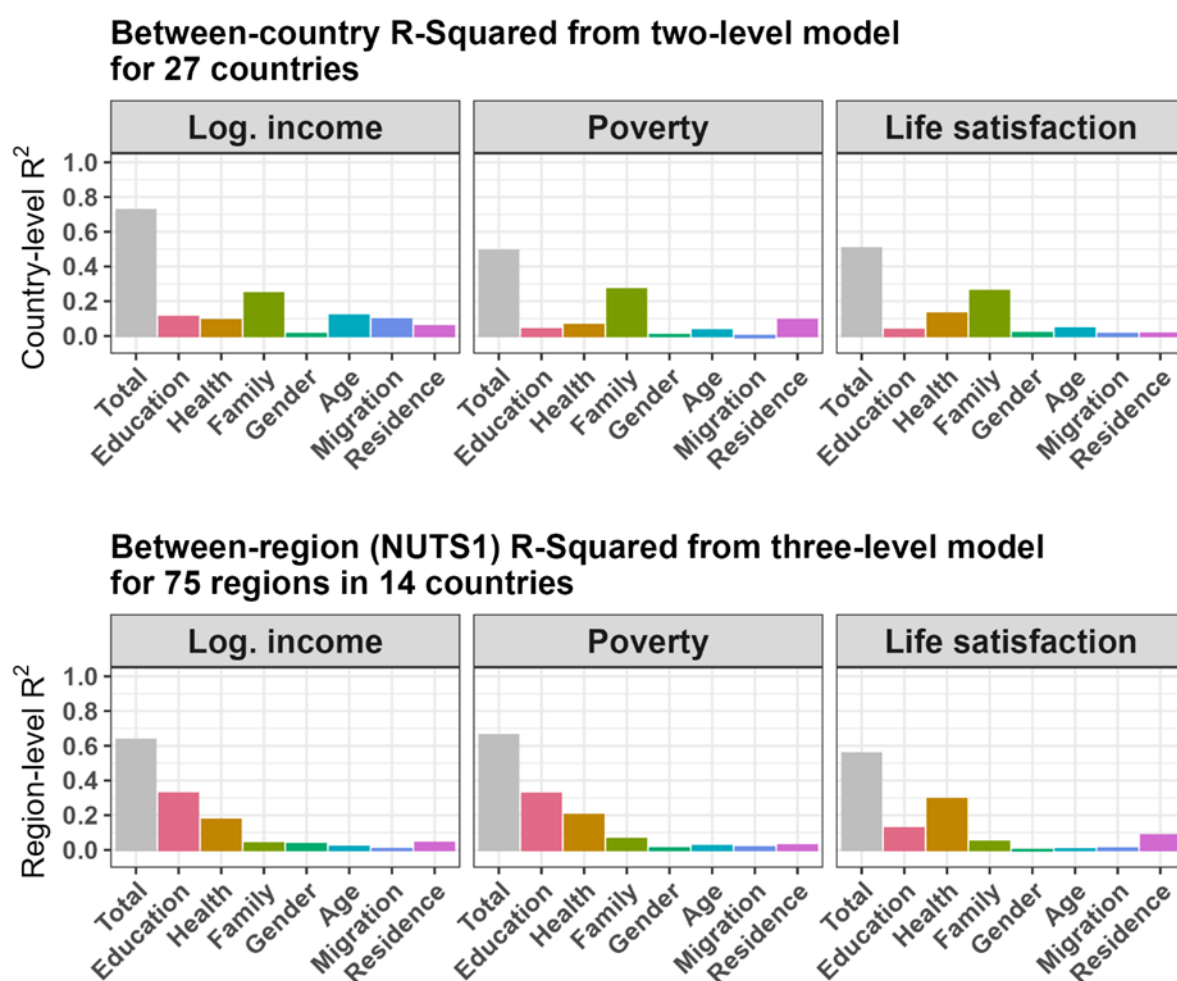
Notes: 14 countries (see Section 4.1). + p < 0.1, \* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001. For individual-level predictors included see Table 1 and for national-level contextual predictors see Table 2Error! Reference source not found.

Figure C. 1. Decompositions of regional variations in labour market outcomes, 2018



Notes: Weighted results.

Figure C. 2. Decompositions of regional variations in labour market outcomes, 2018



Notes: Weighted results.

## Section D: Shapley decomposition of regional variations in labour market outcomes



Table D. 1. Two-level regressions of labour market integration on country-level predictors, Shapley decomposition (Figure 4)

	Unemployment	Nonemployment	ISEI (score points)	
	(LPM)	(LPM)	(1)	(2)
<b>Educational attainment</b> (ref: less-educated)				
Intermediate-educated	-0.047	-0.278	-0.732	-2.654
	(0.231)	(0.216)	(4.584)	(3.348)
Tertiary-educated	0.232	-0.297	-6.029	-4.689
	(0.414)	(0.331)	(7.868)	(6.447)
<b>Health status</b> (ref.: very good)				
Good	-0.045	0.298	-11.585+	-10.574*
	(0.315)	(0.312)	(6.944)	(4.943)
Fair	-0.016	-0.233	-19.041*	-15.999**
	(0.316)	(0.347)	(8.054)	(6.133)
(Very) poor	0.674	0.180	22.112	27.665*
	(1.422)	(0.708)	(15.559)	(11.528)
<b>Family composition</b> (ref.: couples without children)				
Couples with children	0.039	0.397	-7.700	-3.024
	(0.437)	(0.427)	(9.122)	(6.584)
Unpartnered with dependent	0.780	-0.159	-14.106	-19.984
	(0.885)	(0.738)	(17.828)	(13.548)
Living alone	-0.330	0.172	21.721+	19.310*
	(0.689)	(0.603)	(12.981)	(9.654)
<b>Gender</b> (ref.: Women): Men				
	0.392	-0.545	-20.446	2.525
	(0.730)	(1.070)	(20.757)	(17.553)
<b>Age</b> (ref.: 50-54)				
55-59	0.480	0.426	41.654+	47.143**
	(0.996)	(1.078)	(22.921)	(18.087)
60-64	0.557	1.817+	-1.834	28.235+
	(0.635)	(1.017)	(20.105)	(16.306)
<b>Migration background</b> (ref.: no): Yes				
	-0.060	0.215	6.988+	8.989**
	(0.256)	(0.170)	(3.940)	(2.998)
<b>Residential area</b> (ref.: cities)				
Towns and suburbs	-0.035	0.021	10.208***	10.959***
	(0.138)	(0.122)	(2.677)	(1.928)
Rural areas	0.216	0.413+	-5.370	1.608
	(0.299)	(0.225)	(5.052)	(4.059)
<b>Employment status</b> (ref.: employed)				
Unemployed				-17.429*
				(8.821)
Inactive				-22.548***
				(6.004)
(Intercept)	-0.550	-0.322	47.227**	26.237+
	(0.655)	(0.781)	(16.981)	(15.118)

	Unemployment	Nonemployment	ISEI (score points)	
	(LPM)	(LPM)	(1)	(2)
SD (Intercept iso3166)	0.070	0.068	1.506	1.045
SD (Observations)	0.233	0.329	12.543	12.521
Number of observations	85968	119509	112066	112066
R2 Marg.	0.112	0.320	0.536	0.541
R2 Cond.	0.185	0.347	0.543	0.544
AIC	59480.7	165863.0	970401.1	969997.8
BIC	59771.0	166163.4	970699.6	970334.8
ICC	0.1	0.0	0.0	0.0
RMSE	0.29	0.42	15.77	15.74

Notes: + p < 0.1, \* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001.



Table D. 2. Three-level regressions of labour market integration on region-level predictors, Shapley decomposition (Figure 4)

	Unemployment	Nonemployment	ISEI (score points)	
	(LPM)	(LPM)	(1)	(2)
<b>Educational attainment</b> (ref: less-educated)				
Intermediate-educated	-0.306*	-0.136	7.092	3.155
	(0.119)	(0.150)	(6.176)	(6.298)
Tertiary-educated	-0.322**	-0.526***	35.860***	33.559***
	(0.120)	(0.150)	(5.522)	(5.680)
<b>Health status</b> (ref.: very good)				
Good	0.003	-0.180	1.171	1.455
	(0.164)	(0.277)	(9.385)	(9.014)
Fair	0.268+	0.197	-5.465	0.991
	(0.161)	(0.253)	(8.923)	(8.967)
(Very) poor	-0.178	0.349	-11.087	-13.785
	(0.320)	(0.382)	(14.374)	(14.240)
<b>Family composition</b> (ref.: couples without children)				
Couples with children	-0.384***	-0.153	16.703*	10.825
	(0.110)	(0.197)	(7.202)	(7.295)
Unpartnered with dependent	-0.302	-0.157	15.439	12.441
	(0.333)	(0.455)	(15.881)	(15.283)
Living alone	-0.300	0.300	13.191	8.260
	(0.197)	(0.284)	(9.707)	(9.730)
<b>Gender</b> (ref.: Women): Men	0.401+	-0.304	-9.098	-3.496
	(0.228)	(0.428)	(12.137)	(11.877)
<b>Age</b> (ref.: 50-54)				
55-59	-0.021	-0.129	-8.932	-7.046
	(0.218)	(0.330)	(10.392)	(10.073)
60-64	-0.628**	0.185	1.296	-8.800
	(0.205)	(0.299)	(9.701)	(10.621)
<b>Migration background</b> (ref.: no): Yes	-0.058	-0.118	1.188	0.384
	(0.113)	(0.138)	(5.407)	(5.192)
<b>Residential area</b> (ref.: cities)				
Towns and suburbs	-0.192**	-0.032	1.565	-1.690
	(0.067)	(0.097)	(3.410)	(3.537)
Rural areas	-0.130*	-0.094	-2.142	-3.738
	(0.059)	(0.079)	(2.834)	(2.820)
<b>Employment status</b> (ref.: employed)				
Unemployed				-22.069*
				(9.599)
Inactive				5.855
				(7.166)
(Intercept)	-2.634	1.915	47.896	50.490
	(1.816)	(4.655)	(368.065)	(357.231)
SD (Intercept iso3166:nuts1)	0.030	0.040	1.435	1.365
SD (Intercept iso3166)	0.036	0.105	3.961	3.847

	Unemployment	Nonemployment	ISEI (score points)	
	(LPM)	(LPM)	(1)	(2)
SD (Observations)	0.244	0.339	12.409	12.391
Number of observations	58135	81576	75641	75641
R2 Marg.	0.159	0.300	0.524	0.527
R2 Cond.	0.189	0.370	0.573	0.574
AIC	41398.4	112066.0	647600.6	647382.5
BIC	41802.1	112484.9	648016.1	647834.9
ICC	0.0	0.1	0.1	0.1
RMSE	0.30	0.42	15.31	15.29

Notes: +  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

Table D. 3. Two-level regressions of income security and life satisfaction on country-level predictors, Shapley decomposition (Figure 5)

	Log yearly equivalent disposable income (€)		Poverty (LPM)		Life satisfaction (rating points)	
	(1)	(2)	(1)	(2)	(1)	(2)
<b>Educational attainment</b> (ref: less-educated)						
Intermediate-educated	-1.684	-2.553*	-0.032	0.020	0.425	1.971
	(1.247)	(1.092)	(0.106)	(0.095)	(1.471)	(1.793)
Tertiary-educated	-0.867	-1.477	-0.056	-0.057	0.936	2.026
	(1.909)	(1.734)	(0.162)	(0.151)	(2.150)	(2.258)
<b>Health status</b> (ref.: very good)						
Good	-1.593	-0.625	0.133	0.068	-1.931	-0.099
	(1.783)	(1.499)	(0.153)	(0.132)	(1.841)	(1.636)
Fair	-2.949	-3.514*	0.003	0.027	1.724	4.727*
	(2.003)	(1.686)	(0.170)	(0.147)	(2.142)	(2.236)
(Very) poor	1.738	1.865	0.060	0.102	1.420	-0.822
	(4.062)	(3.398)	(0.347)	(0.297)	(4.467)	(3.990)
<b>Family composition</b> (ref.: couples without children)						
Couples with children	-1.694	-0.399	0.482*	0.414*	5.666*	4.469
	(2.470)	(2.107)	(0.209)	(0.182)	(2.875)	(3.885)
Unpartnered with dependent	-4.609	-4.322	0.214	0.080	-15.873**	-12.138*
	(4.216)	(3.732)	(0.362)	(0.326)	(5.134)	(5.226)
Living alone	1.822	1.992	0.622*	0.659**	8.400+	1.765
	(3.528)	(2.960)	(0.296)	(0.254)	(4.471)	(6.887)
<b>Gender</b> (ref.: Women): Men	3.430	2.417	-1.123*	-1.082*	2.240	1.089
	(6.097)	(5.075)	(0.525)	(0.447)	(3.424)	(3.849)
<b>Age</b> (ref.: 50-54)						
55-59	8.517	11.427*	-0.775	-1.145*	-11.140	-16.813*
	(6.138)	(5.420)	(0.529)	(0.477)	(6.866)	(7.899)
60-64	6.030	12.189*	0.079	-0.331	-2.633	-7.325
	(5.830)	(5.332)	(0.498)	(0.468)	(5.802)	(7.434)
<b>Migration background</b>	1.365	1.968*	0.096	0.070	-1.321	-3.343*
(ref.: no): Yes	(0.971)	(0.879)	(0.084)	(0.078)	(1.106)	(1.687)
<b>Residential area</b> (ref.: cities)						
Towns and suburbs	0.767	0.774	-0.117+	-0.108*	1.262	1.209
	(0.702)	(0.582)	(0.060)	(0.051)	(0.775)	(0.898)
Rural areas	0.056	1.561	-0.057	-0.165	-1.334	-0.444
	(1.296)	(1.181)	(0.111)	(0.103)	(1.519)	(1.723)
<b>Employment status</b> (ref.: employed)						
Unemployed		-4.565*		0.435**		-1.095
		(1.870)		(0.163)		(3.167)
Inactive		-3.252*		0.181		-0.400
		(1.559)		(0.137)		(2.333)
<b>Log. equalised disposable income</b>						1.215*
						(0.537)

	Log yearly equivalent disposable income (€)		Poverty (LPM)		Life satisfaction (rating points)	
	(1)	(2)	(1)	(2)	(1)	(2)
<b>Poverty</b> (ref.: no): Yes						6.460
						(6.456)
(Intercept)	6.044	3.971	0.606	0.822*	8.437+	-1.259
	(4.447)	(3.796)	(0.384)	(0.333)	(4.612)	(6.673)
SD (Intercept iso3166)	0.390	0.315	0.033	0.027	0.442	0.352
SD (Observations)	0.457	0.442	0.272	0.264	1.382	1.355
Number of observations	118973	118972	119510	119509	108989	108470
R2 Marg.	0.562	0.628	0.151	0.217	0.288	0.341
R2 Cond.	0.747	0.753	0.163	0.225	0.354	0.383
AIC	243305.7	235742.9	120219.1	113629.3	462363.3	455860.7
BIC	243606.0	236081.9	120519.5	113968.5	462660.9	456234.9
ICC	0.4	0.3	0.0	0.0	0.1	0.1
RMSE	0.58	0.56	0.34	0.33	1.73	1.69

Notes: + p < 0.1, \* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001.

Table D. 4. Three-level regressions of income security and life satisfaction on region-level predictors, Shapley decomposition (Figure 5)

	Log yearly equivalent disposable income (€)		Poverty (LPM)		Life satisfaction (rating points)	
	(1)	(2)	(1)	(2)	(1)	(2)
<b>Educational attainment</b> (ref: less-educated)						
Intermediate-educated	1.035***	0.719**	-0.584***	-0.457**	0.636	-0.579
	(0.311)	(0.272)	(0.155)	(0.147)	(0.632)	(0.651)
Tertiary-educated	1.642***	0.620+	-0.632***	-0.330+	0.568	-0.897
	(0.302)	(0.357)	(0.154)	(0.198)	(0.644)	(0.793)
<b>Health status</b> (ref.: very good)						
Good	-0.724	-0.431	0.390	0.258	-2.927*	-1.941+
	(0.569)	(0.463)	(0.289)	(0.253)	(1.153)	(1.071)
Fair	-1.060*	-0.628	0.502+	0.166	-4.053***	-2.444*
	(0.517)	(0.649)	(0.262)	(0.360)	(1.107)	(1.055)
(Very) poor	-0.667	1.276***	0.203	-0.465**	-5.385**	-4.369**
	(0.750)	(0.289)	(0.389)	(0.158)	(1.816)	(1.645)
<b>Family composition</b> (ref.: couples without children)						
Couples with children	1.150**	-0.487	-0.531**	0.222	1.552+	0.269
	(0.396)	(0.778)	(0.203)	(0.431)	(0.819)	(0.812)
Unpartnered with dependent	-0.064	0.410	0.055	-0.296	-1.849	-1.272
	(0.916)	(0.495)	(0.469)	(0.273)	(2.008)	(1.761)
Living alone	0.438	-0.804+	-0.284	0.418	-0.783	-1.083
	(0.575)	(0.480)	(0.293)	(0.264)	(1.269)	(1.199)
<b>Gender</b> (ref.: Women): Men	-0.496	-0.591	0.207	0.266	0.366	1.219
	(0.835)	(0.712)	(0.438)	(0.402)	(1.378)	(1.291)
<b>Age</b> (ref.: 50-54)						
55-59	-1.016	-1.287*	0.435	0.543+	0.071	0.925
	(0.662)	(0.566)	(0.335)	(0.308)	(1.235)	(1.202)
60-64	1.033+	0.299	-0.476	-0.220	0.654	-0.411
	(0.593)	(0.580)	(0.306)	(0.319)	(1.194)	(1.201)
<b>Migration background</b>	0.485+	0.430+	-0.109	-0.078	0.646	0.240
(ref.: no): Yes	(0.279)	(0.237)	(0.142)	(0.131)	(0.651)	(0.614)
<b>Residential area</b> (ref.: cities)						
Towns and suburbs	0.441*	0.288+	-0.216*	-0.155+	0.720+	0.251
	(0.197)	(0.171)	(0.100)	(0.094)	(0.381)	(0.367)
Rural areas	0.237	0.119	-0.111	-0.060	0.345	0.116
	(0.159)	(0.137)	(0.081)	(0.075)	(0.324)	(0.296)
<b>Employment status</b> (ref.: employed)						
Unemployed		-2.073***		0.801**		-0.674
		(0.460)		(0.249)		(1.199)
Inactive		-0.268		0.159		0.321
		(0.309)		(0.168)		(0.711)
<b>Log. equalised disposable income</b>						0.571
						(0.737)

	Log yearly equivalent disposable income (€)		Poverty (LPM)		Life satisfaction (rating points)	
	(1)	(2)	(1)	(2)	(1)	(2)
<b>Poverty</b> (ref.: no): Yes						-0.953
						(1.411)
(Intercept)	-2.154	-2.119	1.403	1.401	12.231	11.542
	(160.648)	(107.049)	(2.603)	(1.032)	(9.255)	(13.919)
SD (Intercept iso3166:nuts1)	0.085	0.071	0.043	0.038	0.180	0.155
SD (Intercept iso3166)	4.002	2.665	0.055	0.000	0.360	0.565
SD (Observations)	0.475	0.463	0.285	0.278	1.408	1.381
Number of observations	81149	81148	81577	81576	72013	71601
R2 Marg.	0.028	0.063	0.137	0.201	0.312	0.326
R2 Cond.	0.986	0.973	0.184	0.215	0.364	0.428
AIC	166442.2	162173.6	84153.2	80103.3	303854.8	299311.4
BIC	166860.9	162629.5	84572.1	80559.5	304268.1	299797.9
ICC	1.0	1.0	0.1	0.0	0.1	0.2
RMSE	0.59	0.58	0.35	0.34	1.72	1.69

Notes: + p < 0.1, \* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001.