

## Decentralizing happiness: The role of regional governments

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### ABSTRACT:

This study examines how political and fiscal decentralization are associated with subjective well-being across 140 European NUTS-2 regions using 2022 data. The results show that political decentralization is more strongly associated with life satisfaction in lower-governance regions in pooled models, suggesting a compensatory pattern. However, this relationship disappears once country fixed effects are introduced, indicating that the pooled association is driven primarily by cross-country institutional differences rather than robust within-country regional variation. Fiscal decentralization results are more mixed: broad expenditure, revenue, and transfer indicators are sensitive to specification, while regional discretion over personal income tax emerges as a more substantive form of fiscal autonomy within countries. Overall, the findings suggest that decentralization is not uniformly associated with higher well-being; its relationship with life satisfaction depends on the type of authority decentralized, governance quality, and broader national institutional context.

**KEYWORDS:** Decentralization; regional governments; happiness; governance quality.

**JEL CLASSIFICATION:** D60; H70; H71; H72; R50.

## Descentralizando la felicidad: El papel de los gobiernos regionales

### RESUMEN:

Este estudio examina cómo la descentralización política y fiscal se asocia con el bienestar subjetivo en 140 regiones europeas NUTS-2 utilizando datos de 2022. Los resultados muestran que la descentralización política presenta una asociación más fuerte con la satisfacción con la vida en las regiones con menor calidad de gobernanza en los modelos de datos agrupados, lo que sugiere un patrón compensatorio. Sin embargo, esta relación desaparece una vez que se introducen efectos fijos por país, lo que indica que la asociación observada en los modelos de datos agrupados está impulsada principalmente por diferencias institucionales entre países, más que por una variación regional sólida dentro de cada país.

Los resultados relativos a la descentralización fiscal son más heterogéneos: los indicadores generales de gasto, ingresos y transferencias son sensibles a la especificación del modelo, mientras que la capacidad de decisión regional sobre el impuesto sobre la renta de las personas físicas emerge como una forma más sustantiva de autonomía fiscal dentro de los países. En conjunto, los hallazgos sugieren que la descentralización no se asocia de manera uniforme con un mayor bienestar; su relación con la satisfacción con la vida depende del tipo de autoridad que se descentraliza, de la calidad de la gobernanza y del contexto institucional nacional más amplio.

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**PALABRAS CLAVE:** Descentralización; gobiernos regionales; felicidad; calidad de la gobernanza.

**CLASIFICACIÓN JEL:** D60; H70; H71; H72; R50.

## 1. INTRODUCTION

Why are some regions happier than others? Subjective well-being is shaped not only by income, employment, and demographics, but also by the institutional environments in which citizens live. Political institutions affect how preferences are represented, how responsive governments are to local needs, and how citizens evaluate public services. Within this debate, decentralization remains important but contested. By bringing decision-making closer to citizens, it may improve representation, accountability, and responsiveness; yet its effects are unlikely to be uniform, especially where regions differ in institutional quality and government capacity.

This paper examines whether political and fiscal decentralization are associated with regional life satisfaction across European NUTS-2 regions, and whether these associations depend on government quality. The central argument is that decentralization does not operate independently of institutional context. Political decentralization may matter most in weaker institutional environments, where regional authority can provide territorial voice, proximity, and perceived responsiveness. More demanding forms of fiscal autonomy, by contrast, may require stronger institutional capacity to translate into higher well-being.

The paper tests four expectations. First, political decentralization is expected to be positively associated with regional life satisfaction. Second, this relationship is expected to be conditional on institutional quality. Third, political decentralization may be especially relevant in lower-governance contexts, consistent with a compensatory mechanism. Fourth, broad fiscal decentralization indicators may behave differently from narrower forms of fiscal autonomy, particularly regional discretion over personal income taxation.

The study is positioned within the literature on decentralization and subjective well-being, especially Díaz-Serrano and Rodríguez-Pose (2012), Rodríguez-Pose and Tselios (2019), and Lago et al. (2025). Its contribution is not primarily methodological. Rather, it extends an interaction-based framework to the regional well-being context while distinguishing more carefully between political decentralization and different forms of fiscal decentralization.

The paper makes four contributions. First, it analyzes decentralization at the NUTS-2 regional level, allowing intra-national variation to be examined rather than relying only on national averages. Second, it distinguishes between expenditure decentralization, revenue decentralization, intergovernmental transfers, tax shares, and personal income tax discretion. Third, it distinguishes subjective well-being from economic growth, asking whether decentralization may follow a different logic for life satisfaction than for regional economic performance. Fourth, it evaluates this interpretation cautiously by comparing pooled results with country fixed-effects specifications.

Empirically, the analysis uses cross-sectional data for 140 European NUTS-2 regions in 2022. Life satisfaction is drawn from OECD regional well-being data based on the Gallup World Poll. Political decentralization is measured using the Regional Authority Index, while fiscal decentralization is captured through expenditure and revenue decentralization, transfers, tax shares, and personal income tax discretion. Institutional quality is measured using the European Quality of Government Index. The empirical strategy estimates OLS models with interaction terms between decentralization and institutional quality, supplemented by standardized coefficients, country fixed effects, split-sample analyses, and the exclusion of capital and special regions.

The findings support a differentiated interpretation. In pooled models, the interaction between political decentralization and institutional quality is negative and statistically significant, suggesting that political decentralization is more strongly associated with life satisfaction in lower-governance regions. However, this pattern disappears once country fixed effects are introduced, indicating that the pooled relationship is driven mainly by cross-country institutional differences rather than robust within-country

regional variation. Fiscal decentralization results are also mixed: broad fiscal indicators are sensitive to specification, whereas personal income tax discretion appears to capture a more meaningful form of fiscal autonomy within countries.

The remainder of the paper is organized as follows. Section 2 reviews the literature on decentralization, subjective well-being, and the political, economic, social, and institutional channels linking them. Section 3 presents the data, variables, and identification strategy. Section 4 provides descriptive analysis. Section 5 presents the empirical findings for political and fiscal decentralization. Section 6 concludes with the main findings, policy implications, limitations, and future research.

## **2. STATE OF THE ART**

### **2.1. DEFINING DECENTRALIZATION AND HAPPINESS**

Decentralization refers to the transfer of power and resources from central governments to subnational entities such as regions, provinces, or municipalities. Although widely implemented, there is still limited consensus on how it should be conceptualized and measured. Schneider (2003) identifies three core dimensions - political, administrative, and fiscal - that have been widely adopted in academic and policy analyses.

This study focuses on political and fiscal decentralization. Political decentralization refers to the extent to which regional governments exercise autonomous decision-making power through self-rule and participate in national decision-making through shared-rule (Rodríguez-Pose & Muštra, 2022). Fiscal decentralization refers to subnational financial autonomy, including the capacity to control expenditure, raise revenue, and implement tax policies (Arcidiacono & Torrissi, 2022).

Administrative decentralization is not included as a separate empirical dimension because comparable NUTS-2 indicators of administrative autonomy, bureaucratic delegation, and implementation capacity are not consistently available across the sample. This is a limitation, since administrative capacity may shape how effectively political or fiscal authority is translated into public service delivery and citizen satisfaction. The analysis therefore focuses on the political and fiscal dimensions for which comparable regional measures are available.

Happiness, or subjective well-being, is increasingly used to evaluate governance and public policy outcomes. Usually defined as self-assessed life satisfaction and overall quality of life, it is shaped by political, economic, and social conditions. This has motivated studies linking institutional structures, including decentralization, to happiness outcomes (Behera et al., 2024; Lago et al., 2025).

### **2.2. POLITICAL INSTITUTIONS, GOVERNMENT QUALITY AND HAPPINESS**

Political institutions shape subjective well-being by influencing citizens' perceptions of voice, trust, accountability, and fairness. Institutional arrangements such as decentralization, federalism, and direct democracy may enhance life satisfaction by bringing decision-making closer to citizens and improving the fit between public policies and local preferences (Frey & Stutzer, 2000, 2002; Helliwell & Huang, 2008).

Decentralization has therefore been widely studied as an institutional determinant of well-being. By transferring authority to subnational governments, it may improve policy responsiveness and service delivery (Arcidiacono & Torrissi, 2022). However, empirical evidence remains mixed. Some studies find a positive relationship between fiscal decentralization and happiness, often linked to perceptions of public services, while others report weak or context-dependent effects, especially for political decentralization (Díaz-Serrano & Rodríguez-Pose, 2012; Rodríguez-Pose & Maslauskaitė, 2012; Sujarwoto & Tampubolon, 2015).

Several studies have empirically examined the impact of decentralization on public service provision, with mixed but informative results. Classic fiscal federalism theory argues that decentralization enables governments to tailor services to local preferences, potentially improving efficiency and citizen satisfaction

(Oates, 1972). Empirical analyses across European regions and transition economies suggest that positive effects are more likely when regional governance is strong (Ezcurra & Pascual, 2008; Ahrens & Meurers, 2002). Other studies emphasize that outcomes depend on local administrative capacities and institutional frameworks (Rodríguez-Pose & Gill, 2003; Treisman, 2007). Faguet (2014) further highlights that accountability mechanisms can be important for decentralization to yield service improvements. More recently, DeSisto et al. (2026) reinforce that the positive effects of decentralization on public service provision and citizen well-being are contingent on local administrative capacity and the effective use of resources, rather than being automatic or uniform across contexts.

These findings are closely aligned with our results, which highlight the importance of governance quality and institutional context in conditioning the relationship between decentralization and subjective well-being.

Recent work emphasizes that decentralization cannot be understood apart from institutional quality. Rodríguez-Pose and Tselios (2019) and Lago et al. (2025) show that governance quality shapes the relationship between decentralization and well-being. Similarly, the regional growth literature often finds that decentralization works better where institutions are stronger, suggesting complementarity between autonomy and government quality (Muringani et al., 2019; Rodríguez-Pose & Muštra, 2022).

Quality of Government (QoG) is therefore central to this debate. QoG captures the ability of public institutions to deliver services effectively, control corruption, enforce the rule of law, and ensure impartiality (Charron et al., 2014). At the regional level, QoG varies substantially within countries, making it important for explaining heterogeneous outcomes (Charron & Lapuente, 2018). Higher QoG is associated with stronger economic performance, institutional trust, and life satisfaction (Behera et al., 2024; Pehr, 2023).

Two gaps remain. First, many studies rely on country-level analyses, limiting attention to intra-national variation in decentralization and governance quality. Second, the mechanisms linking decentralization, institutional quality, and subjective well-being remain underdeveloped, especially compared with the literature on economic growth.

This study addresses these gaps by adopting a subnational perspective and modeling the interaction between decentralization and regional government quality. It examines whether decentralization operates as a complement to strong institutions, as in much of the growth literature, or whether it may play a compensatory role in weaker institutional contexts. By focusing on life satisfaction, the analysis highlights that citizens may experience decentralization differently through subjective channels such as recognition, proximity, trust, and responsiveness.

### 2.3. ECONOMIC DETERMINANTS OF HAPPINESS

Economic prosperity is a key determinant of happiness, although its influence varies across contexts. One of the most consistent findings is the positive association between income and subjective well-being: individuals in wealthier regions or countries tend to report higher happiness because income improves access to goods and services that enhance living conditions (Frey & Stutzer, 2000; Lago et al., 2025).

However, economic development alone does not guarantee higher well-being. The marginal effect of income may decline as income rises, suggesting that once basic needs are met, non-material factors such as institutional trust, social relationships, health, and public service quality become more important. This is consistent with the Easterlin paradox and subsequent work showing declining marginal utility of income at higher income levels (Easterlin, 1995; Layard, 2005; Van Praag & Ferrer-i-Carbonell, 2008; Frey & Stutzer, 2000, 2002).

Regional public finance may also shape economic perceptions of well-being. Rodríguez-Pose and Maslauskaite (2012) and Lago et al. (2025) suggest that fiscal decentralization may be associated with happiness through public service financing and delivery. Intergovernmental transfers may increase perceived well-being when citizens benefit from regional services without directly associating them with higher regional tax burdens. This relates to fiscal illusion, whereby public spending appears less costly when its financing is less visible or not directly linked to local taxation (Islam, 1998). Thus, whether services are

financed through taxation, own revenues, or transfers may affect citizens' perceptions of satisfaction and happiness.

## **2.4. SOCIAL DETERMINANTS OF HAPPINESS**

Subjective well-being is shaped not only by income and employment, but also by social cohesion, trust, health, and support networks. Having someone to rely on, as well as perceptions of fairness and trust, strongly predicts life satisfaction (Helliwell & Huang, 2008; Lago et al., 2025). These social foundations are especially relevant at the regional level, where experiences of public services, community life, and institutional responsiveness vary within countries.

Social cohesion may be weakened by ethnic, religious, and linguistic fragmentation, which can reduce trust, complicate collective action, and affect governance quality (Charron et al., 2014; Lago et al., 2025; Peiró-Palomino, 2019). However, the effects of heterogeneity are not uniform. In some contexts, linguistic or cultural diversity may coexist with strong regional identities and effective institutions, while in others it may reinforce fragmentation or weaken trust. Social heterogeneity should therefore be understood within the broader institutional and territorial context in which decentralization operates.

Health is also central to subjective well-being. Regions with higher healthy life expectancy tend to report greater happiness, reflecting both individual health conditions and the quality of health-related services (Lago et al., 2025). More broadly, accessible and responsive health and education services can enhance life satisfaction, especially when adapted to local needs (Díaz-Serrano & Rodríguez-Pose, 2012). In decentralized systems, subnational authorities may be better placed to tailor services to regional preferences, but whether this improves well-being depends on institutional quality and responsiveness.

## **3. DATA AND METHODS**

This study analyzes the relationship between decentralization and happiness across 140 NUTS-2 regions in Europe. The analysis is based on a cross-sectional dataset for the year 2022, the most recent year for which subnational life satisfaction data are available from the OECD Regional Well-Being Database. Since the OECD provides only one wave of life satisfaction data at the NUTS-2 regional level, the analysis necessarily adopts a cross-sectional design.

The final sample is determined by the joint availability and comparability of the core variables used in the analysis: regional life satisfaction from the OECD Regional Well-Being Database, political decentralization indicators from the Regional Authority Index, fiscal decentralization indicators, and regional institutional quality from the European Quality of Government Index. As a result, several European countries could not be included because harmonized regional data for one or more of these variables were unavailable for the study year. This limited coverage should be considered when interpreting the results, particularly with respect to lower-governance contexts and countries from parts of Eastern Europe that are not represented in the final sample.

### **3.1. DEPENDENT VARIABLE: LIFE SATISFACTION**

The dependent variable is life satisfaction, defined as individuals' self-reported assessment of their overall well-being. This variable is sourced from the OECD Regional Well-Being Database and is measured on a scale from 0, not at all satisfied, to 10, completely satisfied. It is calculated using microdata from the Gallup World Poll (Brezzi & Díaz Ramírez, 2016).

Because the variable is used as a regional average, the analysis captures associations between regional institutional characteristics and regional average life satisfaction. It should therefore not be interpreted as identifying individual-level behavioral mechanisms. The use of aggregated regional data may also introduce measurement error, particularly in regions where the underlying survey sample is smaller. Unfortunately, harmonized respondent counts for all NUTS-2 regions included in the sample are not publicly available from the OECD, which limits the possibility of weighting regions by survey precision or excluding regions

below a common respondent threshold. For this reason, the results should be interpreted as regional-level associations rather than as causal effects on individual happiness.

Regional life satisfaction varies markedly not only across countries but also within them, indicating the relevance of subnational factors such as decentralization and governance quality in shaping subjective well-being.

**FIGURE 1.**  
**Regional life satisfaction by country**

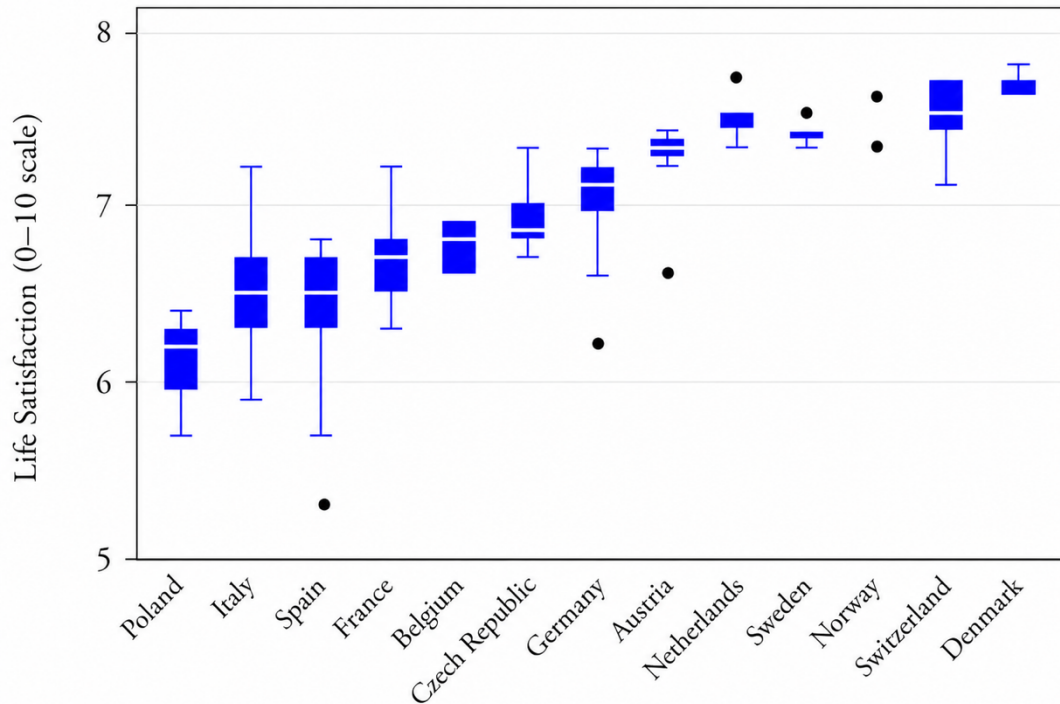


Figure 1 highlights clear gradients between European countries in average life satisfaction levels. Nordic countries such as Denmark, Norway, and Sweden consistently report the highest regional means, with limited within-country variation, suggesting both high and relatively even levels of well-being. In contrast, Southern and Eastern European countries such as Poland, Italy, and Spain display lower average satisfaction and wider dispersion across regions, reflecting deeper territorial disparities. This heterogeneity underlines the relevance of the research focus: understanding how political and fiscal decentralization, moderated by institutional quality, are associated with regional life satisfaction. It also justifies the inclusion of governance, economic, social, and demographic variables in the empirical models.

### 3.2. INDEPENDENT VARIABLES

Decentralization is captured through a multidimensional framework, following the conceptualizations of Schneider (2003) and Hooghe et al. (2016).

#### 3.2.1. REGIONAL AUTHORITY INDEX

Political decentralization is measured using the Regional Authority Index (RAI), which encompasses both self-rule and shared-rule dimensions. The self-rule dimension includes institutional depth, policy scope, fiscal autonomy, borrowing autonomy, and representation, while the shared-rule dimension includes law-making, executive control, fiscal control, borrowing control, and constitutional reform. The

RAI captures the formal powers that subnational units possess over their territory and their role in national governance (Hooghe et al., 2016). It has become a standard metric in research on the consequences of decentralization. Muringani et al. (2019) and Arcidiacono and Torrìsi (2022), for example, employ the RAI to study regional development outcomes and emphasize its ability to differentiate among varying configurations of subnational authority.

Despite its analytical utility, the RAI has faced critiques regarding its treatment of asymmetric decentralization, particularly in countries where some regions enjoy special institutional status. As Arcidiacono and Torrìsi (2022) observe, such asymmetries can be legal or contextual, complicating the uniform application of the index. Nevertheless, its widespread use and methodological rigor justify its inclusion in this study as the principal indicator of political decentralization.

### **3.2.2. POLITICAL DECENTRALIZATION**

To complement the RAI and isolate political authority from fiscal capacity, a political decentralization index is constructed by removing fiscal autonomy and fiscal control components from the RAI. This adjusted index captures the political and institutional dimensions of regional authority more directly, including electoral, legislative, and decision-making autonomy.

### **3.2.3. EUROPEAN QUALITY OF GOVERNMENT INDEX**

To assess governance quality, this study employs the European Quality of Government Index (EQI), developed by Charron et al. (2014) and Charron and Lapuente (2018). The EQI captures dimensions such as corruption control, rule of law, bureaucratic efficiency, impartiality, and accountability. It has been widely used to examine how regional disparities in governance shape institutional and policy outcomes.

The indicator ranges from approximately -2.5, indicating weaker governance performance, to 2.5, indicating stronger governance performance. In line with research emphasizing the conditioning role of institutions, this study includes interaction terms between EQI and both political and fiscal decentralization variables to test whether the association between decentralization and life satisfaction depends on government quality.

### **3.2.4. FISCAL DECENTRALIZATION**

Fiscal decentralization is assessed using several indicators: subnational expenditure as a share of regional GDP, subnational revenue as a share of regional GDP, subnational tax revenue as a share of total regional revenue, and intergovernmental transfers as a share of GDP. These indicators capture different aspects of the financial role of subnational governments and their capacity to deliver public services (Arcidiacono & Torrìsi, 2022). However, Schneider (2003) and Rodríguez-Pose and Maslauskaitė (2012) caution that aggregate fiscal indicators may obscure qualitative differences in actual decision-making authority, especially when regional governments depend heavily on central transfers.

For this reason, the analysis also includes indicators that capture more specific forms of fiscal autonomy. First, a binary indicator identifies whether a region holds a formally recognized special status within its national context, usually associated with broader fiscal or legislative powers. Second, a dummy variable identifies whether the region has discretionary power over Personal Income Tax (PIT). PIT discretion is particularly relevant because it captures a more direct and substantive form of fiscal autonomy than broad expenditure or revenue shares. While expenditure and revenue indicators may partly reflect administrative responsibilities or central transfers, PIT discretion indicates whether regional governments possess meaningful tax-setting authority.

This distinction is important for the empirical analysis because broad fiscal decentralization indicators and more substantive forms of fiscal autonomy may operate differently. In particular, PIT discretion allows the study to examine whether tax autonomy is associated with life satisfaction differently from fiscal aggregates such as expenditure, revenue, or transfers.

### 3.3. CONTROL VARIABLES

The models include a set of control variables commonly linked to life satisfaction:

GDP per capita, logged;

unemployment rate;

life expectancy;

population size, logged;

population size squared, to account for possible non-linear demographic effects;

social support networks;

ethnic, religious, and linguistic fractionalization.

These controls follow established findings in the happiness literature, which emphasizes the importance of income, employment, health, social support, demographic structure, and social cohesion in shaping subjective well-being (Frey & Stutzer, 2002; Helliwell & Huang, 2008; Lago et al., 2025).

In this analysis, ethnic, religious, and linguistic fractionalization are measured at the country level rather than at the regional level (Alesina et al., 2003). These variables are included as country-level observables intended to capture broader national patterns of social heterogeneity. Their inclusion is grounded in theoretical and empirical research showing that cultural diversity may affect governance, collective action, and the functioning of decentralized institutions. Treisman (2000), for example, argues that greater cultural diversity can complicate governance by increasing the difficulty of consensus-building and weakening central state capacity. Similarly, Brancati (2006) shows that decentralization can either exacerbate or mitigate ethnic tensions depending on political inclusion and the design of regional autonomy. A similar approach is adopted by Peiró-Palomino (2019), who includes fractionalization indicators as country-level observables in a regional analysis.

At the same time, these variables remain imperfect proxies for regional social heterogeneity. They cannot capture within-country differences between more homogeneous regions and regions with stronger linguistic, cultural, or territorial identities. This limitation is particularly relevant in countries where territorial diversity is regionally concentrated. Comparable and harmonized NUTS-2 indicators of ethnic, linguistic, or religious fractionalization are not consistently available across all regions in the sample. Therefore, the fractionalization variables should be interpreted as controls for broader national social context rather than as precise measures of regional diversity.

### 3.4. IDENTIFICATION STRATEGY

To estimate the relationship between decentralization, government quality, and regional life satisfaction, this study employs a cross-sectional multivariate regression approach using Ordinary Least Squares (OLS) with robust standard errors to mitigate potential heteroskedasticity. The empirical strategy follows Lago et al. (2025), who examine how institutional characteristics, including decentralization and governance quality, interact to shape subjective well-being across European countries. This approach is also consistent with prior studies emphasizing the importance of institutional context and fiscal autonomy in regional well-being (Charron & Lapuente, 2018; Díaz-Serrano & Rodríguez-Pose, 2012; Rodríguez-Pose & Muštra, 2022).

The preferred specifications include interaction terms between decentralization variables and EQI to assess whether the association between decentralization and well-being is conditioned by government quality. This approach builds on the expectation that decentralization does not operate uniformly across institutional contexts. In particular, the analysis examines whether political decentralization is more strongly associated with life satisfaction in weaker-governance contexts, consistent with a compensatory mechanism, and whether more demanding forms of fiscal autonomy, such as PIT discretion, require stronger institutional capacity to translate into higher well-being.

Given the cross-sectional structure of the data, the results should be interpreted as conditional associations rather than causal effects. Both decentralization and life satisfaction may be shaped by unobserved national characteristics, including institutional history, political culture, administrative traditions, or long-run development trajectories. The inclusion of country-level observables, such as ethnic, religious, and linguistic fractionalization, helps account for some broader national context but cannot fully eliminate omitted-variable concerns<sup>1</sup>.

To address this limitation, the analysis also reports additional specifications with country fixed effects. These models absorb time-invariant national characteristics and isolate variation across regions within the same country. However, because the data are cross-sectional, country fixed effects do not capture changes over time. Instead, they provide a stricter test of whether the observed relationships persist within countries once broader national differences are removed. The comparison between pooled models and country fixed-effects models is therefore central to assessing whether the results reflect within-country regional variation or broader cross-country institutional differences.

The general model can be specified as follows:

$$\text{LifeSatisfaction}_i = \beta_0 + \beta_1 \text{Decentralization}_i + \beta_2 \text{EQI}_i + \beta_3 (\text{Decentralization}_i \times \text{EQI}_i) + \beta_4 X_i + \varepsilon_i$$

where  $\text{LifeSatisfaction}_i$  is the average life satisfaction score in region  $i$ .  $\text{Decentralization}_i$  represents different dimensions of regional authority, including the Regional Authority Index, the political decentralization index, and fiscal indicators such as expenditure, revenue, transfers, tax share, and PIT discretion.  $\text{EQI}_i$  is the European Quality of Government Index. The interaction term  $\text{Decentralization}_i \times \text{EQI}_i$  tests whether the association between decentralization and life satisfaction varies according to governance quality.  $X_i$  is a vector of regional and country-level control variables, including logged GDP per capita, unemployment, life expectancy, social support, logged population, logged population squared, and ethnic, religious, and linguistic fractionalization.  $\varepsilon_i$  is the error term.

#### 4. DESCRIPTIVE ANALYSIS

Summary descriptive statistics for the main variables are reported in Appendix Table A1. The outcome variable, life satisfaction, has a mean of 6.86 on a 0–10 scale, with moderate variation across regions. This variation suggests that regional differences in subjective well-being remain relevant even within a relatively developed European sample.

The decentralization indicators display substantial variability. The Regional Authority Index (RAI), with a mean of 15.74 and a range from 1 to 27, captures the differing degrees of formal political authority granted to regional governments. The political decentralization index, with a mean of 12.96, and its components — shared-rule and self-rule — further illustrate this institutional diversity. This variation supports the empirical strategy by allowing the analysis to examine whether the association between decentralization and life satisfaction differs across institutional contexts.

Fiscal decentralization indicators also reveal considerable dispersion. Subnational expenditure and revenue shares average around 10 percent of regional GDP, although some regions reach values above 40 percent, highlighting asymmetries in regional public finance. The share of subnational tax revenue remains limited, with a mean of around 4 percent, reflecting constrained fiscal autonomy in many regions. Intergovernmental transfers, accounting for roughly 6.5 percent of GDP on average, also show wide

<sup>1</sup> An instrumental-variable strategy was considered but not implemented in the present analysis because identifying instruments that are both strongly correlated with regional decentralization and plausibly excludable from regional life satisfaction is particularly difficult in this cross-sectional setting. Potential instruments such as historical state centralization, constitutional reform timing, or regional linguistic fragmentation are likely to be correlated with decentralization, but they may also affect subjective well-being through channels other than decentralization, including institutional quality, political culture, territorial identity, public service capacity, or long-run development. For this reason, the paper relies instead on country fixed-effects specifications as a stricter robustness test, while recognizing that future research using panel data, reform-based designs, or stronger historical instruments could provide more credible causal identification

variation, suggesting differing degrees of financial dependence on central governments. Discretion over personal income tax is observed in about 31 percent of regions, further illustrating variation in substantive regional fiscal powers.

Institutional quality, measured through the European Quality of Government Index (EQI), ranges from  $-2.08$  to  $1.71$ , with a mean of  $0.31$ . This spread indicates significant regional differences in governance performance, including corruption control, impartiality, and public-service quality. The EQI is therefore included both as a substantive institutional variable and as a moderator in the empirical models, given the expectation that decentralization may be associated with life satisfaction differently depending on governance quality.

Several socio-economic variables are included as controls to account for background conditions. GDP per capita, log-transformed, varies widely, reflecting regional income disparities across the sample. Unemployment rates range from 2.1 percent to 23.5 percent, underscoring substantial labor-market diversity. Social support scores are generally high, with a mean of 91.3, but retain sufficient variation to function as a meaningful control. Demographic scale is captured using logged population and its squared term to allow for possible non-linear demographic associations.

Finally, cultural heterogeneity, measured by ethnic, linguistic, and religious fractionalization indices, varies moderately and is included to account for broader national social contexts that may be associated with both institutional performance and well-being.

In sum, the descriptive statistics confirm wide regional variation in decentralization, governance quality, and socio-economic conditions. This variation provides an empirical basis for examining how these factors are associated with regional life satisfaction across European NUTS-2 regions.

## 5. EMPIRICAL FINDINGS

### 5.1. POLITICAL DECENTRALIZATION AND LIFE SATISFACTION

The empirical results provide a nuanced picture of the relationship between political decentralization and regional life satisfaction. Across the pooled specifications, the results suggest that political decentralization is positively associated with life satisfaction, but that this association depends on the quality of government.

In the baseline specification without interaction terms, the RAI coefficient is positive but not statistically significant (Table 1). This indicates that political decentralization, when considered independently of governance quality, is not uniformly associated with higher life satisfaction across European regions. This finding is consistent with previous research suggesting that decentralization alone does not necessarily generate well-being gains unless the institutional context in which it operates is also considered.

Once the interaction between RAI and the European Quality of Government Index (EQI) is introduced, the results change substantially. In the pooled models, the RAI coefficient becomes positive and statistically significant, while the interaction term between RAI and EQI is negative and highly significant. Specifically, the  $RAI \times EQI$  interaction is negative and statistically significant in both the specification without country controls and the specification including country-level observables. This indicates that the positive association between political decentralization and life satisfaction is strongest in regions with lower levels of government quality and weakens as institutional quality increases.

TABLE 1.  
Political Decentralization and Life Satisfaction

|                       | (1)               | (2)       | (3)       | (4)       | (5)      | (6)       |
|-----------------------|-------------------|-----------|-----------|-----------|----------|-----------|
| Dependent variable:   | Life Satisfaction |           |           |           |          |           |
| RAI                   | 0.028***          | 0.031***  | 0.000     |           |          |           |
|                       | (0.008)           | (0.010)   | (0.014)   |           |          |           |
| EQI_2017              | 0.716***          | 0.639***  | -0.112    | 0.516***  | 0.497*** | -0.332    |
|                       | (0.116)           | (0.124)   | (0.205)   | (0.151)   | (0.170)  | (0.204)   |
| RAI × EQI_2017        | -0.030***         | -0.030*** | -0.002    |           |          |           |
|                       | (0.007)           | (0.007)   | (0.011)   |           |          |           |
| pol_dec               |                   |           |           | 0.019     | 0.028*   | -0.016    |
|                       |                   |           |           | (0.012)   | (0.016)  | (0.014)   |
| pol_dec × EQI_2017    |                   |           |           | -0.022*   | -0.027** | 0.012     |
|                       |                   |           |           | (0.011)   | (0.013)  | (0.013)   |
| ln_gdp_pc             | 0.112***          | 0.135***  | -0.065    | 0.101***  | 0.127*** | -0.061    |
|                       | (0.029)           | (0.030)   | (0.049)   | (0.030)   | (0.032)  | (0.051)   |
| unempl_rt             | -0.044***         | -0.033*** | -0.032*** | -0.037*** | -0.028** | -0.031*** |
|                       | (0.011)           | (0.011)   | (0.012)   | (0.012)   | (0.011)  | (0.012)   |
| social_net_support    | 0.017**           | 0.015*    | 0.011     | 0.017**   | 0.015*   | 0.011     |
|                       | (0.008)           | (0.008)   | (0.008)   | (0.008)   | (0.008)  | (0.008)   |
| life_exp              | 0.025             | 0.002     | 0.050     | 0.058***  | 0.032    | 0.050     |
|                       | (0.022)           | (0.024)   | (0.038)   | (0.022)   | (0.023)  | (0.036)   |
| pop_tot_log           | -1.104*           | -1.248**  | -1.597*** | -0.806    | -1.060*  | -1.511*** |
|                       | (0.572)           | (0.524)   | (0.596)   | (0.606)   | (0.543)  | (0.560)   |
| pop_tot_log_sq        | 0.037*            | 0.043**   | 0.056***  | 0.026     | 0.036*   | 0.053***  |
|                       | (0.020)           | (0.018)   | (0.021)   | (0.021)   | (0.019)  | (0.019)   |
| Country observables   | No                | Yes       | No        | No        | Yes      | No        |
| Country fixed effects | No                | No        | Yes       | No        | No       | Yes       |
| Constant              | 9.907**           | 12.316*** | 14.521*** | 5.509     | 8.871*   | 14.110*** |
|                       | (4.859)           | (4.352)   | (5.055)   | (5.075)   | (4.582)  | (4.995)   |
| Observations          | 127               | 127       | 127       | 127       | 127      | 127       |
| R-squared             | 0.644             | 0.714     | 0.799     | 0.621     | 0.695    | 0.800     |

**Note:** Standard errors in parentheses. \*p < 0.10, \*\*p < 0.05, \*\*\*p < 0.01. Models 1 and 4 exclude country observables; Models 2 and 5 include country observables; Models 3 and 6 include country fixed effects. The pooled interaction between political decentralization and EQI is negative and significant, but disappears with country fixed effects. Source: political controls versus fixed-effects models.

**FIGURE 2.**  
**Interaction between EQI (centered) and RAI on Life Satisfaction. Predictive margins with 95% CIs**

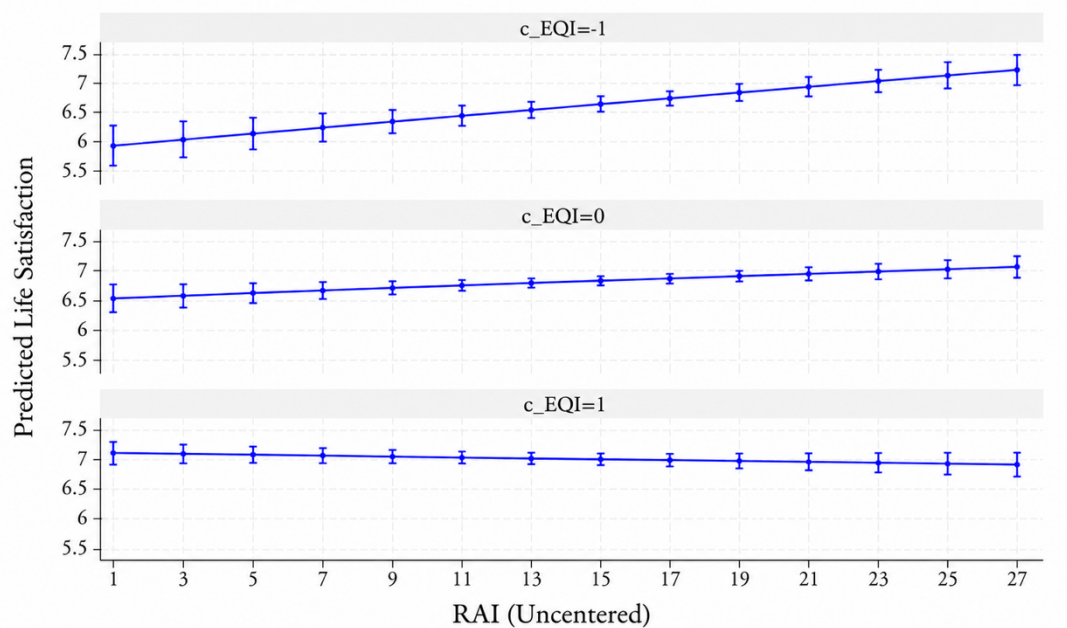


Figure 2 illustrates this interaction using predictive margins with 95 percent confidence intervals. Following Aiken and West (1991) and Dawson and Richter (2006), the interaction is interpreted by estimating the association between RAI and life satisfaction at low, average, and high levels of EQI. The results show that the slope of RAI is steepest when EQI is low, suggesting that regional authority is more strongly associated with life satisfaction in weaker-governance contexts. At average levels of EQI, the association remains positive but smaller. At high levels of EQI, the relationship becomes statistically weaker and close to zero.

This interpretation is also consistent with research suggesting that decentralization may strengthen citizens' trust in government by bringing authority closer to local constituencies. Kim et al. (2022), for example, show that fiscal decentralization can increase trust in local government, suggesting that decentralized authority may partly compensate for deficits in institutional legitimacy. Although trust in government is not identical to life satisfaction, it represents a broader subjective evaluation of institutions that may help explain why decentralization is more strongly associated with well-being in weaker-governance contexts.

This pattern is consistent with a compensatory interpretation. In regions where institutional quality is weaker, political decentralization may be associated with higher life satisfaction because it provides citizens with greater territorial voice, perceived proximity to decision-making, and a stronger sense of political responsiveness. This contrasts with parts of the regional growth literature, where decentralization tends to generate stronger benefits in high-quality institutional environments. In that literature, decentralization and institutional quality are usually interpreted as complements because effective institutions are needed to transform regional autonomy into economic performance. By contrast, the present results suggest that subjective well-being may operate through a different channel, in which political recognition, representation, and responsiveness matter especially in weaker-governance contexts.

However, this interpretation must be qualified. The country fixed-effects specifications show that the political decentralization interactions lose statistical significance once country-level differences are absorbed. The RAI  $\times$  EQI interaction, which is negative and highly significant in the pooled models, becomes statistically insignificant under country fixed effects (Table 2). Similarly, the interaction using the alternative political decentralization index also disappears and changes sign. This indicates that the

compensatory pattern is driven primarily by cross-country institutional differences rather than by robust variation across regions within the same country. Given the cross-sectional nature of the data, the findings should therefore be interpreted as pooled regional associations rather than causal within-country effects.

**TABLE 2.**  
**Standardized Political Decentralization Results**

|                                       | Pooled model                   | Country fixed effects |
|---------------------------------------|--------------------------------|-----------------------|
| Dependent variable:                   | Standardized Life Satisfaction |                       |
| RAI                                   | 0.291**                        | -0.006                |
|                                       | (0.113)                        | (0.151)               |
| EQI_2017                              | 0.288***                       | -0.247                |
|                                       | (0.083)                        | (0.155)               |
| RAI × EQI_2017                        | -0.353***                      | -0.025                |
|                                       | (0.085)                        | (0.133)               |
| Political decentralization index      | 0.193                          | -0.122                |
|                                       | (0.133)                        | (0.130)               |
| Political decentralization × EQI_2017 | -0.244**                       | 0.110                 |
|                                       | (0.114)                        | (0.116)               |
| Regional controls                     | Yes                            | Yes                   |
| Country observables                   | Yes                            | No                    |
| Country fixed effects                 | No                             | Yes                   |
| Observations                          | 127                            | 127                   |
| R-squared range                       | 0.695–0.714                    | 0.799–0.800           |

**Note:** Standard errors in parentheses. \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ . All variables reported in the table are standardized. Each row reports the coefficient from the relevant standardized model. The pooled models show a substantively large negative interaction between political decentralization and governance quality, but the interaction disappears with country fixed effects. Additional specifications are reported in the Appendix. Source: standardized pooled versus country fixed-effects comparison.

The standardized models reinforce this interpretation. In the pooled specification, the standardized interaction between RAI and EQI is substantively large and statistically significant, with a standardized coefficient of  $-0.353$ . However, once country fixed effects are introduced, this standardized interaction falls to  $-0.025$  and becomes statistically insignificant. This confirms that the political decentralization interaction is substantively meaningful in pooled cross-sectional comparisons but not robust to the inclusion of country fixed effects. The standardized pooled and country fixed-effects estimates are reported in Appendix Table A3.

The alternative political decentralization index provides similar but weaker evidence. Its interaction with EQI is negative in pooled models and statistically significant when country-level observables are included, but it also becomes insignificant under country fixed effects. This suggests that the broader RAI measure captures the relevant dimensions of regional authority more effectively than the narrower political decentralization index, although neither measure provides robust within-country evidence once national heterogeneity is controlled through fixed effects.

Taken together, the political decentralization results suggest that decentralization is more strongly associated with life satisfaction in weaker-governance contexts, but mainly in pooled cross-country comparisons. The results are consistent with a compensatory mechanism, but they do not establish that decentralization produces higher life satisfaction within countries. Instead, they indicate that regions located in broader national contexts characterized by particular combinations of decentralization and governance quality tend to display different levels of life satisfaction.

The control variables generally behave in line with theoretical expectations. GDP per capita is positively associated with life satisfaction, while unemployment is negatively associated with life satisfaction. Social support is also positively associated with well-being in most specifications. These results are consistent with the broader literature on the economic and social determinants of subjective well-being.

## 5.2. FISCAL DECENTRALIZATION AND LIFE SATISFACTION

The results show that fiscal decentralization is more specification-sensitive than political decentralization and should therefore be interpreted with particular caution (Table 3).

**TABLE 3.**  
**Fiscal Decentralization and Life Satisfaction Across Specifications**

|                                     | No country controls      | Country observables | Country fixed effects |
|-------------------------------------|--------------------------|---------------------|-----------------------|
| <b>Dependent variable:</b>          | <b>Life Satisfaction</b> |                     |                       |
| <b>Expenditure decentralization</b> | 0.259                    | 1.239***            | 0.195                 |
|                                     | (0.376)                  | (0.470)             | (0.467)               |
| <b>Revenue decentralization</b>     | 0.241                    | 1.108**             | 0.039                 |
|                                     | (0.390)                  | (0.474)             | (0.500)               |
| <b>Tax revenue share</b>            | -0.157                   | -0.038              | 0.230                 |
|                                     | (0.667)                  | (0.774)             | (0.824)               |
| <b>Transfers</b>                    | 0.785                    | 2.234***            | -0.271                |
|                                     | (0.636)                  | (0.600)             | (0.856)               |
| <b>PIT discretion</b>               | -0.001                   | 0.001               | 0.010***              |
|                                     | (0.002)                  | (0.002)             | (0.004)               |
| Regional controls                   | Yes                      | Yes                 | Yes                   |
| Country observables                 | No                       | Yes                 | No                    |
| Country fixed effects               | No                       | No                  | Yes                   |
| Observations                        | 126                      | 126                 | 126                   |
| R-squared range                     | 0.620–0.625              | 0.683–0.709         | 0.789                 |

**Note:** Standard errors in parentheses. \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ . Each cell reports the coefficient from a separate model for the fiscal decentralization variable listed in the row. All models include regional controls: logged GDP per capita, unemployment rate, opportunity/social support, life expectancy, logged population, and logged population squared. Country observables include ethnic, religious, and linguistic fractionalization. Additional fiscal specifications are reported in the Appendix. Source: fiscal stability across specifications.

In the models including country-level observables, expenditure decentralization and revenue decentralization are positively and significantly associated with life satisfaction. Intergovernmental transfers are also positively and significantly associated with life satisfaction. These findings are consistent with the idea that regional governments with greater fiscal resources may be better able to provide services adapted to local needs, and that transfers may generate perceived benefits when citizens do not directly associate public services with higher regional tax burdens.

However, these results are not stable across specifications. The fixed-effects results show that expenditure, revenue, and transfers lose statistical significance once country fixed effects are introduced. Expenditure decentralization is positive and significant with country observables, but becomes insignificant under country fixed effects. The same pattern applies to revenue decentralization and intergovernmental transfers. This suggests that the positive fiscal decentralization results mainly reflect broader country-level institutional and structural differences rather than independent within-country regional associations.

Tax revenue share is not statistically significant across the main specifications. This suggests that the simple share of tax revenue is not sufficient to capture meaningful fiscal autonomy. In particular, tax shares may reflect administrative arrangements or revenue collection structures without necessarily indicating genuine regional discretion over tax policy.

The most distinctive fiscal result concerns PIT discretion. Unlike the broader fiscal indicators, PIT discretion becomes positive and statistically significant once country fixed effects are introduced. This suggests that narrower and more substantive forms of fiscal autonomy may matter within countries, even when broader fiscal aggregates do not. In other words, the ability of regional governments to exercise discretion over personal income taxation appears to capture a more meaningful form of fiscal authority than aggregate expenditure, revenue, or transfer indicators (Table 4).

**TABLE 4.**  
**Standardized Fiscal Decentralization Results**

|                                         | Pooled model                   | Country fixed effects |
|-----------------------------------------|--------------------------------|-----------------------|
| Dependent variable:                     | Standardized Life Satisfaction |                       |
| Expenditure decentralization            | 0.200**                        | 0.035                 |
|                                         | (0.081)                        | (0.096)               |
| Expenditure decentralization × EQI_2017 | -0.032                         | -0.004                |
|                                         | (0.119)                        | (0.111)               |
| Revenue decentralization                | 0.178**                        | 0.016                 |
|                                         | (0.082)                        | (0.098)               |
| Revenue decentralization × EQI_2017     | -0.038                         | -0.006                |
|                                         | (0.122)                        | (0.117)               |
| Transfers                               | 0.244***                       | -0.037                |
|                                         | (0.065)                        | (0.087)               |
| Transfers × EQI_2017                    | -0.102                         | -0.065                |
|                                         | (0.081)                        | (0.096)               |
| Tax revenue share                       | -0.004                         | 0.081                 |
|                                         | (0.069)                        | (0.057)               |
| Tax revenue share × EQI_2017            | 0.001                          | 0.071                 |
|                                         | (0.074)                        | (0.073)               |
| PIT discretion                          | 0.107                          | 1.016***              |
|                                         | (0.171)                        | (0.359)               |
| PIT discretion × EQI_2017               | 0.201                          | -0.067                |
|                                         | (0.141)                        | (0.135)               |
| Regional controls                       | Yes                            | Yes                   |
| Country observables                     | Yes                            | No                    |
| Country fixed effects                   | No                             | Yes                   |
| Observations                            | 126                            | 126                   |
| R-squared range                         | 0.692–0.713                    | 0.794–0.796           |

**Note:** Standard errors in parentheses. \*p < 0.10, \*\*p < 0.05, \*\*\*p < 0.01. All variables reported in the table are standardized. The pooled fiscal main effects are positive for expenditure, revenue, and transfers, but these associations disappear once country fixed effects are introduced. Fiscal interactions with EQI are not statistically significant. Additional specifications are reported in the Appendix. Source: standardized pooled versus country fixed-effects comparison.

The standardized models confirm this distinction. Fiscal expenditure, revenue, and transfers show positive pooled associations but disappear under country fixed effects. By contrast, the standardized coefficient for PIT discretion becomes large and significant under country fixed effects, suggesting that this more specific form of tax autonomy may be associated with higher life satisfaction across regions within the same country.

Appendix Table A3 also reports the standardized fiscal specifications, showing that PIT discretion becomes positive and statistically significant under country fixed effects, while the broader fiscal indicators do not.

### 5.2.1. FISCAL DECENTRALIZATION INTERACTIONS WITH GOVERNANCE QUALITY

The fiscal interaction results provide limited evidence that governance quality systematically moderates the relationship between fiscal decentralization and life satisfaction. In the fully controlled pooled models, the interactions between EQI and most fiscal decentralization indicators are not statistically significant. This suggests that, unlike political decentralization, broad fiscal decentralization indicators do not display a stable conditional relationship with governance quality.

Some fiscal interactions become significant when country-level controls are excluded, particularly for expenditure, revenue, and transfers. However, these results are highly sensitive to model specification and should not be interpreted as robust evidence of moderation. The fixed-effects and standardized results indicate that fiscal interaction terms generally disappear once country-level heterogeneity is accounted for. This implies that the apparent fiscal moderation patterns are largely driven by cross-country differences rather than by systematic within-country regional variation.

The full fiscal estimates across specifications are reported in Appendix Table A2, which shows that expenditure, revenue, and transfers are significant mainly in models with country observables, while PIT discretion is the only fiscal variable that becomes statistically significant under country fixed effects.

The PIT discretion interaction should also be interpreted carefully. Although the earlier pooled specification suggested that PIT discretion may interact positively with governance quality, the standardized fixed-effects results indicate that the interaction itself is not robust. Instead, the more stable finding is the positive main association of PIT discretion under country fixed effects. This means that PIT discretion appears to matter as a substantive form of fiscal autonomy, but the evidence that its association with life satisfaction depends on EQI is weaker than originally suggested.

In sum, the fiscal decentralization results are more mixed than the political decentralization results. Broad fiscal indicators such as expenditure, revenue, and transfers are positively associated with life satisfaction mainly in specifications that retain cross-country variation. Once country fixed effects are introduced, these associations disappear. PIT discretion is the exception, as it becomes positive and significant within countries. These findings suggest that fiscal decentralization should not be treated as a single unified concept. Broad fiscal aggregates appear to capture national institutional and fiscal structures, whereas PIT discretion may better reflect substantive regional fiscal autonomy.

### 5.3. ROBUSTNESS CHECKS

As additional robustness checks, the analysis examines whether the results are sensitive to the exclusion of likely capital and special regions, to split-sample analyses based on country-average governance quality, and to geographic splits between North/West Europe and South/Central/East Europe. The capital-region exclusion results are reported in Appendix Table A4. The pooled  $RAI \times EQI$  interaction remains negative and statistically significant after excluding likely capital and special regions, suggesting that the pooled findings are not driven solely by capital-region outliers. The governance split results are reported in Appendix Table A5, while the geographic split results are reported in Appendix Table A6. In both cases, the interaction terms are not statistically significant across subsamples, indicating that the compensatory pattern is not clearly confined to either low- or high-governance countries or to one European geographic bloc. The high-GDP subsample analysis is reported only as exploratory appendix evidence in Appendix Table A7 because of the small number of observations and the risk of overfitting. Overall, these checks

support the descriptive stability of the pooled results, while the country fixed-effects models remain the stricter test and show that the main political interaction does not persist within countries.

## 6. CONCLUSIONS

This study examined how political and fiscal decentralization are associated with subjective well-being across European NUTS-2 regions, with particular attention to the moderating role of institutional quality. Using cross-sectional regional data for 2022, the analysis shows that the relationship between decentralization and life satisfaction is neither uniform nor linear. Instead, decentralization is associated with well-being differently depending on the type of authority considered, the quality of government, and the broader national institutional context.

The findings for political decentralization provide evidence of a compensatory pattern in the pooled models. When considered alone, political decentralization, measured through the Regional Authority Index, shows no consistent association with life satisfaction. However, once governance quality is incorporated through the European Quality of Government Index, the interaction between political decentralization and institutional quality becomes negative and statistically significant. This suggests that political decentralization is more strongly associated with life satisfaction in lower-governance regions, where regional authority may provide citizens with greater territorial voice, perceived responsiveness, and proximity to decision-making.

This result contributes to the broader literature by suggesting that subjective well-being may respond differently to decentralization than economic performance. While previous work on regional growth often finds that decentralization produces stronger returns in high-quality institutional environments, the pooled results in this study suggest that political decentralization may be particularly relevant for subjective well-being in weaker-governance contexts. Citizens may value decentralization not only for its administrative or efficiency-related functions, but also for its political and symbolic dimensions, including representation, recognition, and local responsiveness.

However, this compensatory interpretation must be treated cautiously. Once country fixed effects are introduced, the political decentralization interactions lose statistical significance. This indicates that the observed pattern is driven primarily by cross-country institutional differences rather than by robust variation across regions within the same country. Therefore, the results should not be interpreted as causal evidence that decentralization increases life satisfaction within countries. Rather, they identify conditional associations in a pooled cross-sectional setting.

The fiscal decentralization results are more mixed and more sensitive to model specification. Regional expenditure, revenue, and intergovernmental transfers are positively associated with life satisfaction in models that retain cross-country variation, but these associations weaken or disappear once country fixed effects are introduced. This suggests that broad fiscal decentralization indicators may capture national institutional and fiscal structures more than independent regional-level associations. By contrast, regional discretion over personal income tax becomes positive and statistically significant in country fixed-effects specifications. This suggests that narrower and more substantive forms of fiscal autonomy may matter within countries, even when broader expenditure, revenue, and transfer measures do not.

Several limitations should be emphasized. First, the study relies on cross-sectional data from a single year, which limits causal interpretation. Without panel data, regional fixed effects, or a credible instrumental-variable strategy, the analysis cannot establish whether decentralization causes higher life satisfaction or whether both decentralization and well-being reflect deeper national characteristics such as institutional history, political culture, administrative traditions, or long-run development trajectories. The country fixed-effects models partially address this concern by absorbing national-level differences, but they do not capture changes over time.

Second, the dependent variable is a regional average based on Gallup World Poll data from the OECD Regional Well-Being Database. This means the analysis captures associations between regional institutional characteristics and regional average life satisfaction, rather than individual-level mechanisms. The use of aggregated regional data may introduce measurement error, especially in regions with smaller

underlying survey samples. Because harmonized Gallup respondent counts are not publicly available for all NUTS-2 regions in the sample, it is not possible to weight regions by survey precision or exclude regions below a common respondent threshold. This also raises a potential ecological fallacy concern: regional-level relationships should not be interpreted as evidence about individual-level determinants of happiness.

Third, the sample is limited to regions for which comparable data are available across the main variables, especially OECD life satisfaction, the Regional Authority Index, fiscal decentralization indicators, and the European Quality of Government Index. This may affect the external validity of the findings, particularly for lower-governance contexts and underrepresented parts of Europe. In addition, ethnic, linguistic, and religious fractionalization are measured at the country level, meaning that they cannot fully capture within-country regional diversity. Finally, the study focuses on political and fiscal decentralization, while administrative decentralization is excluded because comparable regional measures of administrative autonomy, bureaucratic delegation, and implementation capacity are not consistently available.

Future research should address these limitations in several ways. First, panel data would allow researchers to examine changes in decentralization, governance quality, and well-being over time, providing stronger evidence on causal mechanisms. A related extension would be to develop an instrumental-variable or reform-based identification strategy, provided that suitable instruments can be found that affect decentralization without directly influencing subjective well-being through institutional quality, political culture, public service capacity, or long-run regional development.

Second, individual-level microdata from sources such as the European Social Survey or Eurobarometer could support multilevel models in which individuals are nested within regions, allowing regional institutional variables to be combined with individual controls such as income, education, employment, age, and household characteristics. Third, future work should develop more refined regional measures of administrative capacity, fiscal autonomy, and sociocultural heterogeneity, especially in countries with strong territorial, linguistic, or identity cleavages.

From a policy perspective, the findings suggest that decentralization should not be treated as a universally beneficial institutional reform. Its association with well-being depends on institutional context, the type of authority being decentralized, and the broader national environment. Political decentralization may be associated with higher life satisfaction in weaker-governance contexts, but this relationship appears to reflect broad country-level institutional patterns rather than a clear within-country causal mechanism. Fiscal decentralization is also not a single phenomenon: broad expenditure and revenue measures behave differently from more substantive forms of tax autonomy such as PIT discretion.

Overall, this study highlights the importance of adopting a multidimensional, regionally focused, and institutionally grounded approach to the study of decentralization and subjective well-being. Decentralization may be associated with higher life satisfaction under certain conditions, but its benefits are not automatic. Understanding when and where decentralization matters requires attention to governance quality, national institutional structures, measurement limitations, and the specific powers transferred to regional governments.

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## APPENDIX

TABLE A1.  
Descriptive Statistics

| Variable                                  | Obs. | Mean   | Std. Dev. | Min–Max         |
|-------------------------------------------|------|--------|-----------|-----------------|
| Life satisfaction (0–10 scale)            | 140  | 6.86   | 0.54      | 5.30 – 7.80     |
| Regional Authority Index                  | 140  | 15.74  | 7.02      | 1.00 – 27.00    |
| Shared-rule component                     | 140  | 4.06   | 4.36      | 0.00 – 12.00    |
| Self-rule component                       | 140  | 11.68  | 3.37      | 1.00 – 18.00    |
| Political decentralization index          | 140  | 12.96  | 5.36      | 1.00 – 23.00    |
| European Quality of Government Index      | 127  | 0.31   | 0.91      | -2.08 – 1.71    |
| Expenditure decentralization (% GDP)      | 140  | 0.10   | 0.09      | 0.006 – 0.42    |
| Revenue decentralization (% GDP)          | 140  | 0.10   | 0.09      | 0.006 – 0.41    |
| Tax decentralization (share of revenue)   | 140  | 0.04   | 0.05      | 0.00 – 0.22     |
| Intergovernmental transfers (% GDP)       | 140  | 0.06   | 0.06      | 0.002 – 0.23    |
| Personal Income Tax discretion (binary)   | 140  | 0.31   | 0.46      | 0.00 – 1.00     |
| Log GDP per capita                        | 140  | 11.04  | 1.14      | 8.40 – 13.61    |
| Unemployment rate (%)                     | 140  | 6.86   | 4.31      | 2.10 – 23.50    |
| Social support index                      | 140  | 91.31  | 3.97      | 74.00 – 100.00  |
| Life expectancy (years)                   | 140  | 81.22  | 2.19      | 75.30 – 84.00   |
| Log total population                      | 140  | 14.37  | 0.93      | 11.73 – 16.70   |
| Squared log total population              | 140  | 207.43 | 26.74     | 137.56 – 278.95 |
| Ethnic fractionalization index (2000)     | 140  | 0.19   | 0.15      | 0.00 – 0.56     |
| Linguistic fractionalization index (2000) | 140  | 0.23   | 0.17      | 0.05 – 0.54     |
| Religious fractionalization index (2000)  | 140  | 0.42   | 0.19      | 0.17 – 0.72     |

**Notes:** Descriptive statistics are based on the final analytical sample of 140 EU NUTS-2 regions (127 for EQI). Values represent means, standard deviations, and minimum–maximum ranges.

**TABLE A2.**  
**Full Fiscal Results Across Specifications**

|                            | No country controls      | Country observables | Country FE |
|----------------------------|--------------------------|---------------------|------------|
| <b>Dependent variable:</b> | <b>Life Satisfaction</b> |                     |            |
| exp_gdp                    | 0.259                    | 1.239***            | 0.195      |
|                            | (0.376)                  | (0.470)             | (0.467)    |
| rev_gdp                    | 0.241                    | 1.108**             | 0.039      |
|                            | (0.390)                  | (0.474)             | (0.500)    |
| tax_gdp                    | -0.157                   | -0.038              | 0.230      |
|                            | (0.667)                  | (0.774)             | (0.824)    |
| Transfers_GDP              | 0.785                    | 2.234***            | -0.271     |
|                            | (0.636)                  | (0.600)             | (0.856)    |
| tax_power / PIT discretion | -0.001                   | 0.001               | 0.010***   |
|                            | (0.002)                  | (0.002)             | (0.004)    |
| Regional controls          | Yes                      | Yes                 | Yes        |
| Country observables        | No                       | Yes                 | No         |
| Country fixed effects      | No                       | No                  | Yes        |
| Observations               | 126                      | 126                 | 126        |
| R-squared range            | 0.620–0.625              | 0.683–0.709         | 0.789      |

**Note:** Standard errors in parentheses. \*p < 0.10, \*\*p < 0.05, \*\*\*p < 0.01. Each coefficient comes from a separate model using the corresponding fiscal decentralization variable. Full controls include logged GDP per capita, unemployment, opportunity/social support, life expectancy, logged population, and logged population squared. Country observables include ethnic, religious, and linguistic fractionalization. The results show that expenditure, revenue, and transfers are significant only when country observables are included, while PIT discretion is the only fiscal variable that becomes significant under country fixed effects.

**TABLE A3.**  
**Standardized Pooled and Country Fixed-Effects Models**

|                                                  | Pooled    | Country FE |
|--------------------------------------------------|-----------|------------|
| <b>Dependent variable: standardized life_sat</b> |           |            |
| z_RAI                                            | 0.291**   | -0.006     |
|                                                  | (0.113)   | (0.151)    |
| z_EQI_2017                                       | 0.288***  | -0.247     |
|                                                  | (0.083)   | (0.155)    |
| z_RAI × z_EQI_2017                               | -0.353*** | -0.025     |
|                                                  | (0.085)   | (0.133)    |
| z_pol_dec                                        | 0.193     | -0.122     |
|                                                  | (0.133)   | (0.130)    |
| z_pol_dec × z_EQI_2017                           | -0.244**  | 0.110      |
|                                                  | (0.114)   | (0.116)    |
| z_exp_gdp                                        | 0.200**   | 0.035      |
|                                                  | (0.081)   | (0.096)    |

TABLE A3. CONT.  
Standardized Pooled and Country Fixed-Effects Models

|                                                  | Pooled      | Country FE  |
|--------------------------------------------------|-------------|-------------|
| <b>Dependent variable: standardized life_sat</b> |             |             |
| $z\_exp\_gdp \times z\_EQI\_2017$                | -0.032      | -0.004      |
|                                                  | (0.119)     | (0.111)     |
| $z\_rev\_gdp$                                    | 0.178**     | 0.016       |
|                                                  | (0.082)     | (0.098)     |
| $z\_rev\_gdp \times z\_EQI\_2017$                | -0.038      | -0.006      |
|                                                  | (0.122)     | (0.117)     |
| $z\_Transfers\_GDP$                              | 0.244***    | -0.037      |
|                                                  | (0.065)     | (0.087)     |
| $z\_Transfers\_GDP \times z\_EQI\_2017$          | -0.102      | -0.065      |
|                                                  | (0.081)     | (0.096)     |
| $z\_tax\_gdp$                                    | -0.004      | 0.081       |
|                                                  | (0.069)     | (0.057)     |
| $z\_tax\_gdp \times z\_EQI\_2017$                | 0.001       | 0.071       |
|                                                  | (0.074)     | (0.073)     |
| $z\_tax\_power$                                  | 0.107       | 1.016***    |
|                                                  | (0.171)     | (0.359)     |
| $z\_tax\_power \times z\_EQI\_2017$              | 0.201       | -0.067      |
|                                                  | (0.141)     | (0.135)     |
| Regional controls                                | Yes         | Yes         |
| Country observables                              | Yes         | No          |
| Country fixed effects                            | No          | Yes         |
| Observations                                     | 126–127     | 126–127     |
| R-squared range                                  | 0.683–0.714 | 0.794–0.800 |

**Note:** Standard errors in parentheses. \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ . All variables reported in the table are standardized. The standardized results show that the political decentralization interaction is substantively large in pooled models but disappears under country fixed effects. Fiscal interactions are not statistically significant. PIT discretion becomes positive and significant under country fixed effects.

TABLE A4.  
Excluding Likely Capital Regions

|                            | (1)                      | (2)     | (3) | (4) |
|----------------------------|--------------------------|---------|-----|-----|
| <b>Dependent variable:</b> | <b>Life Satisfaction</b> |         |     |     |
| RAI                        | 0.031***                 |         |     |     |
|                            | (0.012)                  |         |     |     |
| EQI_2017                   | 0.603***                 | 0.446** |     |     |
|                            | (0.137)                  | (0.187) |     |     |
| $RAI \times EQI\_2017$     | -0.028***                |         |     |     |
|                            | (0.008)                  |         |     |     |

TABLE A4. CONT.  
Excluding Likely Capital Regions

|                            | (1)                      | (2)      | (3)       | (4)       |
|----------------------------|--------------------------|----------|-----------|-----------|
| <b>Dependent variable:</b> | <b>Life Satisfaction</b> |          |           |           |
| pol_dec                    |                          | 0.026    |           |           |
|                            |                          | (0.019)  |           |           |
| pol_dec × EQI_2017         |                          | -0.024*  |           |           |
|                            |                          | (0.014)  |           |           |
| exp_gdp                    |                          |          | 1.271**   |           |
|                            |                          |          | (0.499)   |           |
| Transfers_GDP              |                          |          |           | 2.330***  |
|                            |                          |          |           | (0.578)   |
| ln_gdp_pc                  | 0.145***                 | 0.138*** | 0.126***  | 0.137***  |
|                            | (0.032)                  | (0.035)  | (0.037)   | (0.034)   |
| unempl_rt                  | -0.033***                | -0.029** | -0.032*** | -0.035*** |
|                            | (0.011)                  | (0.011)  | (0.010)   | (0.009)   |
| social_net_support         | 0.017**                  | 0.016**  |           |           |
|                            | (0.008)                  | (0.008)  |           |           |
| life_exp                   | 0.006                    | 0.037    | 0.036     | 0.036     |
|                            | (0.027)                  | (0.025)  | (0.025)   | (0.024)   |
| pop_tot_log                | -1.227**                 | -1.088** | -0.925    | -1.052*   |
|                            | (0.527)                  | (0.541)  | (0.652)   | (0.548)   |
| pop_tot_log_sq             | 0.042**                  | 0.037*   | 0.032     | 0.037**   |
|                            | (0.018)                  | (0.019)  | (0.022)   | (0.019)   |
| Country observables        | Yes                      | Yes      | Yes       | Yes       |
| Constant                   | 11.589**                 | 8.395*   | 8.423     | 9.076*    |
|                            | (4.429)                  | (4.656)  | (5.814)   | (5.047)   |
| Observations               | 121                      | 121      | 120       | 120       |
| R-squared                  | 0.710                    | 0.692    | 0.702     | 0.714     |

**Note:** Standard errors in parentheses. \*p < 0.10, \*\*p < 0.05, \*\*\*p < 0.01. Models exclude likely capital and special regions. The RAI × EQI interaction remains negative and significant, while expenditure decentralization and transfers remain positive and significant. These results suggest that the pooled findings are not driven solely by capital-region outliers.

TABLE A5.  
Split by Country-Average Governance Quality

|                            | Low-governance countries | High-governance countries | Low-governance countries | High-governance countries |
|----------------------------|--------------------------|---------------------------|--------------------------|---------------------------|
| <b>Dependent variable:</b> | <b>Life Satisfaction</b> |                           |                          |                           |
| RAI                        | -0.066                   | 0.029                     |                          |                           |
|                            | (0.043)                  | (0.022)                   |                          |                           |
| EQI_2017                   | 0.027                    | 0.380                     | -0.014                   | 0.327                     |
|                            | (0.271)                  | (0.347)                   | (0.332)                  | (0.343)                   |
| RAI × EQI_2017             | -0.011                   | -0.026                    |                          |                           |
|                            | (0.015)                  | (0.023)                   |                          |                           |
| pol_dec                    |                          |                           | -0.049**                 | 0.030                     |
|                            |                          |                           | (0.021)                  | (0.028)                   |
| pol_dec × EQI_2017         |                          |                           | -0.011                   | -0.027                    |
|                            |                          |                           | (0.022)                  | (0.033)                   |
| ln_gdp_pc                  | -0.091                   | 0.159*                    | -0.064                   | 0.162**                   |
|                            | (0.058)                  | (0.080)                   | (0.058)                  | (0.080)                   |
| unempl_rt                  | -0.037***                | -0.075**                  | -0.041***                | -0.076**                  |
|                            | (0.013)                  | (0.034)                   | (0.012)                  | (0.031)                   |
| social_net_support         | 0.010                    | 0.007                     | 0.009                    | 0.007                     |
|                            | (0.010)                  | (0.014)                   | (0.010)                  | (0.013)                   |
| life_exp                   | 0.029                    | 0.046                     | 0.002                    | 0.045                     |
|                            | (0.056)                  | (0.065)                   | (0.037)                  | (0.061)                   |
| pop_tot_log                | -2.921***                | -0.291                    | -2.656***                | -0.077                    |
|                            | (0.943)                  | (1.072)                   | (0.835)                  | (1.161)                   |
| pop_tot_log_sq             | 0.102***                 | 0.009                     | 0.092***                 | 0.001                     |
|                            | (0.033)                  | (0.037)                   | (0.030)                  | (0.040)                   |
| Country observables        | Yes                      | Yes                       | Yes                      | Yes                       |
| Constant                   | 26.403***                | 3.285                     | 25.993***                | 1.921                     |
|                            | (5.690)                  | (10.449)                  | (5.636)                  | (11.245)                  |
| Observations               | 65                       | 62                        | 65                       | 62                        |
| R-squared                  | 0.545                    | 0.681                     | 0.547                    | 0.678                     |

**Note:** Standard errors in parentheses. \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ . Countries are split by country-average governance quality. The interaction terms are not statistically significant in either group, indicating that the compensatory pattern is not driven exclusively by low- or high-governance countries.

**TABLE A6.**  
**Geographic Split Robustness**

|                            | North/West<br>Europe     | South/Central/East<br>Europe | North/West<br>Europe | South/Central/East<br>Europe |
|----------------------------|--------------------------|------------------------------|----------------------|------------------------------|
| <b>Dependent variable:</b> | <b>Life Satisfaction</b> |                              |                      |                              |
| RAI                        | 0.013                    | -0.030                       |                      |                              |
|                            | (0.017)                  | (0.026)                      |                      |                              |
| EQI_2017                   | 0.153                    | -0.074                       | -0.021               | -0.080                       |
|                            | (0.303)                  | (0.271)                      | (0.308)              | (0.290)                      |
| RAI × EQI_2017             | -0.014                   | -0.007                       |                      |                              |
|                            | (0.018)                  | (0.015)                      |                      |                              |
| pol_dec                    |                          |                              | 0.002                | -0.040**                     |
|                            |                          |                              | (0.020)              | (0.017)                      |
| pol_dec × EQI_2017         |                          |                              | -0.006               | -0.006                       |
|                            |                          |                              | (0.021)              | (0.022)                      |
| ln_gdp_pc                  | 0.026                    | -0.094*                      | 0.023                | -0.095                       |
|                            | (0.069)                  | (0.055)                      | (0.074)              | (0.057)                      |
| unempl_rt                  | -0.059***                | -0.036***                    | -0.058***            | -0.034***                    |
|                            | (0.018)                  | (0.013)                      | (0.019)              | (0.013)                      |
| social_net_support         | -0.001                   | 0.012                        | 0.001                | 0.011                        |
|                            | (0.013)                  | (0.010)                      | (0.012)              | (0.010)                      |
| life_exp                   | 0.046                    | 0.044                        | 0.040                | 0.039                        |
|                            | (0.065)                  | (0.045)                      | (0.061)              | (0.042)                      |
| pop_tot_log                | 0.499                    | -2.927***                    | 0.715                | -2.863***                    |
|                            | (1.069)                  | (0.715)                      | (1.190)              | (0.701)                      |
| pop_tot_log_sq             | -0.016                   | 0.101***                     | -0.024               | 0.099***                     |
|                            | (0.037)                  | (0.025)                      | (0.041)              | (0.025)                      |
| Country observables        | Yes                      | Yes                          | Yes                  | Yes                          |
| Constant                   | -0.072                   | 23.992***                    | -0.956               | 24.069***                    |
|                            | (9.259)                  | (5.154)                      | (11.281)             | (5.325)                      |
| Observations               | 52                       | 75                           | 52                   | 75                           |
| R-squared                  | 0.677                    | 0.555                        | 0.674                | 0.563                        |

**Note:** Standard errors in parentheses. \*p < 0.10, \*\*p < 0.05, \*\*\*p < 0.01. Countries are grouped into North/West Europe and South/Central/East Europe. The interaction terms are not statistically significant across geographic clusters, suggesting that the conditional relationship is not confined to one European bloc.

TABLE A7.  
High-GDP Split, Exploratory Analysis

|                     | (1)               | (2)       |
|---------------------|-------------------|-----------|
| Dependent variable: | Life Satisfaction |           |
| RAI                 | 0.022*            | 0.013     |
|                     | (0.013)           | (0.011)   |
| EQL_2017            | 0.548***          | 0.331     |
|                     | (0.173)           | (0.236)   |
| RAI × EQL_2017      | -0.011            | -0.012    |
|                     | (0.011)           | (0.012)   |
| ln_gdp_pc           | 0.172***          | 0.023     |
|                     | (0.051)           | (0.116)   |
| unempl_rt           | -0.029*           | -0.051*** |
|                     | (0.016)           | (0.014)   |
| social_net_support  | 0.027             | 0.008     |
|                     | (0.016)           | (0.010)   |
| life_exp            | 0.003             | -0.028    |
|                     | (0.039)           | (0.036)   |
| pop_tot_log         | -0.367            | -1.185*   |
|                     | (1.322)           | (0.684)   |
| pop_tot_log_sq      | 0.011             | 0.040     |
|                     | (0.046)           | (0.024)   |
| Constant            | 4.733             | 17.038**  |
|                     | (10.519)          | (6.941)   |
| Observations        | 57                | 70        |
| R-squared           | 0.801             | 0.550     |

**Note:** Standard errors in parentheses. \*p < 0.10, \*\*p < 0.05, \*\*\*p < 0.01. This table is reported as exploratory appendix evidence only. Because of the smaller subsample sizes, results should not be interpreted as confirmatory evidence.

