Subjective wellbeing and trust in governance of citizens in the EU

Double Degree Social Demography
19-07-2023

Dieuwke Elzinga
S3000516/U202153

Supervisors: Hinke Haisma
Aïda Solé-Auro

University of Groningen
Universitat Pompeu Fabra

Faculty of Spatial Sciences/ Political and Social Sciences

Abstract

While European policies thrive to minimize inequalities, large regional differences can still be observed. Subjective wellbeing in particular differs significantly between regions, despite many similarities in circumstances. This research attempts to further explore the effects of individual trust in governance on the relationship between regional circumstances and subjective wellbeing in European Union countries. In order to do so, a holistic approach is employed, where the full context of which individual demographic factors and regional factors affect wellbeing and how trust in governance fits within these relationships is explored. First, the relationship between individual demographic circumstances and subjective wellbeing and how trust in governance mediates this relationship are explored through a linear regression and a mediation analysis. After, a multilevel model and a multilevel mediation model are used to fully see how the relationship between regional circumstances and subjective wellbeing is affected by trust in governance. Overall, it was found that trust in governance significantly affects the relationship between GDP per capita and subjective wellbeing.

Keywords: Subjective wellbeing, Regional inequalities, inequality, Europe, Trust in institutions, European policies, multilevel modeling

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1. Introduction

The European Union (EU) aims to promote its values and the wellbeing of citizens while still allowing individual countries the freedom to govern according to their unique circumstances. This delicate balance between unity and freedom is often achieved through various levels of legislation, including regional, national, and EU-wide policies (European Union, 2022). Despite these EU level legislations and many similarities between European countries, significant differences in wellbeing within the EU can be found. According to a study conducted by the European Commission, there are significant differences in wellbeing between European countries, with some places being left behind. This is particularly evident when considering the disparities in income and education levels, as well as access to healthcare and social services (Rodriguez-Pose, 2018). This highlights the need for comprehensive research to understand and address these differences.

It is important for governments and stakeholders to take measures to ensure that regional differences are minimized in terms of growth and development. This can be done through increased investments, job creation, and other policies that promote and safeguard the wellbeing of all citizens. In order to reduce these disparities, the European Commission has put in place a number of initiatives. For instance, the European Social Fund (ESF) has been established to help reduce economic and social disparities between EU countries (European Commission, 2017). The ESF provides funding for projects that promote employment, education, and social inclusion (European Commission, 2017). Additionally, the European Commission has launched the European Pillar of Social Rights which sets out 20 principles for fair and well-functioning labour markets and welfare systems (European Commission, 2017).

Despite these efforts to promote equality in wellbeing across the European Union, the European commission (2017) found substantial differences in subjective wellbeing between European countries, indicating the presence of regional circumstances that impact individuals' (subjective) wellbeing. These disparities point towards a larger problem where certain areas may experience marginalization, hindering the EU's goal of ensuring equal opportunities.

The effects of European regions being left behind are far-reaching and can have a devastating impact on the people living in those regions. Rodriguez-Pose (2018) found that, when a region is “left behind”, it can lead to a decrease in investment, a decrease in job opportunities, and a decrease in wages. This lack of economic opportunity can decrease liveability and lead to an increase in social and political instability causing an increase in violence and unrest, which can further destabilize regions (Rodriguez-Pose, 2018).

While these disparities between different European countries are recognized, there is still much to be researched in terms of exploring the underlying factors that contribute to these differences. One particularly interesting factor which has shown promise in other research is trust in governance (Danish & Nawaz, 2022; Kalsoom, et al., 2017).

However, the potential mechanisms through which trust in governance operates in affecting (subjective) wellbeing call for further research. Understanding these mechanisms will provide a better understanding of how regional circumstances and trust in governance interact to affect subjective wellbeing. Understanding the influence of trust in governance on the differences in wellbeing observed within Europe can open interesting opportunities for (local) governments to create targeted policies and interventions to improve their practices while simultaneously improving the public’s trust and wellbeing, thus minimizing gaps in wellbeing and create more equitable outcomes across European regions. (European commission, 2019).

1.1 Research questions

While limited, previous research has shown that trust in governance has been found to have a significant positive effect on the wellbeing of a country's citizens. This research attempts to further explore the relationship between individual trust in governmental institutions in European Union countries and the subjective wellbeing of its citizens. While the effects of governance on wellbeing have been studied extensively, this paper will focus on the impact of institutions upon subjective wellbeing through their intermediary impact upon trust in governance. Therefore, this research will include multiple level characteristics through the use of multilevel mediation modeling. Furthermore, the focus of this research is shifted more towards the importance of subjective wellbeing and its determinants as well as researching the subject in a more contemporary context.

Therefore, the research question this paper aims to answer is as follows:

"How does trust in the government affect the link between regional circumstances and the subjective wellbeing of citizens in Europe?"

In order to gain a more detailed answer to said overall research question, this paper will split up the answer in the following sections:

"How do individual demographic characteristics affect subjective wellbeing?"

"How does trust in the government mediate the relationship between individual demographic characteristics and subjective wellbeing?"

"How do regional circumstances affect subjective wellbeing?"

"How does trust in the government mediate the relationship between regional circumstances (macro-level variables) and subjective wellbeing?"

1.2 Structure of paper

To answer these questions, an extensive theoretical background of existing literature is created to fully understand the mechanism behind subjective wellbeing and which regional circumstances and individual demographic factors affect it. Furthermore, extra focus is given to how trust in governance fits within these relationships. A conceptual model has been created to visualize these relationships. After, the methodology of this research is elaborated upon, consisting of four parts, corresponding with each sub-question within this research. The first part focuses on conducting linear regression analysis using individual demographic factors to examine their impact on subjective well-being. Then, this analysis is expanded by including trust in governance in the model to find possible mediation. Moving forward, the third part incorporates regional circumstances, employing a multilevel modeling approach. Finally, in the fourth part, a multilevel mediation model is constructed to find whether mediation through trust in governance exists between the regional factors and subjective well-being.

After these steps have been performed, the results of the models are explored. Lastly, these results are explained and contextualized in the results.

Following, the results of the various models are shown and summarized. The paper concludes by presenting and contextualizing these findings, exploring possible explanations of the results and their implications.

2. Theoretical framework

2.1 Subjective wellbeing

SWB is a measure of how people feel about their lives, which can be distinct from their objective circumstances (Layard, 2006). SWB is closely related to mental health, and has been linked to greater life satisfaction, positive affect, and better physical and mental health (Diener et al., 2009). As such, studying SWB can provide important insights into a person's overall wellbeing and functioning (Layard & Clark, 2014). It is a subjective assessment of an individual's life, rather than an objective evaluation (Gruber et al., 2014). In most research, some form of the Subjective wellbeing Index (PWI) is utilized to research subjective wellbeing. The Subjective wellbeing Index (PWI) can consist of two measures: a single-item measure, where individuals assess their own wellbeing directly, or a multi-item measure, where wellbeing is deduced from individual assessment of 7 domains of wellbeing (standard of living, health, achieving in life, relationships, safety, community-connectedness and future security) (Diener, et al., 1985).

2.1.1 Which factors traditionally influence subjective wellbeing?

As wellbeing is a multifaceted construct, there are many complexities in how these individual demographic characteristics affect it. Luckily, there is a growing interest among academics, administrators, and policymakers in pursuing societal happiness or subjective wellbeing. Previously, the conventional methods of understanding the determinants of societal wellbeing have heavily focused on economic factors such as income and wealth (Danish & Nawaz, 2022). However, recent research suggests that socio-political variables are of interest in regard to subjective wellbeing as well (Inglehart et al., 2008).

Individual demographic characteristics

Age can affect an individual's wellbeing in various ways. Younger adults may be more likely to experience higher levels of stress due to job-related pressures, family responsibilities, and financial concerns (Kaufman, 2018). Elderly populations may be more likely to experience loneliness, isolation, and depression due to physical limitations, loss of social roles, and a reduction in social networks (Strawbridge, Shema, & Cohen, 2001). Additionally, aging often causes age related health complications, lowering subjective wellbeing. However, several authors have found that subjective wellbeing is correlated to age in a U-shaped manner, where happiness is high in youth, decreases in adulthood and increases again in older age (Blanchflower & Oswald, 2008; Ferrer-i-Carbonell & Gowdy, 2007).

Gender can also impact an individual's wellbeing. Men may be more likely to experience higher levels of risk-taking behavior and substance abuse due to gender stereotypes (Gillespie, et al., 2017). In contrast, women are more likely to experience depression, anxiety, and stress due to gender role expectations, gender-based discrimination, and a lack of social support (Grayson, 2016). In line with this, Graham & Chattopadhyay (2015) found that in general, women have higher levels of wellbeing in high income countries while the opposite is true in lower income countries. They suggest that this is due to lower income countries oftentimes having more strict gender norms. Highly related Koropeckyj-Cox & Turner (2002) found that *marital status* affects wellbeing differently, dependent on gender. Overall, research has shown that married individuals report higher levels of life satisfaction and overall wellbeing than those who are single or divorced, due to lower levels of stress and anxiety and higher levels of social support and emotional connection (Koropeckyj-Cox & Turner, 2002). However, in countries where traditional gender patterns are more prevalent, marital status does not seem to affect woman's wellbeing as much. On the other hand, in these same countries, men's wellbeing does

seem to be more dependent on marital status, with married men being significantly happier than their unmarried counterparts (Guven, et al., 2012).

Higher levels of *education* may also lead to increased access to resources, opportunities and employment, which can have a positive effect on an individual's wellbeing (Kaufman, 2018). It is unsurprising that individuals with higher levels of educational attainment report higher levels of life satisfaction than those with lower levels of educational attainment (Kaufman, 2018). *Unemployed* individuals may experience higher levels of stress, anxiety, and depression due to a lack of job security, financial concerns, and a decrease in social networks (Strawbridge, Shema, & Cohen, 2001). On the other hand, employed individuals may experience higher levels of life satisfaction due to job security, financial stability, and access to social networks (Strawbridge, Shema, & Cohen, 2001).

Regional circumstances

Considering that an individual cannot exist outside of a certain context, wellbeing is dependent not only on individual-level factors, as pointed out by Ballas and Tranmer (2008). Thus, an individual's environment also plays a role and cannot be disregarded from their overall wellbeing, suggesting a link between regional influences and subjective wellbeing.

On one hand, demographic factors such as *population size* may significantly affect wellbeing. The countries within Europe all have vastly different population sizes, which may significantly affect wellbeing, as a larger population may lower feelings of community, lowering hope for the future and, in turn, wellbeing as well as affect ability to access resources (Arora, et al., 2016). Additionally, *population growth* can have both positive and negative effects on wellbeing. Rapid population growth may make it more challenging for nations with low and middle incomes to cover the increase in public spending per capita required to end poverty, end hunger and malnutrition, and guarantee universal access to healthcare, schooling, and other essential services (United Nations Department of Economic and Social Affairs, 2022). Additionally, changes in the *age composition* due to a rapid decrease of population may affect long term planning for health care, as well as increase the old age dependency rate, affecting both younger and older individuals' wellbeing (Perrott & Holland, 2005). Population increase through immigration of younger individuals may mitigate these effects (Passel & Cohn, 2019).

On the other hand, economic factors seem to be closely related to the economic wellbeing of citizens in European countries which, in turn significantly affects individual subjective wellbeing. Higher *GDP per capita* is associated with higher levels of human development, including better health and education outcomes, longer life expectancy, higher standards of living as well as increase happiness or wellbeing within a country (Ballas, 2013; Morgan et al. 2015; Rodriguez-pose, 2018; Kumar, 2013).

2.2 Trust in governance

Trust in governance is the belief that citizens have in the government's ability to act in a fair manner. This trust is important for the successful functioning of society and is an important part of good governance. Gozgor (2022) found that people are more likely to trust their government when they assess that the government has the capacity, expertise, and technical knowledge to act in the public interest and the welfare of the public. According to Grimmelikhuijsen & Knies (2017), a higher trust in governance promotes complying to public policies and, with this, enhances policy effectiveness/ As citizens are more inclined to back and abide by policies when trust in governance is higher, comprehending trust in governance can assist governments in gauging citizens' views on government efficacy and their willingness

to comply, in turn improving citizen's views of the governments capabilities and overall trust in governance (Grimmelikhuijsen & Knies, 2017).

2.2.1 Individual demographic factors and regional circumstances and trust in governance

Individual demographic factors

Several authors have explored the relationship between individual demographic characteristics and trust in government. Their studies indicate that most, if not all, factors that have earlier been described as influencing wellbeing, have an impact on trust in governance as well. For instance, age has been identified as a significant determinant of trust in government, with older individuals demonstrating a higher level of trust compared to their younger counterparts (Christensen and Laegreid, 2005). This can be attributed to the fact that older individuals tend to be more "collective-oriented", which results in a greater sense of trust in the governing authorities.

Furthermore, education is another crucial factor determining trust in governance. Research found that individuals' critical assessment of the overall functioning and governance of their government increases with higher education *(Gronlund and Setala, 2007; Norris, 1999).* Consequently, higher education is often associated with lower trust in governance *(Gronlund and Setala, 2007).*

When looking at gender, *Tolbert* and *Mossberger (2006)* found that males tend to have a higher degree of trust in governance when compared to their female counterparts. Wu, et al., (2020) found that this stark difference between genders may be due to differences in overall demeanour, with men being more assertive overall, whereas woman tend to be more communal. This results in men being more likely to feel comfortable participating in politics, which increases trust. Overall, individuals' demographic groups seem to be one of the main drivers of public trust in government.

While the aforementioned individual demographic characteristics have been found to affect trust in governance, this relationship is less evident in research. When looking at employment status, Bauer (2018) found that, while there is a slight link between being employed and trust in governance, this effect is negligible and can mostly be attributed to higher income (Bauer, 2018). Additionally, Gozgor, (2022) found that the effects of marital status on trust in governance does exist, but is very small compared to other factors such as income, age, and educational level, regardless of gender.

In summary, when looking at individual demographic characteristics, some play a critical role in shaping public trust in the government. Age, educational level, and gender seem to be highly interrelated with trust in governance. Additionally, both employment and marital influence trust in governance as well, albeit small.

Regional circumstances

When looking at regional differences, both economic as well as demographic circumstances seem to affect both trust in governance as well as subjective wellbeing.

When looking at regional economic circumstances, Gross Domestic Product (GDP) has been found to significantly impact trust in government. Researchers from the OECD (2021) found that the economic means within a country can play a crucial role in addressing long-term societal challenges, such as climate change, aging populations, and changing labor markets. Consequently, societies that effectively tackle these challenges tend to enjoy higher levels of trust in governance due to the perception that their authorities are capable of effectively managing the economy. This ties in with the findings of Rodriguez-Pose (2018), where lower economic wellbeing of certain regions results in feelings of vulnerability economically,

socially, and politically. The economic struggles faced by these regions create a sense of dissatisfaction and pessimism about the future, leading to a lack of confidence in the ability of the government to address their concerns and improve their circumstances, translating into a distrust in governance.

On the other hand, demographic factors, such as population growth and the old age dependency ratio, are also found to significantly influence trust in governance. For instance, population growth often comes with significant long term challenges, such as increased spending on healthcare, education, and an increased need for public services (Christensen & Lægreid, 2005). If the current governance cannot effectively address these challenges, public trust in governance lowers. However, this relationship is dependent on demographic traits such as the age composition of a country (OECD, 2021). If the age composition shifts significantly, increasing the old age dependency ratio, this tends to increase stress and fosters a pessimistic outlook on the future. This, in turn, has negative effects on trust in governance, as individuals become less confident in the government's ability to meet the needs and concerns of an aging population (Christensen & Lægreid, 2005).

While this indicates the importance of demographics, the impact of some demographic factors on trust in governance is not always straightforward. The OECD (2021) found that people's trust in government depends on demographic and socioeconomic traits, but the impact of population size on trust in government did not seem to significantly affect trust in governance.

The link between trust in governance and wellbeing

In recent years the interest in exploring the relationship between trust in governance and individual's overall life satisfaction and subjective general wellbeing. Multiple studies have looked into the significant impact that trust in governance can have on personal fulfilment, future expectations, and overall wellbeing.

In a study conducted by Hudson (2006), the interrelation between trust in governance and life satisfaction was explored. Hudson's research revealed that a person's overall life satisfaction was greatly affected by their trust in institutions, such as the national government, the court system, and the European Union. By examining the influence of trust across a broad range of institutional contexts, this study comprehensively showed the far-reaching effects of trust in governance on individual wellbeing.

Additionally, the World Bank (2009) published a report that substantiated these findings as it found that confidence in the government is positively connected with better levels of life satisfaction, happiness, and trust in other people. This results in lower levels of anxiety, stress, and depression (Kaufman et al., 2009). Additionally, individuals who have a higher trust in government are more inclined to actively participate in civic duties and community activities. This not only strengthens social cohesion but also increases the sense of purpose and collective responsibility. Thus, trust in government serves as a catalyst for an interconnected society, allowing individuals to feel a deeper sense of belonging and contribution (Kaufman et al., 2009).

In addition to its impact on psychological states, trust in government was found to affect individuals' civic engagement, ultimately cultivating a sense of belonging and purpose within society which increases wellbeing (Kaufman et al., 2009). Summarizing, studies have found that trust in governance has a strong relationship with overall subjective wellbeing.

2.3 Gap in literature

In short, the effects of both individual demographic characteristics, regional circumstances and trust in governance in particular on subjective wellbeing have been studied extensively. However, when dissecting the role of trust in governance on these relationships, it becomes evident that most regional circumstances and individual demographic characteristics significantly affect trust in governance. Therefore, it becomes more and more likely that the role of trust in governance within this relationship is a mediator, where part of the effect of the individual demographic characteristics and regional circumstances on subjective wellbeing goes through its intermediary effect on trust in governance. While the literature does suggest such a relationship could exist, this has not been studied, indicating a gap within the literature. Answering the research question "*How does trust in the government affect the link between regional circumstances and the subjective wellbeing of citizens in Europe?"* enables governments to fully understand their effects on subjective wellbeing within countries.

2.4 Hypothesis and conceptual model

Based on this theoretical framework, several hypotheses can be made regarding the sub questions of this research, as follows and as presented in figure 1:

H1: individual demographic characteristics affect subjective wellbeing significantly. In particular, education, unemployment and age. The relationships between gender and age and subjective wellbeing is very context dependent and may not be applicable in this dataset.

H2: Trust in governance does mediate the relationship between individual demographic characteristics and subjective wellbeing. In particular, this is the case for age, gender, health status, and employment status.

H3: Regional circumstances will affect individual subjective wellbeing. This effect will exist for GDP, Population growth, population size and the old age dependency ratio.

H4: Trust in governance does mediate the relationship between regional circumstances and subjective wellbeing. In particular, the economic welfare and the old age dependency rate will be of interest. While overall population numbers and growth are of interest regarding subjective wellbeing, this relationship will not be mediated through trust in governance.

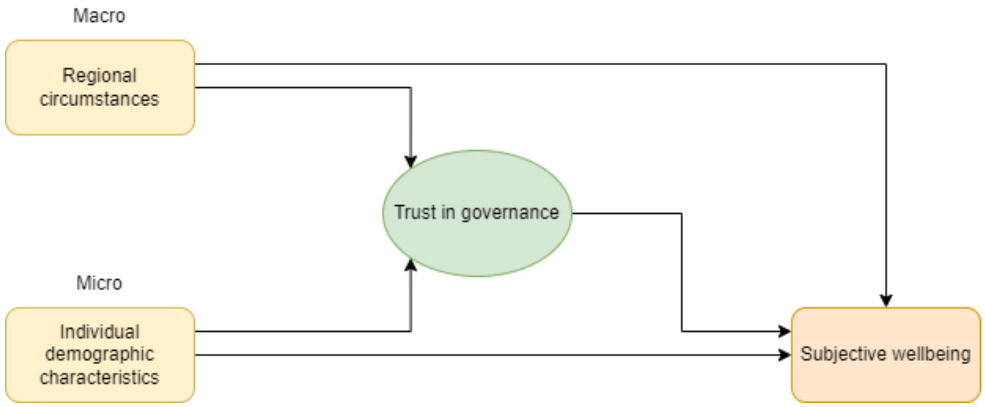

Figure 1: conceptual model showing the hypothesized mediating effects of trust in governance on the relationship between both individual demographic characteristics and Regional circumstances and subjective wellbeing.

3. Methods

3.1 Data

In order to properly study the mediating effect of political trust on the relationship between regional circumstances and subjective wellbeing, a multilevel approach will be used to model subjective wellbeing and its determinants on two levels: individual, and at the NUTS1 level. This entails that both micro and macro data from several datasets are included in the model.

Due to the scale of the research, it is not possible to personally collect data and it was chosen to make use of existing micro and macro level datasets. First, microdata from the Ninth Round of the European Social Survey (2018) are used. This is a dataset contains the results of a cross-national survey and measures attitudes, beliefs, and behaviour patterns in more than thirty European countries and is often used in academics to capture social trends (ESS, 2018). The full dataset contains 49,519 observations, ranging over 29 European countries. When looking at gender, the dataset is fairly balanced, with being 53.5% male. The average age within the dataset is 51, and the full age range is between 15 and 90.

While the European Social Survey contains solely individual level data, the participants' NUTS1 area as well as their country of residence is included, entailing that this dataset can be aggregated on the NUTS1 level and combined with macro level data.

Additionally, this data is supplemented with macro data from 2019 from Eurostat (2023). Eurostat processes statistical information of countries in the EU and ensures it is comparable between member states of the EU. Eurostat does not gather data itself but rather translates facts and figures obtained from the EU member states into a unified statistical language. In particular, the Regional Accounts of Eurostat is used, which covers regional data on different NUTS levels. For this research, the NUTS 1 level is the most suitable scale due to the availability of data.

3.2 Variables

3.2.1 Subjective wellbeing

Within this research, subjective wellbeing is the dependent variable of interest. While the International Wellbeing Group (2013) indicates that single item measures are less reliable than the multi-item scales, this research is limited by the data available within the chosen datasets. Within the ESS, a single measure item is available. Here, wellbeing is assessed through participants answering the question "How satisfied are you with life as a whole?" on a scale from 1 to 11 (Diener, et al., 1985; Danish & Nawaz, 2022; Kalsoom, et al., 2017). Within the European Social survey, a score of 1 represents a participant feeling "extremely dissatisfied" and 11 represents "Extremely satisfied".

3.2.2 Trust in governance

In the European social survey, there are 3 variables representing trust in governance; an individidual's trust in the country's parliament, trust in political parties, and their trust in politicians. In all three variables, individuals could indicate their trust from a scale of 0 to 10, with 0 meaning no trust at all, and 10 meaning they had complete trust. As the latter two variables representing trust in governance are very similar when tabulated, it was chosen to take the average of trust in political parties and trust in the country's parliament to represent trust in governance, similar to the work of Ciziceno & Travaglino (2019).

3.2.3 Individual demographic characteristics

As described in the theoretical framework, gender, age, education, marital status, and employment status are shown to significantly affect subjective wellbeing. To properly model the relationship between these personal circumstances and wellbeing, these need to be translated into variables that can be used in a model.

As age and gender are included in the European Social Survey data in a ratio and binomial state respectively, these do not need any conversion to be included in the model. Additionally, employment status can be included in much the same way. The variable "evdemp" consists of the answer to the question "Do you have paid employment or apprenticeship for at least 3 months for at least 20 hours weekly, where no is recoded as 0 and yes is recoded as 1, making it a binomial variable.

While educational status and marital status are included in the dataset as well in categorical variables, they are not suitable for the model in their original forms. Thus, in order to include these, some changes have to be made. For education, the categories are kept the same as the dataset, but if the educational level is unknown or other, the variable is removed. For marital status, the categories married, in a legally registered civil union, legally separated, legally divorced, widowed, or never married are included. For this model, these categories are merged into three other categories: With a partner, Separated, and Single.

3.2.4 Regional circumstances

To better understand how macro-level regional circumstances influence wellbeing at a regional level, the variables of GDP per capita, employment rate, population size and the old age dependency ratio were chosen to be included in the model at the NUTS 1 level. This allows for the examination of regional disparities and contextual differences in more detail. Eurostat (2023) provided the GDP per Capita data for NUTS2 regions in 2018. The variable is presented as an index figure in relation to the EU-28 average. The NUTS3 data was combined to form a NUTS1 region. The same is done for employment rate and population size. In order to calculate the old age dependency rate, the population aged 65 years or over is divided by the population aged 15 to 64. All variables are shown in Table 1.

After operationalization and inclusion of all variables, the full sample size is between 42577 and 49266 depending on which variables are included within the model.

Variable name	Original scalar level	Source	Variable type	Number of observations	min	Max	Mean
GDP per Capita	NUTS 3	Eurostat 2018	Ratio	42577	11800	63700	31170
Old-Aged Population Rate	NUTS 3	Eurostat 2018	Ratio (percentage)	49226	17,3%	43,2%	30,0%
Population	NUTS 3	Eurostat 2018	Ratio	49266	29789	17,900,000	5508573
Population growth	NUTS 3	Eurostat 2018-2019	Ratio	46902	-1,297%	0,718%	0,219%
Age	Micro data	European Social Survey 2018	Ratio	49004	15	90	51,085
Gender	Micro data	European Social Survey 2018	Binomial	49226	1	2	1,535

Table 1 continued

Educational attainment	Micro data	European Social Survey 2018	Categorical	48956	/	/	/
Marital status	Micro data	European Social Survey 2018	Categorical	48318	/	/	/
Employment status	Micro data	European Social Survey 2018	Binomial	49117	0	1	0,360
Trust in governance	Micro data	European Social Survey 2018	Ratio	47607	0	10	4,071
Wellbeing	Micro data	European Social Survey 2018	Ratio	48966	1	11	8,111

Table 1: Summary of all variables in the models giving the variable name, the original scalar level, the variable type, and the source. Source: ESS (2018), Eurostat (2023)

3.3 Method of analysis

The goal of this research is to assess the mediating effect of trust in governance on the relationship between several demographic characteristics and macro level factors (representing regional circumstances) and wellbeing within a multilevel model. While individual-level factors have previously been identified as determinants of subjective wellbeing, it is important to note that individuals are impacted by their environment and cannot be considered in isolation (Ballas & Tranmer, 2008). Therefore, it can be argued that regional factors may also have an impact on subjective wellbeing, as elaborated upon in the theoretical framework. Furthermore, as prior research has predominantly focused on either macro or micro-level factors, this multilevel approach expands upon existing academic knowledge in the field of subjective wellbeing. This study utilizes a multilevel modelling approach to examine secondary data from the European social survey and Eurostat (2019; 2023).

It was chosen to utilize multi-level modelling due to several reasons. Multi-level modelling is a type of statistical modelling technique that is used to estimate the effects of variables on a population at different levels of analysis. Multi-level modelling is used to study phenomena that occur at different levels and in different contexts, such as individual, group, and organizational behaviour. The main advantage of multi-level modelling is that it allows researchers to control for the effects of individual-level variables, as well as contextual-level variables, thus providing a more comprehensive understanding of how the variables interact. This can lead to more accurate predictions of outcomes and better understanding of the relationships between variables. Additionally, multi-level modelling can be used to detect differences between groups and to identify the effects of contextual factors on individual-level outcomes (Nezlek, 2017).

As described before, in this particular instance it allows for both traditionally used NUTS 1 level factors used in models on wellbeing (such as GDP and population size) as well as personal level factors (such as gender and age) to be included. Furthermore, it allows for the research to easily be expanded upon by including additional levels within the model.

In order to properly answer the question “How does trust in the government affect the link between regional circumstances and the subjective wellbeing of citizens in Europe?”, several steps will have to be taken, corresponding with the sub-questions, as illustrated in Figure 2.

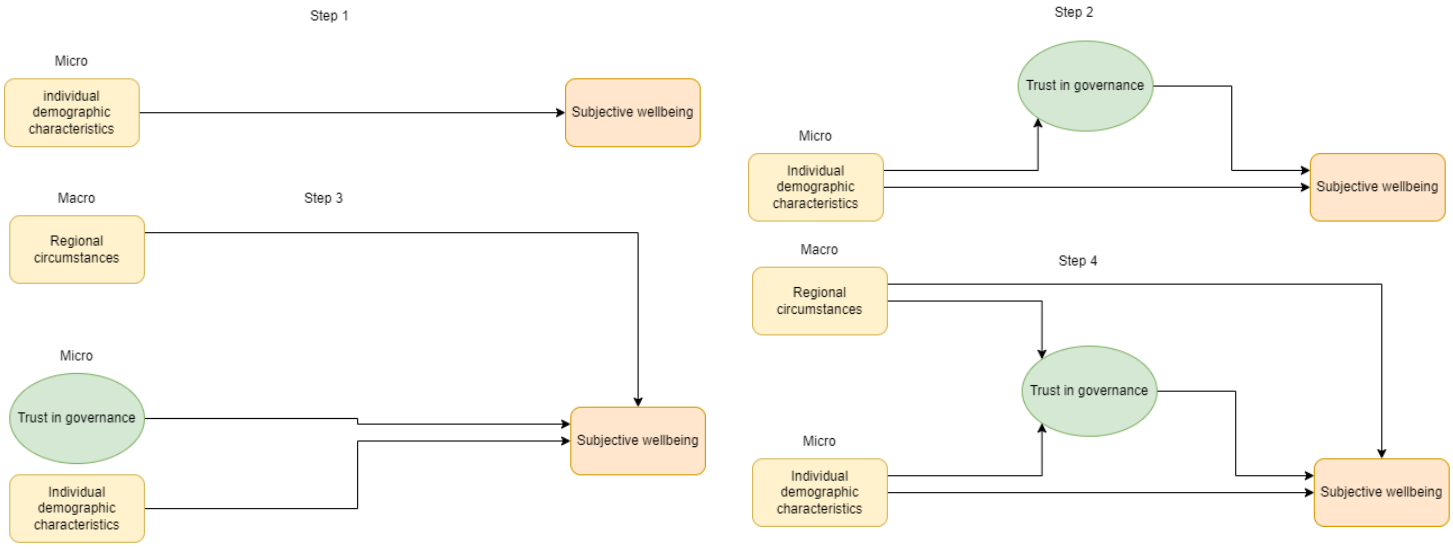

Figure 2: Figure showing separate steps corresponding to the sub-questions

In this research study, several analyses will be conducted to explore the relationship between individual demographic characteristics (micro) and regional circumstances (macro) and subjective wellbeing. Firstly, a simple logistic regression will be performed on all individual demographic circumstance variables to determine their direct effect on subjective wellbeing.

Secondly, a mediation analysis will be conducted on the relationship between individual demographic characteristics and subjective wellbeing, with trust in the government as the mediator. In order to do this, trust in governance is added to the model, creating two nested linear models where the mediator variable is added in the second model. Following the works of Akaike (1977), and Schwartz et al. (1978), the the Akaike Information Criterion (AIC) and the Bayesian Information Criterion (BIC) are subsequently calculated to find whether mediation is taking place through the following equations:

$$AIC = n \times LOG\left(\frac{SSE}{n}\right) + 2(k+1) \qquad BIC = n \times LOG\left(\frac{SSE}{n}\right) + (k+1) \times LOG(n)$$

In these equations, k is the number of parameters being taken into account (the chosen personal factors + trust in governance), n is the number of cases, and the SSE is the sum of squared errors. These criteria estimate how much information is lost through adding trust in governance into the model, entailing that a decrease in AIC and BIC between the two models indicate mediation is taking place.

Third, a multilevel model will be built to explore the effects of regional circumstances on subjective wellbeing. A random slopes model will be included, to properly explore possible regional differences in this relationship.

Lastly, the mediating effect of trust in governance on the relationship between various regional circumstances and subjective wellbeing will be tested. In order to do so, an approach based on the works of Krull & MacKinnon (2001) is used, where three separate "steps" are taken to find whether mediation on the relationship between regional circumstances and subjective wellbeing takes place. As shown in Figure 3, the relationship between the regional

circumstances and the dependent variable is modeled first (c). Afterwards, the relationship between regional circumstances and the mediator (trust in governance) is explored (a). Then, the full model, including all regional circumstances and individual demographic characteristics, trust in governance, and subjective wellbeing will be executed (a, b, c). Through this process, the connection between direct and indirect effects of the regional characteristics on subjective well-being can be found. The direct effect refers to the part of the effect of the regional circumstances that does not pass through trust in governance, the indirect effect is the part of the effect that passes through trust in governance. All individual demographic characteristics are added into the model as control variables. The command used to find and separate these effects, ml_mediation, finds the indirect effect as the product of coefficients using the following equation: indirect effect = coef[a] * coef[b] (Krull & MacKinnon, 2001).

Again, a stepwise approach is chosen when including these regional variables within the model to properly assess mediation per factor.

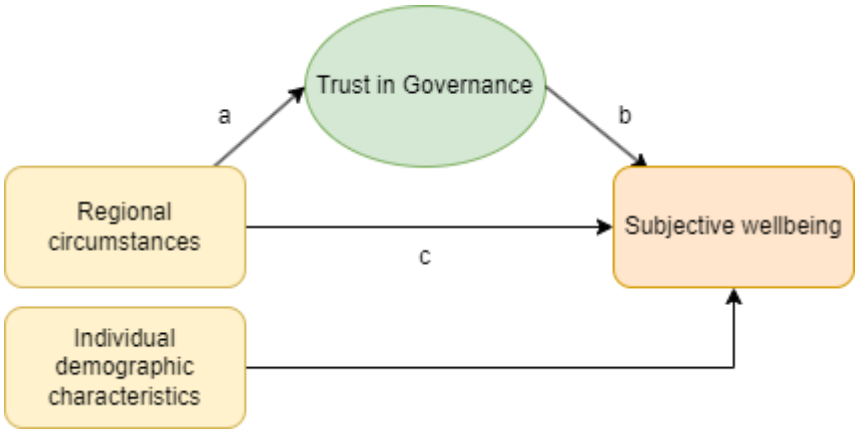

Figure 3: Figure showing the steps of the used multilevel mediation model where each step is researched in alphabetical order. Based on the works of Krull & MacKinnon (2001)

4. Results

4.1 The effect of individual demographic characteristics on subjective wellbeing

As expected, wellbeing is shown to be significantly influenced by age, level of education, marital status, and employment status at a 5% level of significance, as is shown in Table 2. When looking at the adjusted R^2, which as a value of 0,0446, it becomes evident that 4,4% of the variance in subjective wellbeing can be explained through this model.

		Coefficient	Significance
Age		-0,011	0,000
Educational status (ref=ES-ISCED I)			
	ES-ISCED II	0,097	0,025
	ES-ISCED IIIb	0,401	0,000
	ES-ISCED IIIa	0,065	0,122
	ES-ISCED IV	0,562	0,000
	ES-ISCED V1	0,679	0,000
	ES-ISCED V2	0,776	0,000
Employment status		0,059	0,043
Gender		0,006	0,746
Marital status (ref=Married)			
	Separated	-0,668	0,000
	Single	-0,329	0,000
Adjusted R squared: 0,0446			

Table 2: linear regression results of individual demographic factors on wellbeing

As previously mentioned, although a pronounced correlation between age and wellbeing was expected, the nature of this correlation is highly contextual. In this dataset, however, subjective wellbeing decreases with 0.0011 per year lived. Though small, this change accumulates over time.

Educational status has a notable impact on wellbeing, with each level increase in education yielding a significant increase in wellbeing. When looking at the coefficients, it shows that within the model each step up in education yields a larger increase in subjective wellbeing from the reference category, ES-ISCED 1 (primary education). The notable difference is ES-ISCED IIa (Upper secondary education), where no significant increase in subjective wellbeing compared to the reference category is found in the model.

Upon examining marital status, separated and single individuals experience lower levels of wellbeing than their married counterparts, with the subjective wellbeing of separated and single individuals decreasing with 0,668 and 0,329 respectively.

Surprisingly, no significant effect of gender on subjective wellbeing was found within this model.

All in all, it is evident that individual demographic characteristics previously shown to affect wellbeing in research do so as well within this dataset.

4.2 The mediating effect of trust in governance on the relationship between individual demographic characteristics and subjective wellbeing

When including trust in governance, it becomes evident that including this factor affects the relationship between most individual demographic characteristics and subjective wellbeing significantly, with the exception of educational status which remains similar to the previous

model. When looking at the adjusted R^2 of this model, the value has increased to 0,1202, which means that the variance in subjective wellbeing that can be explained through this model has increased from 4,4% to 12%, indicating a better fit.

First, when trust in governance is accounted for, the previously highly significant factor of age becomes unimportant regarding participants' wellbeing. The opposite is true when looking at gender, which was previously insignificant. However, females have a lower subjective wellbeing than their male counterparts, with the difference being 0,022 if all other factors are accounted for.

		Coefficient	Significance
Trust in governance		0,257	0,000
Age		-0,010	0,132
Educational status			
	ES-ISCED II	0,036	0,393
	ES-ISCED IIIb	0,296	0,000
	ES-ISCED IIIa	0,074	0,077
	ES-ISCED IV	0,409	0,000
	ES-ISCED V1	0,448	0,000
	ES-ISCED V2	0,504	0,000
Employment status		0,117	0,000
Gender		0,044	0,022
Marital status			
	Separated	-0,642	0,000
	Single	-0,356	0,000
Adjusted R squared: 0,1202			

Table 3: results of a linear regression of the chosen micro variables on wellbeing including trust in governance.

Additionally, the relationship between employment status and wellbeing changes significantly when trust is accounted for, with the coefficient increasing from 0,059 to 0,117 and the significance increasing from 0,043 to 0,000 between the two models.

As can be seen in Table 4, both the AIC and the BIC decreased between the first and second nested model, entailing that information is lost when introducing trust in governance into the model. This means that trust in governance has a significant mediating effect on the relationship between education, age, gender and subjective wellbeing within this dataset.

Variable	Excluding mediator	Including mediator	Difference
n	47,573	46,110	
SSE	216024,163	191810,126	
k	6	7	
AIC	31276,2065	28561,61	**2714,593**
BIC	31294,948	28582,92	**2712,024**

Table 4: Akaike information criterion and Bayesian Information Criterion

4.3 The relationship between regional circumstances and subjective wellbeing

In order to find the mediating effect of trust in governance on the relationship between both personal and regional circumstances and wellbeing, a simple multilevel model has to be run first to establish the existing relationships between all independent variables on both the micro and macro level. In order to do so, 5 models have been created, as is shown in Table 5. In the first, all micro variables have been added as a (mediated) relationship has already been

established above. In the next iterations of the model, all regional circumstances are included stepwise to see the effect the introduction of said variables affect the overall model. While population was initially included in model 4, it was subsequently dropped due to low significance to prevent muddling the model.

Table 5 summarizes all results of the 5 models for the multi-level modeling analysis that have been run. In this model, 48966 individuals are looked at, spread over 94 NUTS1 regions within Europe. In the null model, solely the variable representing subjective wellbeing is included. The ICC (intraclass coefficient) of the null model has a value of around 0,0992. This indicates that clustering of NUTS 1 regions explains 9,9% of the residual variance of subjective wellbeing. When combining this with the already indicated large differences in regional circumstances within Europe, this further substantiates the need for a multilevel approach.

In the subsequent model, all individual demographic characteristics have been added. With this, the mean intercept decreases from 8,15 to 7,409. The regional and regional pseudo-R-squared are 39,32% and 16,58% respectively. This means that the variance at both the individual and the regional level has reduced by these percentages as opposed to the null model, entailing that the model is a better fit. As expected from the earlier linear model, most individual demographic characteristics are highly significant when looking at their effects on subjective wellbeing, with the exception of employment status.

From models 2 to 5, all macro variables representing regional circumstances are added to the model using a stepwise approach. Due to data availability, this reduces the number of individuals to 39,902 in 78 NUTS1 regions. While both the micro and macro level pseudo-R-squared stabilizes and remains similar in models 2 to 5, a slight overall increase can be seen, entailing a slightly better fit model after the regional variables have been added. That this effect is minor is represented within the coefficients as well, as only minor changes from model 1 through 5 can be seen, with the exception being the population growth between 2009 and 2019 only showing to significantly affect wellbeing once the old age dependency ratio is introduced to the model.

Overall, when looking at the macro level models, it becomes evident that when looking at regional circumstances, it is mainly the economic segment, represented by the variable GDP within this research, that influences subjective wellbeing. As can be seen in Table 5, an increase of wellbeing when GDP per capita increases is shown in model 2, and this effect remains rather stable through the next iterations of the models.

When looking at the variable of interest, trust in governance, it is noticeable that there is a strong relationship between this variable and wellbeing and this relationship remains similar when the regional circumstances have been added. While this could indicate that no mediation of trust in governance on the relationship between regional circumstances and wellbeing is taking place, this must be further investigated through a multilevel mediation model.

Variables	Base model	Model 1 (micro)	Model 2	Model 3	Model 4	Model 5	Random slopes model
Micro level							
Trust in Government		0,187 ***	0,184 ***	0,184 ***	0,184 ***	0,185***	0,191 ***
Age		-0,008***	-0,009 ***	-0,009 ***	-0,009 ***	0,009***	-0,009 ***
Gender		0,067 ***	0,055 ***	0,055 ***	0,055 ***	0,057 ***	0,054 ***
Educational status							
ES-ISCED II		0,093**	0,067	0,068	0,068	0,071	0,071
ES-ISCED IIIb		0,203***	0,188 ***	0,188***	0,187 ***	0,190 ***	0,188 ***
ES-ISCED IIIa		0,325 ***	0,291 ***	0,291 ***	0,291***	0,292 ***	0,296 ***
ES-ISCED IV		0,363***	0,326 ***	0,326 ***	0,326 ***	0,327 ***	0,330 ***
ES-ISCED V1		0,422 ***	0,408 ***	0,408 ***	0,408 ***	0,409 ***	0,415 ***
ES-ISCED V2		0,566 ***	0,560 ***	0,560***	0,560***	0,559 ***	0,563 ***
Employment status		-0,018	-0,008	-0,009	-0,009	-0,005	-0,007
Marital status							
Separated		-0,574***	-0,566 ***	-0,566***	-0,566***	-0,564 ***	-0,562 ***
Single		-0,417***	-0,430 ***	-0,430***	-0,430***	-0,428 ***	- 0,428 ***
Macro level							
GDP per capita			0,000205 ***	0,00022***	0,00022***	0,000157 ***	0,000165 **
Old age dep. ratio				0,0125	0,0125	0,0188	0,021
Population 2019					-2,81e-09		
Population growth 2009-2019						0,250	0,345 *
Intercept	8,150608	7,409	7,106835	6,664287	6,673309	6,605212	6,483306
Intercept variance (NUTS1)	0,4566206	0,4223274	0,2858965	0,2822709	0,2822509	0,2742508	0,4129567
Slope variance (trust gov)	X	X	X	X	X	X	0,0039141
Residual Variance	4,144855	3,962049	3,674079	3,674071	3,674068	3,672315	3,650113
Total variance	4,601476	4,3843764	3,9599755	3,9563419	3,9563189	3,9465658	4,0630697
Intercept-trust gov covariance	X	X	X	X	X	X	-0,081243
Pseudo R squared (micro)	X	4,410431728	11,35808128	11,35827429	X	11,40064007	X
Pseudo R squared (NUTS1)	X	7,510217454	37,38861103	38,18261813	X	39,93902159	X
ICC	0,0992335	X	X	X	X	X	X
Number of obs.	48,966	47,573	39,932	39,932	39,932	39,68	39,68
Regions	94	94	78	78	78	77	77

*Table 5: Summarized results of multilevel models. Asterix indicate significance (***=0,01, **=0,05, *=0,10)*

Next, the clustering in regions is looked at through the random slopes model, which shows both a random intercept and a random slope on the trust in governance for NUTS 1 regions. As the likelihood ratio test of this random slopes model is significant, the random slopes model is a better fit than model 5, entailing that the effects of trust in governance differ significantly between NUTS 1 regions.

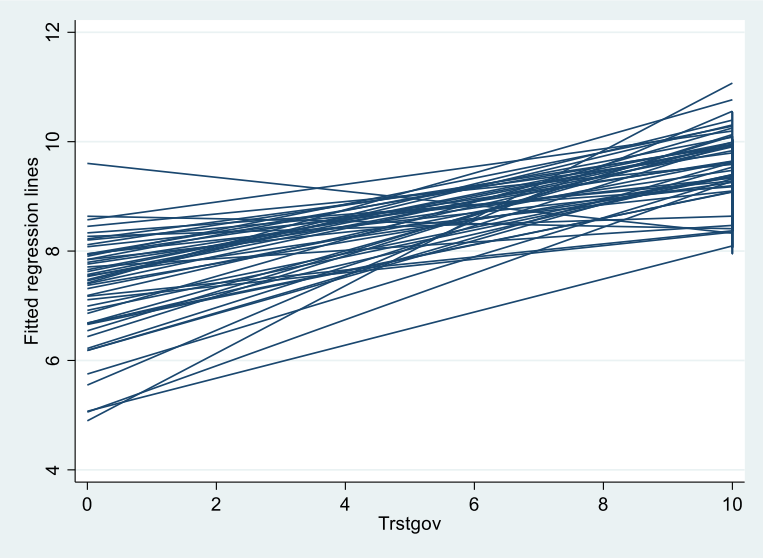

Figure 4: Fitted regression lines showing the relationship between trust in governance and subjective wellbeing per NUTS 1 region.

The average effect of trust in governance is 0,191 in the random slopes model, while this was only 0,185 on a scale from 1 to 10 in model 5. The slope variance, which is caused by trust in governance in particular, is 0,0039 for various NUTS 1 regions. These findings are illustrated in Figure 4, which shows that both the intercept and the slope of each NUTS1 regression line differ significantly, showing these regional differences in the effects of trust in governance on subjective wellbeing. Figure 5, which places these findings into a spatial context, shows that this relationship is mostly positive. However, two regions experience a negative relationship between trust in governance and subjective wellbeing: ES2 and DE5. Combining these findings with the intercept-slope covariance of -0,081 within the model, this indicates that trust in governance has less effect on within variance wellbeing in regions with higher subjective wellbeing as both the intercept and slope of each NUTS1 region is affected by trust in governance.

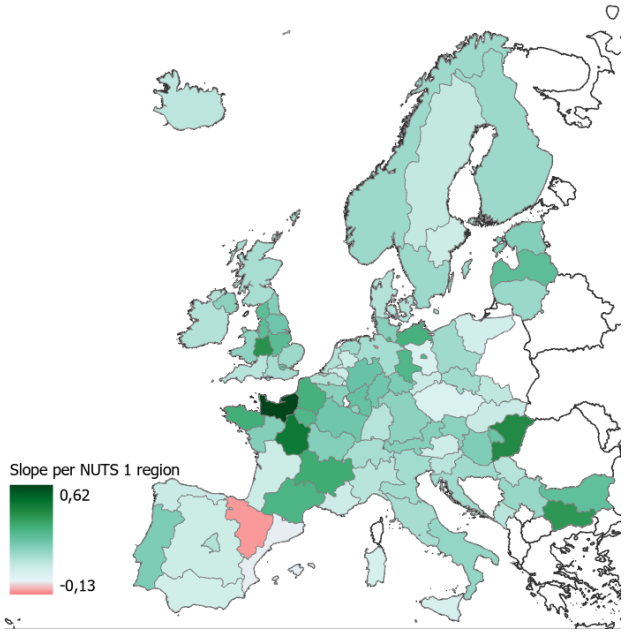

Figure 5: Map showing the slopes of each fitted regression line of the relationship between trust in governance and subjective wellbeing per NUTS1 region.

4.4 The mediating effect of trust in governance on the relationship between regional circumstances and subjective wellbeing

Based on the results of the multilevel model, it has been determined that solely the correlation between GDP and wellbeing is statistically significant with a 5% confidence interval. Consequently, this research excludes the mediating impact of trust in governance on the correlation between both population and old age dependency ratio and subjective wellbeing.

The results regarding GDP per capita in all three models are summarized in Table 6 (full table can be found in Appendix 4). The table shows that GDP per capita is significant in model 1 and also significantly affects the mediator variable in model 2. However, the significance reduces when the trust in governance is included in model 3. While GDP per capita is still significant, this suggests that there is mediation. Further exploring this relationship, the model gives us a proportion of the total effects that are mediated through trust in governance. The command used to find and separate these effects, ml_mediation, finds the indirect effect as the product of coefficients using the following equation: indirect effect = coef[a] * coef[b] (Krull & MacKinnon, 2001). Following this, a proportion of total effect mediated is calculated, showing that roughly 31,5% of the relationship of GDP per capita and subjective wellbeing is mediated through trust in governance. While the 3 models do show the indirect, direct and total effects, the models do not include the standard errors or confidence intervals. Therefore, the model was bootstrapped using 500 replications. The bootstrapped results (see appendix 4) show that this indirect proportion of the effect is significant, further substantiating that mediation takes place on this scale.

	model 1 (GDP/cap > Sub. Wellbeing)	model 2 (GDP/cap > Trust in governance)	model 3 (GDP/cap and Trust in governance > Sub. Wellbeing)
Coefficient GDP per capita	0,0000295	0,0000511	0,184
Significance	0,000	0,000	0,003
		Prop. of total effect mediated	0,315
		Ratio of indirect to direct effect	0,459
		Ratio of total to direct effect	1,459

Table 6: summarized results of multilevel mediation model

5. Conclusion

The objective of this study was to address the inquiry of how trust (or lack thereof) in government impacts the connection between regional factors and the subjective wellbeing of individuals in various European regions. To accomplish this, several sub-questions had to be explored, and the findings will be presented within this framework.

5.1 How do individual demographic characteristics affect subjective wellbeing

First, a regular linear model was made, which confirmed the expectations based on the theoretical framework. As expected, wellbeing was shown to be significantly influenced by age, level of education, marital status, and employment status. Age was shown to negatively affect subjective wellbeing. As not all scholars agree on the effects of aging on subjective wellbeing, this gives interesting insights into which mechanisms may be stronger within this particular context. Clark (2003) and Strawbridge, Shema, & Cohen (2001), found that aging comes with a decline in wellbeing due to an increase in loneliness, isolation, and age-related complications. However, Kaufman (2018) found that with aging comes a decrease of job-related pressures, family responsibilities, and financial concern. While both mechanisms may exist within this context, one explanation for the negative relationship between aging and wellbeing could be the former having a larger impact than the latter.

When looking at marital status, it was found that separated and single individuals experience lower levels of subjective wellbeing than their married counterparts, with separated individuals being the most likely to have a lower wellbeing. As most European countries have a relatively high gender equality, this was expected to be the case as having a partner increases the feeling of social support and emotional connection (Koropeckyj-Cox & Turner, 2002).

When looking at educational status, an interesting pattern emerges. As was expected, educational status has a positive relationship with subjective wellbeing. However, no significant increase could be seen between ES-ISCED IIa (Upper secondary education) and ES-ISCED 1 (primary education). It is possible that the effects between these two educational attainments are minor, meaning that they affect wellbeing in much the same way.

All in all, the model showed that there is a relationship between most individual demographic characteristics and subjective wellbeing.

5.2 How does trust in the government mediate between individual demographic characteristics and wellbeing?

Once trust in governance was introduced into the model to test for mediation, it became evident that most coefficients were mostly unaffected. While this does not mean that no mediation takes place, it does give an indication that the mediating effect is relatively small. However, both age, gender, and employment status change significantly, possibly revealing a larger mediating effect of trust in governance on this relationship. When looking at the Akaike Information Criterion (AIC) (Akaike, 1977) and the Bayesian Information Criterion (BIC), both decrease from the first model to the second. This means that trust in governance likely has a mediating effect on the relationship between education, age, health status and gender and subjective wellbeing. As a relationship between both individual demographic characteristics and wellbeing, and individual demographic characteristics and trust in governance have been established within the theoretical framework this is in line with the hypothesis. However, this hypothesis has not been previously tested in research. Keeping in mind this finding, it logically follows that subjective wellbeing and trust in governance could be improved through positively impacting individual demographic characteristics of individuals through targeted policies from governing bodies.

5.3 How do regional circumstances affect subjective wellbeing and how do these relationships differ per region

In order to test the effect of regional circumstances on subjective wellbeing, a multilevel model was used. First, the overall clustering of wellbeing per region was tested. It was found that the clustering of NUTS 1 regions explains 9,9% of the residual variance of subjective wellbeing. This indicates that not all factors affect wellbeing in the same way in each region, which would be interesting to explore in further research.

After, three macro level variables were introduced to the model in a stepwise manner: GDP per capita, population growth 2009-2019, and the old age dependency ratio. While it was expected that they would all influence wellbeing, albeit small, only GDP per capita was shown to significantly affect wellbeing at a 5% confidence interval. This entails that the hypothesis, that both the chosen regional as well as individual demographic characteristics will directly affect individual subjective wellbeing, was only partly proven. Part of why these factors do not seem to affect subjective wellbeing within this model may be because part of these effects can be mitigated through a higher GDP. Additionally, Danish & Nawaz (2022) indicate that economic factors are more likely to affect wellbeing than their demographic counterparts, further substantiating the findings that at a macro level, economic factors are a more likely predictor of wellbeing rather than demographic factors. Thus, further exploration of a larger number of regional indicators representing economic wellbeing may yield further insight into their effects on wellbeing on a regional scale.

When looking at regional differences, it was found that the relationship between trust in governance and subjective wellbeing was overwhelmingly positive. However, regional differences do exist. As it was found that trust in governance has less effect on within variance wellbeing in regions with higher subjective wellbeing, these differences may partly be ascribed to this effect.

In short, the hypothesis could not be substantiated, as mainly economic regional circumstances affected subjective wellbeing.

5.4 How does trust in the government mediate the relationship between regional circumstances and subjective wellbeing?

As the only regional level factor affecting wellbeing within this model at a 5% trust interval was GDP per capita, it was chosen to continue the multilevel mediation model using only this factor. As the hypothesis for this sub question was that trust in governance does mediate the relationship between regional circumstances and subjective wellbeing, except for population numbers and growth, this hypothesis can already be mostly rejected.

When looking solely at GDP per capita, it becomes evident that its relationship with wellbeing is affected by trust in governance, as was hypothesized. This relationship can be explained through two separate processes described in previous research. First, GDP per capita is associated with higher levels of human development, including better health and education outcomes, longer life expectancy, higher standards of living as well as increase happiness or wellbeing within a country (Ballas, 2013; Morgan et al. 2015; Rodriguez-pose, 2018; Kumar, 2013). Additionally, there is the relationship of interest that was substantiated in this part of the research where the indirect link between GDP per capita and wellbeing via trust in governance (Rodriguez-Pose, 2018). Lower GDP can cause regions to feel left behind and vulnerable, causing a distrust towards authority, lowering trust in governance. Subsequently, this lack of trust in governance affects wellbeing due to higher levels of anxiety, stress, and depression and a lower civic engagement (Kaufman et al., 2009). Therefore, it may be interesting for policymakers to intervene within this relationship, directly promoting civic engagement in targeted vulnerable areas to promote trust towards governance to improve wellbeing.

5.5 Weaknesses and recommendations for further research

It is worth noting that the research conducted is Eurocentric. While this is not a problem on its own, it does reinforce a larger scale issue where academia tends to focus on euro-centric issues. Not only does this come with a risk of excluding non-European perspectives, but it can also reinforce power dynamics between the western world and other regions of the world. Perhaps more important to this research is that this comes with a risk of a distorted view of reality, as theories created through research in Europe are oftentimes uncritically applied to other regions within the world (Richardson, 2018). Therefore, it is of utmost importance to view these results through the lens of Europe, with the sidenote that the described relationships may differ significantly in other parts of the world.

When looking more directly at this research and its results, it is important to note that there are some weaknesses within this process. When looking at the multilevel model, it became evident that 9,9% of the variance between regions was due to clustering in NUTS 1 regions. While this is significant, it should be kept in mind that this percentage is relatively low. Additionally, clustering and variables at two separate levels resulted in a relatively high loss of data due to missing cases. This may have affected the overall results.

Lastly, a single item measure was used to account for subjective wellbeing, as not all variables for the multi-item measure of 7 items of satisfaction, each one corresponding to a quality-of-life domain such as standard of living, health, achieving in life, relationships, safety, community-connectedness and future security, was available in the dataset. However, the International Wellbeing Group (2013) indicates that single item measures are less reliable than

the multi-item scales entailing that it could be interesting to expand this research using a multi-item measure for wellbeing in the future. This could give a more detailed insight into which particular aspects of wellbeing are mediated through trust in governance.

However, the findings of this research do pose interesting questions for further research and policy implications. While it became evident that wellbeing does cluster somewhat within the European region, this geographical distribution can be understood more thoroughly through research through a more spatial lens. For example, a Geographically weighted regression (GWR) can give insight into exact patterns of wellbeing and how this is affected by personal and regional circumstances per region so that more focus can be applied to seeing how these patterns differ between neighboring regions.

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Maps created using GIS software

Figure 5: Map showing the slopes of each fitted regression line of the relationship between trust in governance and subjective wellbeing per NUTS1 region. [map]. Scale 1:50.125.385. Data layers: Esri_DM Europe NUTS 0 Boundaries. University of Groningen: D. Elzinga, 19-07-2023. Using ArcGIS Pro. Version 2.9.0. CA: Esri

Appendices

Appendix 1: Linear regression on the relationship between individual demographic characteristics and wellbeing

Source	SS	df	MS		
Model	10138.3659	11	921.669625	Number of obs	= 47,573
Residual	216024.163	47,561	4.54204417	F(11, 47561)	= 202.92
				Prob > F	= 0.0000
				R-squared	= 0.0448
				Adj R-squared	= 0.0446
Total	226162.529	47,572	4.75411016	Root MSE	= 2.1312

Wellbeing	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
agea	-.0105788	.0006897	-15.34	0.000	-.0119307	-.009227
educ_std						
ES-ISCED II, lower secondary	.0972198	.0432926	2.25	0.025	.0123658	.1820739
ES-ISCED IIIb, lower tier upper secondary	.400574	.0440712	9.09	0.000	.3141939	.4869542
ES-ISCED IIIa, upper tier upper secondary	.0654796	.0423907	1.54	0.122	-.0176068	.148566
ES-ISCED IV, advanced vocational, sub-degree	.561861	.046518	12.08	0.000	.4706852	.6530369
ES-ISCED V1, lower tertiary education, BA level	.6791666	.0478105	14.21	0.000	.5854574	.7728757
ES-ISCED V2, higher tertiary education, >= MA level	.7758085	.0465549	16.66	0.000	.6845602	.8670567
paid_emp	.0589248	.0291122	2.02	0.043	.0018646	.1159851
gender	.0064571	.0199137	0.32	0.746	-.032574	.0454882
status						
Separated	-.6681238	.0268091	-24.92	0.000	-.72067	-.6155776
Single	-.3285593	.0269113	-12.21	0.000	-.3813057	-.2758128
_cons	8.498528	.0683464	124.34	0.000	8.364568	8.632487

Appendix 2: Linear regression on the relationship between individual demographic characteristics and wellbeing including trust in governance

Source	SS	df	MS		
				Number of obs	= 46,110
				F(12, 46097)	= 525.88
Model	26258.3791	12	2188.19826	Prob > F	= 0.0000
Residual	191810.126	46,097	4.16101104	R-squared	= 0.1204
				Adj R-squared	= 0.1202
Total	218068.505	46,109	4.72941302	Root MSE	= 2.0399

Wellbeing	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
Trstgov	.256818	.004077	62.99	0.000	.248827	.264809
agea	-.009835	.0006732	-14.61	0.000	-.0111544	-.0085157
educ_std						
ES-ISCED II, lower secondary	.0364973	.0427298	0.85	0.393	-.0472539	.1202485
ES-ISCED IIIb, lower tier upper secondary	.296414	.0433342	6.84	0.000	.2114783	.3813498
ES-ISCED IIIa, upper tier upper secondary	.0738221	.0416836	1.77	0.077	-.0078785	.1555226
ES-ISCED IV, advanced vocational, sub-degree	.4094214	.0456657	8.97	0.000	.3199159	.4989269
ES-ISCED V1, lower tertiary education, BA level	.4481186	.0469821	9.54	0.000	.3560329	.5402043
ES-ISCED V2, higher tertiary education, >= MA level	.5042852	.0458307	11.00	0.000	.4144564	.594114
paid_emp	.1169364	.0285515	4.10	0.000	.060975	.1728977
gender	.0441929	.0193558	2.28	0.022	.0062553	.0821305
status						
Separated	-.6421722	.0260325	-24.67	0.000	-.6931962	-.5911481
Single	-.3562206	.0261625	-13.62	0.000	-.4074996	-.3049416
_cons	7.409255	.0690436	107.31	0.000	7.273929	7.544582

Appendix 3: Multilevel model analysis

Base model

```
Mixed-effects ML regression                     Number of obs     =     48,966
Group variable: nuts1                           Number of groups  =         94
                                                Obs per group:
                                                              min =          6
                                                              avg =      520.9
                                                              max =      2,386
                                                Wald chi2(0)      =          .
Log likelihood =  -104458.3                     Prob > chi2       =          .
```

Wellbeing	Coefficient	Std. err.	z	P>|z|	[95% conf.	interval]
_cons	8.150608	.0716306	113.79	0.000	8.010214	8.291001

Random-effects parameters	Estimate	Std. err.	[95% conf.	interval]
nuts1: Identity				
var(_cons)	.4566206	.0688763	.339751	.6136916
var(Residual)	4.144855	.0265141	4.093213	4.197149

LR test vs. linear model: chibar2(01) = 6917.60 Prob >= chibar2 = 0.0000

```
. estat icc

Intraclass correlation
```

Level	ICC	Std. err.	[95% conf.	interval]
nuts1	.0992335	.0134954	.0757403	.1289968

Model 1

```
Mixed-effects ML regression                     Number of obs     =     46,110
Group variable: nuts1                           Number of groups  =         94
                                                Obs per group:
                                                              min =          6
                                                              avg =      490.5
                                                              max =      2,234
                                                Wald chi2(12)     =    3522.87
Log likelihood = -96221.678                     Prob > chi2       =     0.0000
```

Wellbeing	Coefficient	Std. err.	z	P>|z|	[95% conf.	interval]
Trstgov	.1870121	.004295	43.54	0.000	.178594	.1954301
agea	-.0078784	.0006463	-12.19	0.000	-.0091451	-.0066116
educ_std						
ES-ISCED II, lower secondary	.0932542	.0418117	2.23	0.026	.0113047	.1752037
ES-ISCED IIIb, lower tier upper secondary	.2030699	.0439138	4.62	0.000	.1170004	.2891393
ES-ISCED IIIa, upper tier upper secondary	.3249479	.0413914	7.85	0.000	.2438223	.4060736
ES-ISCED IV, advanced vocational, sub-degree	.3629276	.0447642	8.11	0.000	.2751914	.4506637
ES-ISCED V1, lower tertiary education, BA level	.4421833	.0458114	9.65	0.000	.3523946	.531972
ES-ISCED V2, higher tertiary education, >= MA level	.5655602	.0446592	12.66	0.000	.4780299	.6530906
paid_emp	-.0180695	.0281952	-0.64	0.522	-.073331	.0371921
gender	.0670463	.0185149	3.62	0.000	.0307578	.1033347
status						
Separated	-.5742385	.0250334	-22.94	0.000	-.6233031	-.5251739
Single	-.4171091	.0250957	-16.62	0.000	-.4662958	-.3679225
_cons	7.669302	.0898086	85.40	0.000	7.49328	7.845323

Random-effects parameters	Estimate	Std. err.	[95% conf.	interval]
nuts1: Identity				
var(_cons)	.3158419	.0482933	.234055	.4262078
var(Residual)	3.777585	.0249031	3.729089	3.826711

LR test vs. linear model: chibar2(01) = 4139.86 Prob >= chibar2 = 0.0000

Model 2

```
Mixed-effects ML regression                     Number of obs     =     39,932
Group variable: nuts1                           Number of groups  =         78
                                                Obs per group:
                                                              min =          6
                                                              avg =      511.9
                                                              max =      2,234
                                                Wald chi2(13)     =    3114.32
Log likelihood = -82767.697                     Prob > chi2       =     0.0000
```

Wellbeing	Coefficient	Std. err.	z	P>|z|	[95% conf.	interval]
Trstgov	.1844036	.0046072	40.03	0.000	.1753736	.1934335
agea	-.0087727	.0006857	-12.79	0.000	-.0101165	-.0074288
educ_std						
ES-ISCED II, lower secondary	.0672887	.0447719	1.50	0.133	-.0204627	.1550401
ES-ISCED IIIb, lower tier upper secondary	.1880909	.0472843	3.98	0.000	.0954154	.2807665
ES-ISCED IIIa, upper tier upper secondary	.2912094	.0442582	6.58	0.000	.2044649	.3779539
ES-ISCED IV, advanced vocational, sub-degree	.3259533	.0483628	6.74	0.000	.2311639	.4207427
ES-ISCED V1, lower tertiary education, BA level	.4081296	.0491885	8.30	0.000	.3117218	.5045373
ES-ISCED V2, higher tertiary education, >= MA level	.5597516	.0477455	11.72	0.000	.4661721	.653331
paid_emp	-.0084416	.0300022	-0.28	0.778	-.0672448	.0503615
gender	.055102	.0196445	2.80	0.005	.0165995	.0936044
status						
Separated	-.5657269	.0266193	-21.25	0.000	-.6178999	-.513554
Single	-.4299039	.0266291	-16.14	0.000	-.4820961	-.3777118
gdp_pc_19	.0000205	6.24e-06	3.29	0.001	8.30e-06	.0000328
_cons	7.106835	.2155686	32.97	0.000	6.684328	7.529342

Random-effects parameters	Estimate	Std. err.	[95% conf.	interval]
nuts1: Identity				
var(_cons)	.2858965	.0485534	.2049511	.3988111
var(Residual)	3.674079	.0260263	3.623421	3.725446

LR test vs. linear model: chibar2(01) = 2895.05 Prob >= chibar2 = 0.0000

Model 3

```
Mixed-effects ML regression                     Number of obs     =     39,932
Group variable: nuts1                           Number of groups  =         78
                                                Obs per group:
                                                              min =          6
                                                              avg =      511.9
                                                              max =      2,234
                                                Wald chi2(14)     =    3115.96
Log likelihood = -82767.189                     Prob > chi2       =     0.0000
```

Wellbeing	Coefficient	Std. err.	z	P>|z|	[95% conf.	interval]
Trstgov	.1843833	.0046072	40.02	0.000	.1753533	.1934133
agea	-.0087779	.0006857	-12.80	0.000	-.0101217	-.007434
educ_std						
ES-ISCED II, lower secondary	.0676785	.044773	1.51	0.131	-.0200749	.1554319
ES-ISCED IIIb, lower tier upper secondary	.1876056	.0472859	3.97	0.000	.0949269	.2802844
ES-ISCED IIIa, upper tier upper secondary	.2914035	.0442582	6.58	0.000	.204659	.378148
ES-ISCED IV, advanced vocational, sub-degree	.3257491	.0483627	6.74	0.000	.23096	.4205382
ES-ISCED V1, lower tertiary education, BA level	.4082905	.0491883	8.30	0.000	.3118833	.5046977
ES-ISCED V2, higher tertiary education, >= MA level	.5598271	.0477451	11.73	0.000	.4662484	.6534058
paid_emp	-.0087285	.0300033	-0.29	0.771	-.067534	.0500769
gender	.0550553	.0196445	2.80	0.005	.0165529	.0935578
status						
Separated	-.5657569	.0266192	-21.25	0.000	-.6179296	-.5135841
Single	-.430083	.0266296	-16.15	0.000	-.4822761	-.3778899
gdp_pc_19	.000022	6.38e-06	3.46	0.001	9.54e-06	.0000346
oa_dep_19	.0125192	.012377	1.01	0.312	-.0117394	.0367777
_cons	6.664287	.4870332	13.68	0.000	5.70972	7.618855

Random-effects parameters	Estimate	Std. err.	[95% conf.	interval]
nuts1: Identity				
var(_cons)	.2822709	.047935	.2023558	.3937464
var(Residual)	3.674071	.0260262	3.623413	3.725437

LR test vs. linear model: chibar2(01) = 2846.88 Prob >= chibar2 = 0.0000

Model 4

```
Mixed-effects ML regression                     Number of obs     =     39,932
Group variable: nuts1                           Number of groups  =         78
                                                Obs per group:
                                                              min =          6
                                                              avg =      511.9
                                                              max =      2,234
                                                Wald chi2(15)     =    3115.99
Log likelihood = -82767.175                     Prob > chi2       =     0.0000
```

Wellbeing	Coefficient	Std. err.	z	P>|z|	[95% conf.	interval]
Trstgov	.1843766	.0046074	40.02	0.000	.1753463	.1934069
agea	-.0087782	.0006857	-12.80	0.000	-.0101221	-.0074343
educ_std						
ES-ISCED II, lower secondary	.067653	.0447732	1.51	0.131	-.020101	.1554069
ES-ISCED IIIb, lower tier upper secondary	.1874922	.0472908	3.96	0.000	.0948039	.2801805
ES-ISCED IIIa, upper tier upper secondary	.291339	.0442599	6.58	0.000	.2045913	.3780868
ES-ISCED IV, advanced vocational, sub-degree	.3256514	.0483662	6.73	0.000	.2308554	.4204474
ES-ISCED V1, lower tertiary education, BA level	.4081998	.0491913	8.30	0.000	.3117867	.5046129
ES-ISCED V2, higher tertiary education, >= MA level	.5597659	.0477465	11.72	0.000	.4661845	.6533474
paid_emp	-.008768	.0300043	-0.29	0.770	-.0675753	.0500393
gender	.0550462	.0196445	2.80	0.005	.0165436	.0935488
status						
Separated	-.565776	.0266195	-21.25	0.000	-.6179492	-.5136028
Single	-.4300997	.0266298	-16.15	0.000	-.4822932	-.3779062
gdp_pc_19	.0000222	6.45e-06	3.44	0.001	9.57e-06	.0000348
oa_dep_19	.0125674	.01238	1.02	0.310	-.011697	.0368317
pop_19	-2.81e-09	1.68e-08	-0.17	0.868	-3.58e-08	3.02e-08
_cons	6.673309	.4900122	13.62	0.000	5.712903	7.633715

Random-effects parameters	Estimate	Std. err.	[95% conf.	interval]
nuts1: Identity				
var(_cons)	.2822509	.047929	.2023453	.3937112
var(Residual)	3.674068	.0260262	3.623411	3.725435

LR test vs. linear model: chibar2(01) = 2839.92 Prob >= chibar2 = 0.0000

Model 5

```
Mixed-effects ML regression                     Number of obs     =     39,680
Group variable: nuts1                           Number of groups  =         77
                                                Obs per group:
                                                              min =          6
                                                              avg =      515.3
                                                              max =      2,234
                                                Wald chi2(15)     =    3092.71
Log likelihood = -82233.654                     Prob > chi2       =     0.0000
```

Wellbeing	Coefficient	Std. err.	z	P>|z|	[95% conf.	interval]
Trstgov	.1845459	.0046249	39.90	0.000	.1754813	.1936106
agea	-.008697	.0006878	-12.65	0.000	-.010045	-.007349
educ_std						
ES-ISCED II, lower secondary	.0711828	.044839	1.59	0.112	-.0167	.1590656
ES-ISCED IIIb, lower tier upper secondary	.1897585	.0473134	4.01	0.000	.0970259	.282491
ES-ISCED IIIa, upper tier upper secondary	.2921604	.0442949	6.60	0.000	.205344	.3789768
ES-ISCED IV, advanced vocational, sub-degree	.3271251	.0483822	6.76	0.000	.2322977	.4219524
ES-ISCED V1, lower tertiary education, BA level	.4089567	.0492173	8.31	0.000	.3124926	.5054208
ES-ISCED V2, higher tertiary education, >= MA level	.5591939	.0478035	11.70	0.000	.4655008	.652887
paid_emp	-.0049332	.0300676	-0.16	0.870	-.0638647	.0539983
gender	.0569882	.0197022	2.89	0.004	.0183726	.0956038
status						
Separated	-.5644687	.0266725	-21.16	0.000	-.6167459	-.5121915
Single	-.4280929	.0267105	-16.03	0.000	-.4804445	-.3757413
gdp_pc_19	.0000157	7.82e-06	2.01	0.045	3.53e-07	.000031
oa_dep_19	.0187577	.0128623	1.46	0.145	-.006452	.0439673
pop_09_19	.2498904	.1585988	1.58	0.115	-.0609576	.5607384
_cons	6.605212	.4953132	13.34	0.000	5.634416	7.576008

Random-effects parameters	Estimate	Std. err.	[95% conf.	interval]
nuts1: Identity				
var(_cons)	.2742508	.0471846	.195749	.3842344
var(Residual)	3.672315	.0260963	3.621522	3.72382

LR test vs. linear model: chibar2(01) = 2464.86 Prob >= chibar2 = 0.0000

Random slopes model

```
Mixed-effects ML regression                     Number of obs     =     39,680
Group variable: nuts1                           Number of groups  =         77
                                                Obs per group:
                                                              min =          6
                                                              avg =      515.3
                                                              max =      2,234
                                                Wald chi2(15)     =    1710.51
Log likelihood = -82169.203                     Prob > chi2       =     0.0000
```

Wellbeing	Coefficient	Std. err.	z	P>|z|	[95% conf.	interval]
Trstgov	.1909461	.009513	20.07	0.000	.1723009	.2095912
agea	-.0087623	.0006865	-12.76	0.000	-.0101078	-.0074168
educ_std						
ES-ISCED II, lower secondary	.0713623	.0447908	1.59	0.111	-.016426	.1591506
ES-ISCED IIIb, lower tier upper secondary	.1884875	.0473076	3.98	0.000	.0957664	.2812086
ES-ISCED IIIa, upper tier upper secondary	.2962825	.0442733	6.69	0.000	.2095084	.3830566
ES-ISCED IV, advanced vocational, sub-degree	.3297322	.0483294	6.82	0.000	.2350082	.4244561
ES-ISCED V1, lower tertiary education, BA level	.414582	.0491709	8.43	0.000	.3182087	.5109552
ES-ISCED V2, higher tertiary education, >= MA level	.5629194	.0477901	11.78	0.000	.4692526	.6565862
paid_emp	-.0065398	.0300365	-0.22	0.828	-.0654103	.0523306
gender	.0547717	.0196594	2.79	0.005	.0162401	.0933034
status						
Separated	-.5618021	.0266148	-21.11	0.000	-.6139661	-.5096381
Single	-.4278469	.0266545	-16.05	0.000	-.4800888	-.3756051
gdp_pc_19	.0000165	9.79e-06	1.69	0.091	-2.63e-06	.0000357
oa_dep_19	.0209189	.0160527	1.30	0.193	-.0105438	.0523815
pop_09_19	.3445971	.1976119	1.74	0.081	-.042715	.7319092
_cons	6.483306	.6136346	10.57	0.000	5.280605	7.686008

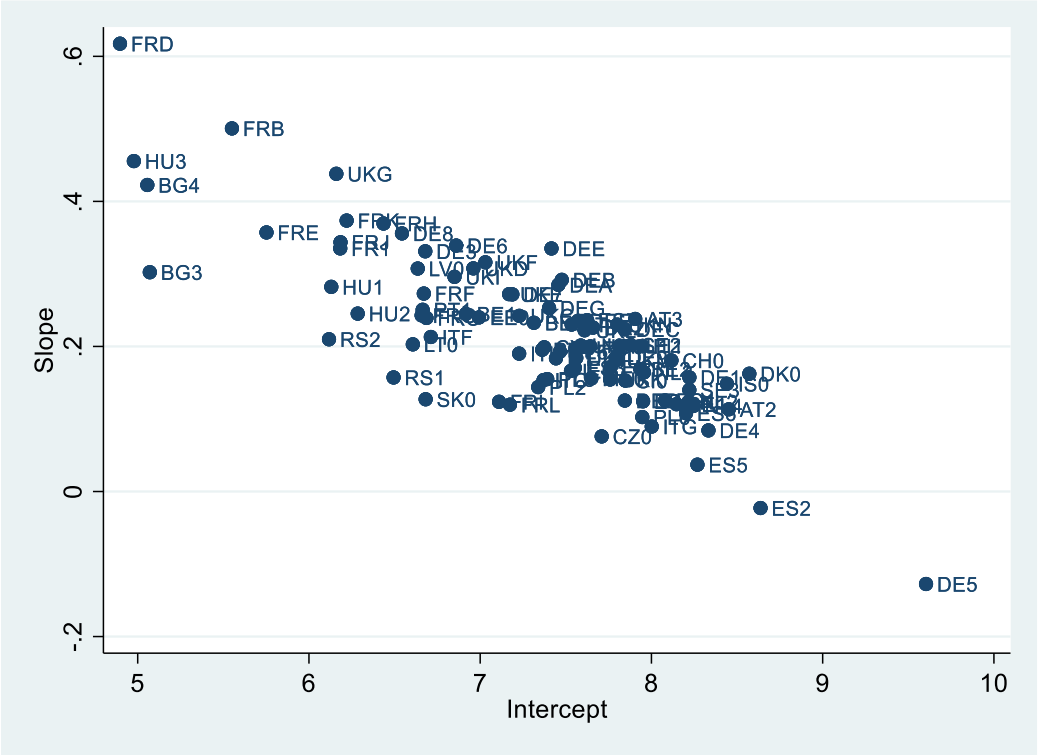
Random-effects parameters	Estimate	Std. err.	[95% conf.	interval]
nuts1: Independent				
var(Trstgov)	.0039141	.0009721	.0024057	.0063685
var(_cons)	.4129567	.0747085	.289676	.5887033
var(Residual)	3.650113	.0259697	3.599567	3.701369

```
LR test vs. linear model: chi2(2) = 2593.76                   Prob > chi2 = 0.0000

Likelihood-ratio test
Assumption: randominters~t nested within randomslope

 LR chi2(1) = 128.90
Prob > chi2 = 0.0000
```

Appendix 3: Random intercept and slope of trust in governance per NUTS 1 region



Appendix 4: Multilevel mediation model

```
Equation 1 (c_path): Wellbeing = gdp_pc_19 agea i.educ_std paid_emp gender i.status

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0:   log restricted-likelihood =  -86193.51
Iteration 1:   log restricted-likelihood =  -86193.51

Computing standard errors:

Mixed-effects REML regression                 Number of obs     =     41,104
Group variable: NUTS1                         Number of groups  =         78
                                              Obs per group:
                                                            min =          6
                                                            avg =      527.0
                                                            max =      2,311
                                              Wald chi2(12)     =    1489.88
Log restricted-likelihood =  -86193.51        Prob > chi2       =     0.0000
```

Wellbeing	Coefficient	Std. err.	z	P>|z|	[95% conf.	interval]
gdp_pc_19	.0000295	6.97e-06	4.23	0.000	.0000158	.0000432
agea	-.0093153	.0006891	-13.52	0.000	-.010666	-.0079646
educ_std						
ES-ISCED II, lower secondary	.1169153	.0445368	2.63	0.009	.0296248	.2042057
ES-ISCED IIIb, lower tier upper secondary	.21195	.0472429	4.49	0.000	.1193555	.3045444
ES-ISCED IIIa, upper tier upper secondary	.3463689	.0441843	7.84	0.000	.2597693	.4329686
ES-ISCED IV, advanced vocational, sub-degree	.3938489	.0484064	8.14	0.000	.2989741	.4887238
ES-ISCED V1, lower tertiary education, BA level	.5397917	.0491927	10.97	0.000	.4433757	.6362077
ES-ISCED V2, higher tertiary education, >= MA level	.7271674	.0476437	15.26	0.000	.6337875	.8205473
paid_emp	-.114417	.0299649	-3.82	0.000	-.1731471	-.055687
gender	.0402928	.0198273	2.03	0.042	.0014319	.0791536
status						
Separated	-.570253	.0268763	-21.22	0.000	-.6229295	-.5175765
Single	-.4428849	.0268724	-16.48	0.000	-.4955538	-.390216
_cons	7.6543	.2382408	32.13	0.000	7.187357	8.121243

Random-effects parameters	Estimate	Std. err.	[95% conf.	interval]
NUTS1: Identity				
sd(_cons)	.6013849	.0511584	.5090293	.710497
sd(Residual)	1.961769	.0068493	1.94839	1.975239

```
LR test vs. linear model: chibar2(01) = 3803.21       Prob >= chibar2 = 0.0000
```

```
Equation 2 (a_path): Trstgov = gdp_pc_19 agea i.educ_std paid_emp gender i.status

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0:   log restricted-likelihood = -86473.488
Iteration 1:   log restricted-likelihood = -86473.488

Computing standard errors:

Mixed-effects REML regression                 Number of obs     =     40,093
Group variable: NUTS1                         Number of groups  =         78
                                              Obs per group:
                                                            min =          6
                                                            avg =      514.0
                                                            max =      2,245
                                              Wald chi2(12)     =     833.96
Log restricted-likelihood = -86473.488        Prob > chi2       =     0.0000
```

Trstgov	Coefficient	Std. err.	z	P>|z|	[95% conf.	interval]
gdp_pc_19	.0000511	8.44e-06	6.05	0.000	.0000346	.0000676
agea	-.0006056	.0007434	-0.81	0.415	-.0020626	.0008514
educ_std						
ES-ISCED II, lower secondary	.1429475	.0484824	2.95	0.003	.0479237	.2379712
ES-ISCED IIIb, lower tier upper secondary	.0474462	.0512606	0.93	0.355	-.0530226	.1479151
ES-ISCED IIIa, upper tier upper secondary	.2799761	.0479183	5.84	0.000	.186058	.3738942
ES-ISCED IV, advanced vocational, sub-degree	.3349086	.0523916	6.39	0.000	.232223	.4375942
ES-ISCED V1, lower tertiary education, BA level	.6400677	.0532221	12.03	0.000	.5357544	.7443811
ES-ISCED V2, higher tertiary education, >= MA level	.871913	.0515587	16.91	0.000	.7708598	.9729661
paid_emp	-.4275335	.032424	-13.19	0.000	-.4910834	-.3639836
gender	-.0668521	.0212962	-3.14	0.002	-.1085919	-.0251124
status						
Separated	-.0699725	.0288398	-2.43	0.015	-.1264975	-.0134476
Single	-.0458034	.0288728	-1.59	0.113	-.1023931	.0107863
_cons	2.66319	.286407	9.30	0.000	2.101843	3.224538

Random-effects parameters	Estimate	Std. err.	[95% conf.	interval]
NUTS1: Identity				
sd(_cons)	.7330823	.0618593	.6213355	.8649266
sd(Residual)	2.082151	.007361	2.067774	2.096629

```
LR test vs. linear model: chibar2(01) = 5647.55       Prob >= chibar2 = 0.0000
```

```
Equation 3 (b_path & c_prime): Wellbeing = Trstgov gdp_pc_19 agea i.educ_std paid_emp gender i.status

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0:   log restricted-likelihood = -82817.846
Iteration 1:   log restricted-likelihood = -82817.846

Computing standard errors:

Mixed-effects REML regression                 Number of obs     =     39,932
Group variable: NUTS1                         Number of groups  =         78
                                              Obs per group:
                                                            min =          6
                                                            avg =      511.9
                                                            max =      2,234
                                              Wald chi2(13)     =    3112.11
Log restricted-likelihood = -82817.846        Prob > chi2       =     0.0000
```

Wellbeing	Coefficient	Std. err.	z	P>|z|	[95% conf.	interval]
Trstgov	.1843824	.0046081	40.01	0.000	.1753508	.193414
gdp_pc_19	.0000205	6.32e-06	3.25	0.001	8.13e-06	.0000329
agea	-.0087719	.0006858	-12.79	0.000	-.010116	-.0074279
educ_std						
ES-ISCED II, lower secondary	.0672603	.0447797	1.50	0.133	-.0205062	.1550268
ES-ISCED IIIb, lower tier upper secondary	.1880295	.0472937	3.98	0.000	.0953355	.2807234
ES-ISCED IIIa, upper tier upper secondary	.2913091	.0442661	6.58	0.000	.2045492	.3780689
ES-ISCED IV, advanced vocational, sub-degree	.325939	.0483713	6.74	0.000	.231133	.420745
ES-ISCED V1, lower tertiary education, BA level	.408123	.0491969	8.30	0.000	.3116989	.5045471
ES-ISCED V2, higher tertiary education, >= MA level	.5597962	.0477536	11.72	0.000	.4662009	.6533916
paid_emp	-.0084681	.0300072	-0.28	0.778	-.0672811	.050345
gender	.0551186	.0196475	2.81	0.005	.0166103	.093627
status						
Separated	-.5656786	.0266235	-21.25	0.000	-.6178597	-.5134974
Single	-.4299021	.0266333	-16.14	0.000	-.4821023	-.3777018
_cons	7.107311	.2181064	32.59	0.000	6.67983	7.534791

Random-effects parameters	Estimate	Std. err.	[95% conf.	interval]
NUTS1: Identity				
sd(_cons)	.5421223	.046579	.4581021	.6415525
sd(Residual)	1.917078	.0067911	1.903814	1.930435

```
LR test vs. linear model: chibar2(01) = 2902.28       Prob >= chibar2 = 0.0000

The mediator, Trstgov, is a level 1 variable
c_path  = .0000295
a_path  = .0000511
b_path  = .18438241
c_prime = .00002052  same as dir_eff
ind_eff = 9.421e-06
dir_eff = .00002052
tot_eff = .00002994

proportion of total effect mediated = .31468085
ratio of indirect to direct effect  = .45917417
ratio of total to direct effect     = 1.4591742
```

Bootstrapping results of multilevel mediation model

```
Bootstrap results                                       Number of obs = 41,085
                                                        Replications  =    500

      Command: ml_mediation, dv(Wellbeing) iv(gdp_pc_19) mv(Trstgov) l2id(NNUTS1)
       indeff: r(ind_eff)
       direff: r(dir_eff)
       toteff: r(tot_eff)

                                  (Replications based on 78 clusters in NUTS1)
```

	Observed coefficient	Bootstrap std. err.	z	P>|z|	Normal-based [95% conf.	interval]
indeff	.0000107	2.54e-06	4.21	0.000	5.70e-06	.0000157
direff	.0000216	8.34e-06	2.59	0.010	5.25e-06	.0000379
toteff	.0000323	.0000102	3.15	0.002	.0000122	.0000523