

The Effects of Subjective and Objective Indicators of Inequality on Life Satisfaction in a Comparative Perspective Using a Multi-Level Analysis

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Abstract—The inverse social gradient in life satisfaction (LS) is a well-established research finding. Although objective aspects of inequality or individuals' socioeconomic status are among the approved predictors of life satisfaction; however, less is known about the effect of subjective inequality and the interplay of these two aspects of inequality on life satisfaction. It is suggested that individuals' perception of their socioeconomic status in society can moderate the link between their absolute socioeconomic status and life satisfaction. Nevertheless, this moderating link has not been affirmed to work likewise in societies with different welfare regimes associating with different levels of social inequality. In this study, we compared the moderative influence of subjective inequality on the link between objective inequality and LS. In particular, we focus on differences across welfare state regimes based on Esping-Andersen's theory. Also, we explored the moderative role of believing in the value of equality on the link between objective and subjective inequality on LS, in the given societies. Since our studied variables were measured at both individual and country levels, we applied a multilevel analysis to the European Social Survey data (round 9). The results showed that people in different regimes reported statistically meaningful different levels of LS that is explained to different extents by their household income and their perception of their income inequality. The findings of the study supported the previous findings of the moderator influence of perceived inequality on the link between objective inequality and LS. However, this link is different in various welfare state regimes. The results of the multilevel modeling showed that country-level subjective equality is a positive predictor for individuals' LS, while the Gini coefficient that was considered as the indicator of absolute inequality has a smaller effect on LS. Also, country-level subjective equality moderates the confirmed link between individuals' income and their LS. It can be concluded that both individual and country-level subjective inequality slightly moderate the effect of individuals' income on their LS.

Keywords—Individual values, life satisfaction, multi-level analysis, objective inequality, subjective inequality, welfare regimes status.

I. INTRODUCTION

THE inverse social gradient in LS is a well-established research finding which has resulted in a huge body of studies investigating its social determinants. The biggest portion of these studied determinants resulted from an objective perspective focusing on factors such as socioeconomic status (SES) and other materialistic indicators of inequality like

unequal accessibility to income, health care, housing, education, employment, social services, social protection, etc. which undeniably are among predictors of individuals' satisfaction and mental wellbeing [1]-[10]. On the other hand, the significant effects of subjective inequality, such as subjective socioeconomic status on health, mental wellbeing and its components have been confirmed empirically by some studies. Although these studies have been conducted less frequently compare to studied links between objective inequality and mental wellbeing, their results are too important to be ignored [11]-[21].

Despite the tendency toward investigating the isolated effects of objective or subjective inequality on mental wellbeing, happiness and satisfaction; relatively less attention has been paid to the interaction effect of these two aspects of inequality on LS or generally, individuals' wellbeing. However, individuals' mental condition is influenced by a complicated combination of subjective and objective factors at the same time [22]. Boe et al. [23] for instance, studied the interplay of objective and SSS on mental health of Norwegian adolescence. Their results showed that the association between mental health benefits and higher income is moderated by adolescents' perceptions of their family's relative income position. Bannink et al. [24] also confirmed the association of both household income and young adolescents' perception of their family's relative income on their positive mental health in UK. In another study, Doornbos [25] confirmed that SSS of individuals is a significant moderator in the relation between objective SES and mental health problems among Dutch adolescences. Hoebel et al. [17] also revealed a significant indirect relationship between objective SES and depressive symptoms through SSS. Furthermore, it can be assumed that mentioned interactions vary in different societies with different social and economic structures. For instance, it has been proved that even when people evaluate cognitively their relative social status lower than others, it will not necessarily have a negative impact on their emotional condition and consequently on their mental well-being [26], [27]. Indeed, even if people are aware of their lower situation relative to that of others, they do not automatically experience negative emotions that are supposed to impact their flourishing [28]. There are other indicators that

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influence these links. Living in society and having reciprocal effects with its members, individuals' well-being is influenced simultaneously by their perceptions about their own equal/unequal status, and also by what they believe about the existing level of inequality in the society they belong to. A person who considers his society as an extremely unequal will perceive his SSS and consequently, experience mental well-being differently with another one who lives in a more equal country. Furthermore, it can be assumed that all these perceptions and their consequences are influenced to some extent by the actual level of inequality in countries [26], [29]. For instance, Curhan et al. [30] in their comparative study showed that subjective social status predicted LS, positive affect, sense of purpose, and self-acceptance, more stronger in the United States than in Japan. In another study, Prāga et al. [13] showed that the positive association between subjective SES and self-related health is slightly larger in countries with higher affluence. Also, it has been demonstrated that both individuals' perceptions and their emotional reactions to these perceptions are sensitive to the cultural differences [31], [15], [32]. Taking into account all these considerations, lack of enough comparative inquiries to estimate the interaction of objective and SSS on people's LS in different countries could be considered as a study gap in this special area. Undeniably, improving knowledge about these silent aspects of the relationship between inequality and mental health can improve the efficiency of programs implemented by national and international policymakers to improve people's mental health.

In this study, we compared the influences of both objective and subjective aspects of income inequality on individuals' LS to investigate: a) whether individuals' perception of their relative income is associated with their LS independently of their absolute income; and b) whether perceived income plays a moderating role in the relationship between absolute income and LS. These assumptions come from the relatively recent studies on SSS influences in health and wellbeing that have explained how SES can shape individuals' life quality [33]-[35]. Furthermore, this study is of added value as it explored the impact of subjective/objective inequality as independent variables in both individual and country levels. Living in society individuals' satisfaction is influenced simultaneously by their perception about their own equal/unequal status, and also by what they believe about the existing level of inequality in the society they belong to. A person who considers his society as an extremely unequal will perceive his personal unequal situation differently from another one who believes the country that he belongs to is fairly equal. Also, this perception about one's equal/unequal position is influenced to some extent by the actual level of inequality in countries [26], [29]. Taking into account these assumptions, in this study, we estimated the direct impact of country-level subjective inequality- the level people consider their countries unequal- and country-level objective inequality – Gini coefficient- on individuals' LS. Also, we assumed that these country-level predictors can moderate the influence of individual level of income inequality in both objective and subjective dimensions of it.

Finally, since different state regimes associate with different

level of inequality in the society, and also to make it possible to estimate the impact of country-level objective/subjective inequality on individuals' LS, this study is designed as cross-national research which studied the relationship of subjective and objective inequality in income on LS in 29 European countries. We applied Esping-Andersen's welfare regimes theory to support theoretically the comparative part of the study. It has been suggested that a welfare regime might influence individuals' satisfaction, their wellbeing and health inequalities through various possible pathways [36], [37]. These are closely related to the degree of de-commodification and stratification of the welfare state regimes [38]. Popham et al. [39] for instance showed that Nordic countries have the highest life expectancy and smallest inequalities in mortality for men but not women. Eikemo et al. [40] observed that people in the Scandinavian and Anglo-Saxon welfare regimes (comparable to the liberal regimes) have better self-perceived general health in comparison to Southern and East European welfare regimes. Therefore, we assumed that there can be differences in the level of individuals' LS in different welfare regimes and more importantly, the link between subjective and objective inequality and LS also could be various among different state regimes.

II. COUNTRY-GROUPING

According to Esping-Andersen's theory, Welfare states are clustered around three highly diverse regime types, each organized according to its own discreet logic of organization, stratification, and social integration. These ideal types owe their origins to different historical forces and follow qualitatively different developmental trajectories [37]. He (1990:26) distinguishes between three ideal types of welfare state regimes according to two dimensions: the extent of de-commodification and stratification. These two dimensions have decisive implications for population health and social inequalities in health within different welfare regimes [37].

De-commodification occurs when a person can survive without reliance on the market. Welfare states also differ considerably with regard to social stratification and stratification processes. Esping-Andersen [41, p.23] suggests that the welfare state is not just a mechanism that intervenes in or corrects the structure of inequality; it is, in its own right, a system of stratification and an active force in the ordering of social relations. The organizational features of the welfare state help determine the articulation of social solidarity, divisions of class, and status differentiation [41, p.55]. Esping-Andersen identifies three models, or ideal types, of stratification and solidarity that parallel the regime types including social-democratic, conservative, and liberal regimes [37]. Others, later went beyond this typology of regimes and extended it to four, five, or six types and added some other regimes such as post-communist, Anglo-Saxon, or Scandinavian regimes [42].

Considering widely used typologies of welfare regimes [41], [43] we categorized the 29 countries under investigation in this study into 7 groups:

1. the social-democratic Nordic countries (Denmark, Finland, Sweden, Norway, Iceland); that stand out as the most equal

- countries;
2. the conservative Continental European countries (Belgium, France, Germany, the Netherlands, Austria, Switzerland);
 3. the Southern European countries (Portugal, Spain, Cyprus, Italy);

As it is suggested by Saraceno [44], people who live in the last two regimes gain their welfare strongly from family support and their employment status. In another word, what differs the two country groups is the degree to which their welfare model is reliant on kinship solidarity, support across generation being the strongest base of the Southern European model. Furthermore, the level of income inequality is noticeably different in the two country groups, with much lower levels of inequality observed in Continental Europe than in South [37].

4. The Anglo-Saxon countries (Great Britain, Ireland). In terms of social inequality, the Anglo-Saxon countries have high levels of income inequality compare with other European countries.
5. Central and Eastern European (CEE) countries (Czech Republic, Hungary, Poland, Slovakia). Much lower levels of social inequality have been shown for the central and eastern European countries [45].
6. Baltic countries (Latvia, Lithuania, Estonia) standing out as a group of countries that have most strongly followed a liberal path [37].
7. South Slavic countries. The last group of countries including Bulgaria, Croatia, Montenegro, Serbia and Slovenia are grouped as South Slavic countries.

III. STUDY HYPOTHESES

- a) People who have higher income report higher level of life satisfaction;
- b) People who perceive themselves in a more equal status in terms of income (subjective equality) report a higher level of life satisfaction;
- c) The link between actual income and life satisfaction is moderated by subjective equality;
- d) The link between actual income and life satisfaction is moderated by the level at which respondents believe in the value of equality;
- e) The previously assumed links are different among various welfare regimes;
- f) The link between individuals' income and life satisfaction is moderated by country-level inequality
- g) The link between individuals' income and life satisfaction is moderated by country-level subjective inequality;

IV. METHODOLOGY

Since one of the aims of this study is to understand how the links between objective/subjective inequality and LS are sensitive to the different welfare regimes, the hypotheses of the study needed to be explored and compared cross-nationally using macro-level variables. However, the other assumptions of the study had been designed to be explored at the micro-level using linear regression. To explore the cross-level interactions, we utilized a multi-level analysis which requires a two-phase

sampling: at the micro or individual level –the second phase of sampling- the random method of sampling is required that is not an issue in this study as we use the secondary data that already is gathered randomly. At the country-level of sampling, however, the process has been done based on a purposive technique. It was necessary to have data from all European countries to make it possible for the multi-level modeling. Therefore, we compared all 29 European countries that we had the possibility to have data for in the European Social Survey database. Also, we aimed to compare some of our assumed links in different welfare regimes. To this aim, we selected two countries for each welfare regime that represented more strongly the targeted regime. The selected countries for each regime are presented in Table I.

TABLE I
 THE STUDIED WELFARE REGIMES

Social-democratic Nordic countries	Denmark, Finland, Sweden, Norway, Iceland
Conservative Continental European countries	Belgium, France, Germany, the Netherlands, Austria, Switzerland
Southern European countries	Portugal, Spain, Cyprus, Italy
Anglo-Saxon countries	Great Britain, Ireland
Central and Eastern European countries, CEE	Czech Republic, Hungary, Poland, Slovakia
Baltic countries	Latvia, Lithuania, Estonia
South Slavic countries (former Yugoslavia)	Bulgaria, Croatia, Montenegro, Serbia, Slovenia

To explore the hypothesized links between two aspects of inequality and LS, we used the data available on European Social Survey (ESS), round 9 that has been gathered in 2018. Table II includes the variables and the indicators we used to explore the hypothesizes of the study.

TABLE II
 STUDY'S VARIABLES AND INDICATORS

Individuals' income	Which letter describes your household's total net income, all sources better? (categorized from 1st decile to 10th decile)
Individuals' perception of the equality of their income	How fair is your net [pay/pensions/social benefits]? (categorized from fair to extremely unfair)
Country-level inequality	GINI coefficient
Country-level subjective inequality	To what extent you agree/disagree with this state: Government should reduce differences in income levels How fair are the differences in wealth in the country?
Individual believe in the value of equality	How much you are like this person? He thinks it is important that every person in the world should be treated equally. He believes everyone should have equal opportunities in life.

To test the hypothesizes that included variables at the individual level we used linear regression, while for other hypotheses that contained variables at both individual and country-level multilevel modeling were applied. This modeling allowed us to recognize the existence of such data hierarchies by allowing for residual components at each level in the hierarchy.

V.RESULTS

Table III shows the mean of LS generally in all European

countries and also in different welfare regimes. While people in social-democratic Nordic countries reported the highest level of LS ($p: 8.1$), the mean of LS in South Slavic countries is at the lowest level compared with other regimes ($p: 6.3$). The results of the ANOVA test (Table IV) illustrate that these differences are meaningful ($F: 676.5$, $Sig: 0.00$).

TABLE III
THE MEAN OF LS IN INVESTIGATED COUNTRIES

Country Group	Valid	Mean	Standard deviation
All European countries	49255	7.11	2.192
social-democratic Nordic countries	7116	8.1	1.578
conservative Continental European countries	11821	7.58	1.911
Southern European countries	6201	6.99	2.087
Anglo-Saxon countries	4396	7.24	2.04
Central and Eastern European countries, CEE	6585	6.65	2.12
Baltic countries	4635	6.61	2.228
South Slavic countries (former Yugoslavia)	8501	6.28	2.654

TABLE IV
ONE-WAY ANOVA TEST

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	18022.423	6	3003.737	676.486	0.00
Within Groups	218671.212	49248	4.44		
Total	236693.634	49254			

Tables V and VI present the effect of individuals' income on their LS. Although the regression model shows a medium link between individuals' total net income and their LS ($Beta = .27$), this relationship is statistically significant (p value = 0.00). However, the comparative results (Table VII) show that the association of individuals' income and their LS is different in various regimes. While the strongest association has been shown in Baltic countries ($Beta = .33$) and South Slavic countries ($Beta = .30$), this relationship is similarly weaker among people who live in conservative, Anglo-Saxon, and CEE countries ($Beta = .20$).

TABLE V
COEFFICIENTS OF INCOME AND LS (GENERAL MODEL)

	Sum of Squares	df	Mean Square	F	Sig.
Regression	13793.07	1	13793.07	3102.686	.000
Residual	176642.979	39735	4.446		
Total	190436.049	39736			

TABLE VI
COEFFICIENT OF THE MODEL OF INCOME AND LS

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	6.02	0.023		266.672	0
household's income	0.212	0.004	0.269	55.702	0

TABLE VII
COEFFICIENT OF INCOME AND LS (BY REGIMES)

Different Regimes	Standardized Coefficients		t	Sig.
	Beta			
social-democratic Nordic countries	(Constant)		164.617	0.00
	household's income,	0.181	14.833	<.001
conservative Continental European countries	(Constant)		160.644	0.00
	household's income,	0.243	25.179	<.001
Southern European countries	(Constant)		89.065	0.00
	household's income,	0.186	12.281	<.001
Anglo-Saxon countries	(Constant)		97.419	0.00
	household's income,	0.188	11.196	<.001
Central and Eastern European countries, CEE	(Constant)		83.847	0.00
	household's income,	0.233	15.762	<.001
Baltic countries	(Constant)		87.016	0.00
	household's income,	0.328	22.601	<.001
South Slavic countries (former Yugoslavia)	(Constant)		77.958	0.00
	household's income,	0.303	26.272	<.001

The confirmed link between individuals' income and their LS is slightly moderated by individuals' perception of income inequality (Table VIII). Although this moderative effect is relatively slight ($Beta = .12$), it is statistically meaningful (p value = 0.00). Based on comparative linear regression (Table IX), the moderative effect of subjective inequality is the strongest in liberal regimes ($Beta = .15$) and then in conservative Continental European countries ($Beta = .11$). In other regimes, the moderator effect of subjective inequality is not noticeable.

TABLE VIII
THE MODERATOR EFFECT OF SUBJECTIVE INEQUALITY (GENERAL MODEL)

	Standardized Coefficients	t	Sig.
(Constant)		248.258	0.00
household's income	0.269	51.664	0.00
moderator.2	0.117	22.445	<.001

Tables X and XI include the results of the regression model of the association between individuals' perception of income inequality and LS. In comparison with individual income, subjective inequality explains a slightly bigger part of LS's variance ($Beta = -.32$).

The comparative results (Table XII) illustrate that the association between subjective inequality and LS is strongest in conservative Continental European countries ($Beta = -.30$) and also Baltic countries ($Beta = -.31$), while in social-democratic Nordic countries subjective income inequality explains just 0.13 of the variation of people's LS.

TABLE IX
 THE MODERATOR EFFECT OF SUBJECTIVE INEQUALITY (BY REGIMES)

Different regimes		Standardized Coefficients	t	Sig.
		Beta		
social-democratic Nordic countries	(Constant)		147.322	0.00
	household's income moderator.2	0.203	14.286	<.001
conservative Continental European countries	(Constant)		144.341	0.00
	household's income moderator	0.276	25.786	<.001
Southern European countries	(Constant)		74.858	0.00
	household's income moderator	0.18	10.189	<.001
Anglo-Saxon countries	(Constant)		84.535	0.00
	household's income moderator	0.253	13.034	<.001
Central and Eastern European countries, CEE	(Constant)		73.185	0.00
	household's income moderator	0.222	13.283	<.001
Baltic countries	(Constant)		77.906	0.00
	household's income moderator	0.28	17.461	<.001
South Slavic countries	(Constant)		59.232	0
	household's income moderator	0.281	19.205	<.001
		0.057	3.87	<.001

TABLE X
 MODEL SUMMARY

	Sum of Squares	df	Mean Square	F	Sig.
Regression	20047.986	1	20047.986	4712.735	.000
Residual	169232.712	39782	4.254		
Total	189280.698	39783			

TABLE XI
 COEFFICIENTS SUBJECTIVE INCOME INEQUALITY AND LS (GENERAL)

	Standardized coefficients	t	Sig.
Beta			
(Constant)		400.183	0.00
Subjective inequality of income	-0.325	-68.649	0.00

The second part of the study's assumptions was the influence of multi-level predictors on LS. To explore if country-level predictors can predict the differences between individuals' LS in different given countries, multilevel modeling was run. These indicators include objective inequality (Gini coefficient) and country-level subjective equality. The latter variable was calculated based on the mean of the score that each country's people had gained in believing in the value of equality. The variable of country-level subjective inequality was generated out of each country's mean score of the opinion of the respondent about the level of inequality in their countries.

Table XIII which related to the null level modeling shows an estimate of the variation in the level one residuals. This table contains the variance within clusters (residual = 4.16) and between clusters variance (intercepts = .62). Both of these

parameters are statistically significant that means there is a significant variance between the level of people's LS in different studied countries at level 1 and 2 that is required to be explained by predictors at level 1 and 2, carrying out the next steps of the multilevel modeling. At this level of modeling, the predictors are not entered into the model. Also, the interclass correlation coefficient (ICC) which is used to determine whether there is significant clustering of observations within higher-level units in this modeling is ($p = .13$) and statistically significant. It actually presents the proportion of the total variation Y explained by the grouping structure. In other words, the proportion of variation in LS that lies between studied countries is proximately 13%. ICCs with values around .05 or higher are often taken as an indication of substantial clustering of observation within level 2 units.

TABLE XII
 COEFFICIENTS SUBJECTIVE INCOME INEQUALITY AND LS (BY REGIMES)

Different Regimes		Standardized Coefficients	t	Sig.
		Beta		
social-democratic Nordic countries	(Constant)		221.14	0.00
	Subjective inequality	-0.133	-10.595	<.001
conservative Continental European countries	(Constant)		236.472	0.00
	Subjective inequality	-0.295	-30.509	<.001
Southern European countries	(Constant)		118.241	0.00
	Subjective inequality	-0.229	-15.475	<.001
Anglo-Saxon countries	(Constant)		128.582	0.00
	Subjective inequality	-0.217	-13.569	<.001
Central and Eastern European countries, CEE	(Constant)		110.708	0.00
	Subjective inequality	-0.217	-16.023	<.001
Baltic countries	(Constant)		105.651	0.00
	Subjective inequality	-0.311	-21.012	<.001
South Slavic countries (former Yugoslavia)	(Constant)		104.033	0.00
	Subjective inequality	-0.28	-23.457	<.001

TABLE XIII
 ESTIMATES OF FIXED EFFECTS

Parameter	Estimate	Std. Error	Wald Z	Sig.
Residual	4.161873	0.026528	156.885	0
Intercept [subject = countries]	0.624015	0.164549	3.792	<.001

a Dependent Variable: How satisfied with life as a whole.

At step two of the multilevel modeling, we added to level 1 predictors which are individuals' income and their subjective inequality in terms of income. This step involves incorporating individual level (fixed) predictors but allowing the intercepts to vary across the countries. In Table XIV, the average of intercepts ($p: 6.2$ and 8.0) for the regression equation and the average slopes (.17 and -.36) across all the countries are presented. So, it can be said that individuals' income is positive and subjective income inequality is a negative predictor for LS across all studied countries, and both predictors are statistically significant. It means for everyone one unit achievement on

individuals' income predicts .14 unit on LS and one unit perception of income inequality reduce .36 unit of his/her LS. Also, the t-tests are significant, so all the estimates of the models are statistically significant. However, in Table XV, the variations at level one which is within-group variations ($p = 3.9$ for both), and the variation in intercepts ($p = .53$ and $.41$) illustrate that even though the individuals' income and their perception of their income inequality at level one have been added to the model, still, there is a significant variation that can be explained at level 1 and level 2, and this led us to the next step of multilevel modeling.

TABLE XIV
 ESTIMATES OF FIXED EFFECTS

Parameter	Estimate	Std. Error	df	t	Sig.
Intercept	6.212	0.136966	30.185	45.356	<.001
Individuals' income	0.173	0.003654	39726.453	47.555	0.00
Intercept	8.012	0.121409	30.508	65.993	<.001
Subjective inc.inequ	-0.362	0.007772	39759.021	-46.582	0.00

a Dependent Variable: How satisfied with life as a whole.

TABLE XV
 ESTIMATES OF COVARIANCE PARAMETERS

Parameter	Estimate	Std. Error	Wald Z	Sig.	
Residual	3.891904	0.027621	140.904	0.00	
Intercept [subject = countries]	Variance	0.530279	0.140036	3.787	<.001
Residual	3.864939	0.027413	140.988	0.00	
Intercept [subject = countries]	Variance	0.413533	0.109443	3.779	<.001

a Dependent Variable: How satisfied with life as a whole.

One of the questions that led us to use multilevel modeling was if country-level predictors can estimate the variances in individuals' LS in the different countries. To explore the effect of country-level predictors, level 2 of the multilevel modeling was conducted.

Table XVI which includes the results of this step shows that country-level subjective equality is a positive predictor for individuals' LS ($p = .36$, sig: 0.00). This result confirms that in the countries where most people believe that are living in an equal country the level of people's LS is higher. Also Gini coefficient has a rather weak ($p = -.025$) but significant effect on LS. It means living in an unequal country is associated with slightly lower LS.

TABLE XVI
 ESTIMATES OF FIXED EFFECTS

Parameter	Estimate	Std. Error	df	t	Sig.
Intercept	6.050415	0.090962	39573	66.516	0.00
Ind.income	0.186169	0.003819	39573	48.743	0.00
GINI coefficient	-0.02538	0.002716	39573	-9.343	<.001
Mean.subj.equality	0.356114	0.011162	39573	31.904	<.001

a Dependent Variable: v7. how satisfied with life as a whole.

At the last step of multilevel modeling, we tested if the level 1 slopes are different across the countries. In other words, the mediator effect of country-level subjective inequality and also the effect of the countries' Gini coefficient on the link between individuals' income and their life satisfaction were explored.

The results of the model shown in Table XVII illustrate that there is a cross-level interaction between individual income and country-level subjective inequality ($p = -.13$). In other words, the link between individuals' income and their life satisfaction is significantly different across countries with different levels of country-level subjective inequality. Since the estimated parameter is negative, it can be interpreted that the link between individuals' income and their satisfaction is weaker in countries in which people believe that their countries are unequal in terms of income. However, the interaction between GINI coefficient and individuals' income on their LS is very small ($p = .004$) even though it is statistically significant. The same condition is about the interaction between the GINI coefficient and individuals' perception of the inequality of their society ($p = -.016$, sig = 0.00).

TABLE XVII
 ESTIMATES OF FIXED EFFECTS

Parameter	Estimate	Std. Error	Sig.
Intercept	1.327	0.7833	0.101
Individuals' income	0.480	0.05489	<.001
Country-level sub.equality	2.048	0.32329	<.001
Interaction: income*sub.inequ	-0.128	0.02258	<.001
Interaction: Income*GINI	0.004	0.00023	<.001
interaction: Gini*sub.inequality.indv	-0.016	0.00044	<.001

VI. DISCUSSION AND CONCLUSION

Using multilevel modeling, the main aim of this study was to explore the intercross influence of individual and country-level indicators of inequality on individuals' LS among 29 European countries. Also, we explored the effect of objective and subjective inequality on LS both separately and considering their potential moderative interactions. The latter assumptions were explored in a comparative perspective to recognize the difference relationships between investigated variables among 7 different welfare regimes that was designed based on Esping-Andersen's theory.

Descriptive results showed a statistically meaningful difference between the level of life satisfaction among studied regimes. The highest average of life satisfaction appeared to belong to social-democratic Nordic countries ($p = 8.1$), while respondents in Slavic countries reported the lowest average of life satisfaction ($p = 6.3$). In South Slavic countries as well as Baltic countries, the lower household income could explain the bigger part of this lower level of LS (Beta = .30) compared to conservative and Anglo-Saxon countries (Beta = .20). However, the mentioned effect of household income on LS was statistically confirmed to be moderated by individuals' perception of their income inequality (Beta = .12). This moderator effect of subjective inequality was at the strongest level in liberal and conservative regimes in comparison to other investigated regimes. The direct effect of subjective income inequality appears to be a stronger predictor of LS rather than its moderator effects on absolute income (Beta = -.32). The association between subjective inequality and LS is strongest in conservative Continental European countries (Beta = -.30) and also Baltic countries (-0.31), while in social-democratic Nordic

countries subjective income inequality explains just 0.13 of the variation of people's LS. Based on individual-level analysis, it can be concluded that individuals' perception of income inequality can predict people's LS as strongly as their absolute income. Also, this subjective predictor can moderate the effect of income on LS. These results confirmed that subjective inequality should be considered as an important determinant of LS because regardless how much individuals' income is, if they consider their income unequal compared to others, they will enjoy lower LS specifically in conservative and Baltic regimes. Also, based on the results it could be concluded that people who receive lower income will have experienced lower LS if they also believe that their income is unequal compared to others and vice versa.

The findings of multilevel analysis proved that LS has statistically significant variation (ICC = 13%) among 29 investigated countries to be explained by both individual and country-level predictors. The level one of the multilevel modeling confirmed the previous findings [23]-[25], [17] about the various levels of relationships between income/perception of inequality of income and LS in studied countries. These results led us to run the second phase of multilevel modeling to see how much of this variation can be explained by country-level objective and subjective inequality. The result of the second step of multilevel modeling confirms that in the countries where most people believe that are living in an equal country the level of people's LS is higher, while the absolute inequality of the country (Gini coefficient) appeared to be a weaker predictor of people's LS. At the third step of the multilevel modeling the mediator effect of country-level subjective inequality and also the effect of the countries' Gini coefficient on the link between individuals' income and their LS were explored. The results of the model shown in Table XIII illustrate that there is a cross-level interaction between individual income and country-level subjective inequality ($p = .13$). It means, in countries that a bigger portion of its people consider it unequal, even if a person's income increases, his/her LS will not increase at the same level that can happen for another one who believes his country is more equal in terms of income. However, the absolute inequality of the country was not confirmed to have such an effect on the link between individuals' income and their LS. The latter result suggests that subjective inequality is an important determinant of LS also at country-level as it is at the individual-level. The results also suggest that if a person receives a lower amount of income his LS will reduce at the almost same amount as if he believes that his income is unequal compared to others. However, if a person lives in a country that most people believe is unequal, his LS will reduce much more as if he actually lives in an unequal country in terms of income. In another word, the relative importance of subjective inequality is higher at country-level rather than that of subjective inequality at individual level.

REFERENCES

[1] Marees, A. T., et al. (2020). "Potential influence of socioeconomic status on genetic correlations between alcohol consumption measures and mental health." *Psychological medicine* 50(3): 484-498.

[2] Kong, F., et al. (2019). "The Relationship between Socioeconomic Status, Mental Health, and Need for Long-Term Services and Supports among the Chinese Elderly in Shandong Province-A Cross-Sectional Study." *International journal of environmental research and public health* 16(4): 526.

[3] Wang, J. and L. Geng (2019). "Effects of Socioeconomic status on physical and psychological health: lifestyle as a mediator." *International journal of environmental research and public health* 16(2): 281.

[4] Angelini, V., et al. (2018). "Childhood Socioeconomic Status and Late-Adulthood Mental Health: Results from the Survey on Health, Ageing and Retirement in Europe." *The Journals of Gerontology: Series B* 74(1): 95-104.

[5] Silva, M., Loureiro, A., & Cardoso, G. (2016). Social determinants of mental health: a review of the evidence. *The European Journal of Psychiatry*, 30, 259-292.

[6] Stewart-Brown, S., et al. (2015). "Socioeconomic gradients and mental health: implications for public health." *The British Journal of Psychiatry* 206(6): 461-465.

[7] Kim, J., Richardson, V., Park, B., & Park, M. (2013). A multilevel perspective on gender differences in the relationship between poverty status and depression among older adults in the United States. *Women Aging*, 25(3), 207-26.

[8] Wilkinson, R. and K. Pickett (2010). *The Spirit Level: Why Greater Equality Makes Societies Stronger*, Bloomsbury Publishing.

[9] Patel, V., Lund, C., Hatherill, S., Plagerson, S., Corrigan, J., Funk, M., et al. (2010). Mental disorders: equity and social determinants. In E. Blas, & A. Kurup, Equity, social determinants and public health programmes (pp. 115-134). Geneva: World Health Organization.

[10] Stankunas, M., Kalediene, R., Starkuviene, S., & Kapustinskiene, V. (2006). Duration of unemployment and depression: a cross-sectional survey in Lithuania. *BMC Public Health*, 6, 174.

[11] Russell, M. A. and C. L. Odgers (2020). "Adolescents' subjective social status predicts day-to-day mental health and future substance use." *Journal of Research on Adolescence* 30: 532-544.

[12] Rivenbark, J. G., et al. (2019). "Perceived social status and mental health among young adolescents: Evidence from census data to cellphones." *Developmental psychology* 55(3): 574.

[13] Präg, Patrick, Melinda Mills, and Rafael Wittek, 2016: "Subjective Socioeconomic Status and Health in Cross-National Comparison," *Social Science and Medicine* 149, pp. 84–92

[14] Scott, K. M., et al. (2014). "Associations Between Subjective Social Status and DSM-IV Mental Disorders: Results from the World Mental Health Surveys." *JAMA Psychiatry* 71(12): 1400-1408.

[15] Euteneuer, F. (2014). "Subjective social status and health." *Current opinion in psychiatry* 27(5): 337-343.

[16] Diaz, O. V., et al. (2014). "Subjective social status and depression symptoms: a prospective study of women with noncancerous pelvic problems." *Women's Health Issues* 24(6): 649-655.

[17] Hoebel, J., et al. (2017). "Social Inequalities and Depressive Symptoms in Adults: The Role of Objective and Subjective Socioeconomic Status." *PLOS ONE* 12(1): e0169764.

[18] Subramanyam, M. A., et al. (2012). "Subjective social status and psychosocial and metabolic risk factors for cardiovascular disease among African Americans in the Jackson Heart Study." *Social science & medicine* 74(8): 1146-1154.

[19] Adler, N., et al. (2008). "Social status and health: a comparison of British civil servants in Whitehall-II with European-and African-Americans in CARDIA." *Social science & medicine* 66(5): 1034-1045.

[20] Singh-Manoux, A., et al. (2005). "Does Subjective Social Status Predict Health and Change in Health Status Better Than Objective Status?" *Psychosomatic Medicine* 67(6): 855-861.

[21] Hu, P., et al. (2005). "Relationship between subjective social status and measures of health in older Taiwanese persons." *Journal of the American Geriatrics Society* 53(3): 483-488.

[22] Barry, Margaret M. (2009). Addressing the determinants of positive mental health: concepts, evidence and practice *International Journal of Mental Health Promotion*, 11(3), 4-17.

[23] Bøe, T, Petrie, J. K., Sivertsen, B, Hysing, M, (2019), Interplay of subjective and objective economic well-being on the mental health of Norwegian adolescents, *SSM - Population Health*, Volume 9, 2019,100471,

[24] Bannink R, Pearce A, Hope S. (2016), Family income and young adolescents' perceived social position: associations with self-esteem and life satisfaction in the UK Millennium Cohort Study. *Arch Dis Child*. 2016 Oct;101(10):917-21.

- [25] Doornbos, J. (2018). The moderating role of subjective socioeconomic status on the relationship between objective SES and mental health problems in Dutch adolescents in times of economic crisis (2009-2013).
- [26] Smith, H. J. and Y. J. Huo (2014). "Relative deprivation: How subjective experiences of inequality influence social behavior and health." *Policy Insights from the Behavioral and Brain Sciences* 1(1): 231-238.
- [27] Smith, H. J., et al. (2011). "Relative deprivation: a theoretical and meta-analytic review." *Personality and social psychology review : an official journal of*
- [28] Fiske, S. (2011). "Envy up, scorn down: How status divides us." *Envy Up, Scorn Down: How Status Divides Us*: 1-240.
- [29] Tyler, T R. (2006), *Why People Obey the Law*, Princeton: Princeton University Press, 2021. <https://doi.org/10.1515/9781400828609>
- [30] Curhan, K. B., et al. (2014). "Subjective and Objective Hierarchies and Their Relations to Psychological Well-Being: A U.S./Japan Comparison." *Soc Psychol Personal Sci* 5(8): 855-864.
- [31] Castro, I. E., et al. (2020). "Race Differences in the Effect of Subjective Social Status on Hostility and Depressive Symptoms Among 9- to 11-Year-Old Children." *Journal of Racial and Ethnic Health Disparities*.
- [32] Theodossiou, I. and A. Zangelidis (2009). "The social gradient in health: The effect of absolute income and subjective social status assessment on the individual's health in Europe." *Economics & Human Biology* 7(2): 229-237.
- [33] Callan, M. J., Shead, N. W., & Olson, J. M. (2011). Personal relative deprivation, delay discounting, and gambling. *Journal of Personality and Social Psychology*, 101(5), 955-973
- [34] Kraus, M. W., Piff, P. K., Mendoza-Denton, R., Rheinschmidt, M. L., & Keltner, D. (2012). Social class, solipsism, and contextualism: How the rich are different from the poor. *Psychological Review*, 119(3), 546-572.
- [35] Kraus, M. W., et al. (2013). "Is the association of subjective SES and self-rated health confounded by negative mood? An experimental approach." *Health psychology* 32(2): 138.
- [36] Lundberg, O., Yngwe, M. A., Stjärne, M. K., Elstad, J. I., Ferrarini, T., Kangas, O., Norström, T., Palme, J., Fritzell, J., & NEWS Nordic Expert Group (2008). The role of welfare state principles and generosity in social policy programmes for public health: an international comparative study. *Lancet* (London, England), 372(9650), 1633-1640. [https://doi.org/10.1016/S0140-6736\(08\)61686-4](https://doi.org/10.1016/S0140-6736(08)61686-4)
- [37] Rostila, M. (2015). Gøsta Esping-Andersen: Welfare Regimes and Social Inequalities in Health. In *The Palgrave Handbook of Social Theory in Health, Illness and Medicine* (pp. 644-659). Palgrave Macmillan, London.
- [38] Schuck, B., & Steiber, N. (2018). Does intergenerational educational mobility shape the well-being of young Europeans? Evidence from the European Social Survey. *Social indicators research*, 139(3), 1237-1255.
- [39] Popham, F., Dibben, C., & Bambra, C. (2013). Are health inequalities really not the smallest in the Nordic welfare states? A comparison of mortality inequality in 37 countries. *J Epidemiol Community Health*, 67(5), 412-418.
- [40] Eikemo, T. A., Bambra, C., Judge, K., & Ringdal, K. (2008). Welfare state regimes and differences in self-perceived health in Europe: a multilevel analysis. *Social science & medicine*, 66(11), 2281-2295.
- [41] Esping-Andersen, G. (1990). The Three Political Economies of the Welfare State. *International Journal of Sociology*, 20(3), 92-123. Retrieved June 29, 2021, from <http://www.jstor.org/stable/20630041>
- [42] Bambra C. Going beyond the three worlds of welfare capitalism: regime theory and public health research. *J Epidemiol Community Health*. 2007;61(12):1098-1102. doi:10.1136/jech.2007.064295
- [43] Fenger, M. (2007). Welfare regimes in Central and Eastern Europe: Incorporating post-communist countries in a welfare regime typology. *Contemporary issues and ideas in social sciences*, 3(2), 1-30.
- [44] Kalmijn, M., & Saraceno, C. (2008). A comparative perspective on intergenerational support: Responsiveness to parental needs in individualistic and familialistic countries. *European Societies*, 10(3), 479-508.
- [45] Bohle, D., & Greskovits, B. (2007). Neoliberalism, embedded neoliberalism and neocorporatism: Towards transnational capitalism in Central-Eastern Europe. *West European Politics*, 30(3), 443-466.