

Exploring Subjective Income Inequality in Europe and MENA Regions

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Abstract. This article examines the relationship between income inequalities and attitudes toward them in Europe, the Middle East, and North Africa (MENA) regions, representing the world's most equal and unequal regions. Utilizing data from the joint European Values Survey - World Values Survey, World Income Inequality Database, and the Standardized World Income Inequality Database, the study uncovers significant differences in subjective inequalities between these regions and assesses the impact of internal income stratifications within societies. The key findings demonstrated significant differences in subjective inequalities between the European and MENA regions, which are not confirmed within the regions. Generally, there is a greater acceptance of income inequalities in MENA countries than in Europe. The results also revealed that in Europe, attitudes toward income inequalities are more diversified within income class stratification, with higher income classes tending to have a more positive attitude towards income inequalities than lower ones.

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1. Introduction

There has been a decrease in global income inequalities between countries in the last two decades, which has become the subject of substantial public debates (OECD, 2019; Milanovic, 2024). The dynamics of those processes have occurred in various ways. The most significant income inequality decreases were in Asian regions (Gradin, 2024; Milanovic, 2024), while other regions experienced increasing or stagnating income inequality. As a result, regions in the world differ regarding income inequality levels, with the Middle East and North Africa (MENA) being the most unequal and Europe being the most equal region worldwide (Piketty, 2020; Chancel et al., 2022).

In the case of the MENA region, high-income inequalities are linked to factors related to the vast concentration of oil resources (Moshrif, 2022) being transformed into sustainable financial resources via international markets (Dadush & Saoudi, 2019; Piketty, 2020). MENA countries are usually seen as regimes with violence, conflict, and lack of democracy (Boix, 2003; Knutsen & Rasmussen, 2018). Applying 2024 data from the Freedom House Organization, of the MENA countries covered in this study, only Lebanon, Morocco, and Tunisia are considered 'partly free'; the others are classified as 'not free' (Freedom House, 2024). Considering European countries, it is well-recognized that they are democratic (Boix, 2003) and free. Moreover, in Europe, welfare state regimes are crucial because they affect the outcomes of income inequalities (Esping-Andersen, 1990; Korpi & Palme, 1998). According to the Freedom House, only two post-socialist countries, i.e., Hungary and Ukraine, were classified as partly free (Freedom House, 2024).

The literature underlines that the perception of income inequality, instead of objective income inequality, predicts support for redistribution (OECD, 2021; Trump, 2023). The reason is that individuals not only make economic decisions based on available resources and their preferences but also on the perception of the role of the state in equalizing the income distribution and the expectations of the state to provide for (Knell & Stix, 2020). Perception of income inequalities, rather than objective income distribution differences, triggers migration decisions (Mazilli et al., 2024). Moreover, frustration or dissatisfaction with life is often linked more with negative attitudes toward income inequalities than objective ones (Schneider, 2019).

Given the above, scholars have analyzed how the objective level of inequality and people's subjective

perceptions of it are related, recognizing that attitudes toward income inequalities differ not only between societies (Redmond et al., 2002; Larsen, 2016) but also within societies (Curtis & Andersen, 2015). However, most authors focus on research in developed countries (OECD, 2021; European Commission, 2023), not developing ones. The rare examples are the World Bank studies focusing on the perception of income inequalities in developing countries such as Egypt (Verme et al., 2014) and Indonesia (Indrakesuma, 2015). Therefore, we identified the gap in comparing attitudes toward equality in income distribution between countries with significantly different levels of income inequality.

This study primarily aims to check if subjective income inequality is interrelated with the objective income inequality level in European and MENA regions. Considering that the income class perspective is essential in understanding how inequality and people's perceptions are associated (Gijsberts, 2002; Haddon & Wu, 2022), we add income class stratification to identify the diversity in attitudes towards income inequalities in income classes and compare it between the European and MENA regions.

The study is based on the joint European Values Survey - World Values Survey (2017-2022) database covering data regarding subjective income inequalities from an international perspective, including European and MENA countries (EVS, 2022; Haerpfer et al., 2022). The objective income inequality levels are taken from the World Inequality Database (WID) and the Standardized World Income Inequality Database (SWIID) using several measures of income inequality in income distribution. The methods applied in the study contain hierarchical classification of the objects (countries) and non-parametric test statistics for mean equality and stochastic independence of the variables of interest.

Based on the above, we formulated the following research questions:

- RQ1: Is there a statistically significant relationship between objective and subjective income inequality in the European and MENA regions?
- RQ2: Do the subjective income inequalities significantly differ between European and MENA regions?
- RQ3: Do the subjective income inequalities significantly differ between income classes in the European and MENA regions?

Our study contributes to the existing literature in several ways. Firstly, we address the discussion concerning the Sustainable Development Goals, i.e., SDG 10: *Reduced inequalities, which addresses inequalities within and among countries and calls for support for safe migration and social inclusion*. Given the observed differences between regions in the world, the monitoring of SDG 10 in an EU context revealed that European region had made significant progress toward reducing income inequalities (Giczi, 2024), while most countries in the MENA region have stagnated or even regressed regarding this goal (Göll et al., 2019). Secondly, our study covers two regions in the world with the highest differences in income inequalities. No previous study has compared subjective income inequalities from such a spatial and comparative perspective, not to mention that attitudes toward income inequalities in the MENA region have not been well recognized. Thirdly, exploration of the links between objective and subjective income inequalities from the perspective of income class stratification allows us not only to check if more vulnerable groups' aversion to income inequalities differs from the elites but also to formulate social policy recommendations regarding the reduction of income inequalities adjusted to region specificity, namely suitability for European and MENA region.

The paper is organized as follows. In Section 2, we provided a relevant literature review. In Section 3, data and methods are characterized. The results are described in section 4, while in section 5, the discussion and conclusion are presented.

2. Literature review – the links between subjective and objective inequalities

The literature on the relations between objective income inequalities and attitudes towards them presents ambiguous results. Most authors agree that measures of income inequalities are related to perceptions of income inequalities, mainly when relatively high inequality in income distribution is observed (Sealey & Andersen, 2015; OECD, 2021). Economic and political decisions of individuals depend on the perception of inequalities and the role of government in income distribution (Knell & Stix, 2020; Litwiński et al., 2023). The attitudes toward income inequalities differ both between societies and individuals within societies (Redmond et al., 2002; Kenworthy & McCall, 2008; Larsen, 2016). As socioeconomic conditions develop and

improve, people become more sensitive to societal inequalities (Tocqueville, 2000).

When the determinants of attitude toward income inequalities were analyzed - apart from education level (Knell & Stix, 2020) and unemployment rate (Bussolo et al., 2021) - mainly individuals' income is identified as necessary in perceiving income inequalities (Corneo & Grüner, 2002; Kuhn, 2020; Rueda & Stegmüller, 2020). In this vein, some researchers have also underlined that attitudes toward income inequalities are diversified between income classes (Gijssberts, 2002; Haddon & Wu, 2022). It means that individuals who regard themselves as belonging to lower social strata all show higher concern over income disparities (Haddon & Wu, 2022). When income class stratification is considered, the Roex et al. (2019) study revealed that individuals with a higher social position are more tolerant and dislike income inequality less than those in lower social positions.

On the contrary, other researchers suggest that individual perceptions of income inequality are primarily unresponsive to actual inequality conditions (Jetten et al., 2017; Trump, 2017). The reasons can be related to individuals' underestimation and unawareness of the extent of inequality in their society (McCall, 2013; Gimpelson & Treisman, 2018) or getting used to highly unequal income distribution (Trump, 2017; 2023).

In a national context, economic and political systems influence attitudes toward income inequalities (Jakobsen, 2011; Gugushvili & Reeves, 2021). However, subjective income inequalities do not necessarily reflect the type of welfare regime (Giangregorio, 2022). One of the determinants of attitudes towards inequality is a set of values people hold regarding the causes of inequality (Roex et al., 2019). If people perceive meritocracy as the fundamental determinant of income inequality, income inequalities are thought to be more easily legitimized (Hadler, 2005). For example, relatively weak meritocratic perceptions may explain a relatively high dislike for income inequality among Eastern European societies (Larsen, 2016). However, the study of Mijs (2019) revealed that the more unequal a society, the more likely its citizens are to explain success in meritocratic terms and the less critical they deem non-meritocratic factors such as a person's family wealth and connections. However, those concerned about income differences are more likely to support redistributive policies (Kelley & Zagorski, 2004; McCall & Kenworthy,

2009; Haddon & Wu, 2022). The logic is that those in a more precarious class tend to have much more to gain from increasing redistribution. In contrast, those in the most secure and prosperous class tend to benefit from significant income differences and thus are less supportive of equality (OECD, 2021).

Perceptions of inequalities are generated differently within various welfare regimes because sets of institutions based on informal, diverse equity-egalitarian preferences and formal regulations of redistribution may have a relevant role (Hadler, 2005; Bussolo et al., 2021). Esping-Andersen (1990) provided a useful typology concerning the welfare state regime theory, which helps to understand institutional reasons for the magnitude of income inequality and acceptance, differentiating social-democratic, conservative, and liberal welfare regimes. Social-democratic welfare states heavily emphasize social justice, by which less inequality in living conditions is understood. Conservative states give higher priority to social security than to social equality. Reduction of income inequalities per se is not a priority in liberal states. Many researchers attempted to supplement or broaden the scope of this classification (Gallie & Paugam, 2000; Whelan & Maitre, 2010; Eurofound, 2014), distinguishing post-socialist welfare states, which represent a concern for equality of living conditions and the preference for government intervention to achieve those results.

Having studied the trajectories of the welfare states in MENA countries, Eibl (2020) found dictatorship to be the main political regime. The standard Esping-Andersen categorization cannot be used to understand MENA's welfare states. Historical and current political contexts have played an important role in shaping the welfare state in MENA. Eibl (2020) identified two main groups in the region: high-spenders (Iran and Tunisia) and low-spenders (e.i., Iraq, Jordan, Egypt, Morocco, and Lebanon).

Recently, Hasanaj (2023) underlined that welfare regime classifications are limited to specific countries, regions, policies, or risks and noted that contemporary global welfare state patterns remain vague. Based on the classification of one-hundred-fifty countries, he demonstrated that contemporary welfare states follow systematically divergent paths, revealing Proactive, Reactive, and Dual patterns. In his analysis, MENA states are included in the Dual pattern group, putting equal efforts into tackling old and new social risks. However, subjective income inequality was not analyzed in his study.

3. Research data and methods

3.1. Data description

In our study, income inequalities are considered from objective and subjective perspectives through different measures of income inequalities and attitudes towards income inequalities presented by sharing particular economic and political values.

The selection of data for the analysis of the attitudes toward income inequalities was based on the survey that covers data regarding attitudes towards income inequalities from an international perspective, covering countries in one survey. For the research, the joint European Values Survey - World Values Survey (2017-2022) database, wave 7, was chosen (EVS, 2022; Haerpfer et al., 2022). It is the most exhaustive data related to different social and economic issues.

Thirty-three countries from European and MENA regions, whose citizens contributed to the survey, are analyzed in the study. The data are organized cross-sectionally and cover responses from the individual respondents. Among twenty-five European countries, Austria (1613), Bulgaria (1516), Croatia (1466), Cyprus (981), Czechia (2957), Denmark (3299), Estonia (1231), Finland (1175), France (1823), Germany (3609), Great Britain (4335), Greece (1163), Hungary (1494), Latvia (1269), Netherlands (4320), Norway (1117), Poland (1332), Portugal (1187), Romania (2828), Slovakia (2605), Slovenia (1057), Spain (1178), Sweden (1185), Switzerland (3125), and Ukraine (2806), were included (respondents' number was provided in parentheses). MENA group was represented by eight countries: Egypt (1192), Iran (1490), Iraq (1200), Jordan (1201), Lebanon (1196), Libya (1034), Morocco (1200), and Tunisia (1202), where respondents' number was provided in parentheses respectively.

While other authors consider only acceptance of income inequality (Czerniak et al. 2018), perceived income inequality (Knell & Stix, 2020), or demand for redistribution (Bussolo et al., 2021) in our study responses to four questions related to subjective income inequalities are examined: (1) the attitudes towards income inequalities, (2) the state's role in providing individuals with financial security, and (3 and 4) the importance of the redistributive role of government for sustainable democracy. The details are presented in Table 1. All the variables are stimulants in the sense that the higher the value, the more positive the attitude toward income inequalities. This is shown as more incentives for individual action and fewer expectations that the

Table 1. Measuring subjective income inequalities based on questions from EVS/WVS

Variable name	Question number (in the survey)	Question's description	Scale (ten points scale)
INC_INEQ	Q106	Attitudes towards income inequalities	1 - incomes should be more equal; 10 - there should be greater incentives for individual effort
GOV_RESP	Q108	Government responsibility for the financial security of individuals	1 - the government should take more responsibility to ensure that everyone is provided for; 10 - people should take more responsibility to provide for themselves
DEM_TAX	Q 241	The government taxes the rich and subsidizes the poor	1 - essential for democracy; 10 – not at all an essential characteristic of democracy*
DEM_EQUAL	Q 247	The state makes people's income equal	1 - essential for democracy; 10 – not at all an essential characteristic of democracy*

*Inverted scale.

Source: own study

state should take care of the individual's financial security. Income equalization by the state is not a key feature of democracy.

3.2. Research methods

The methodology used in the paper relates to classification analysis and statistical testing. The following methods were applied.

1. The hierarchical classification distinguishes groups of countries with low and high-income inequalities within Europe and MENA. The portioning method used in the research is agglomerative, based on a concept of Squared Euclidean distance and clustering by similarity aggregation, allowing the algorithm to determine the optimum numbers of clusters automatically (Tuffery, 2011).
2. Income class stratification. Following the economic approach to class stratification (Vaughan-Whitehead, 2020), we apply the income-based approach. The study considered five income classes: low-income, lower middle-income, core middle-income, higher middle-income, and high-income class. Based on the European Values Survey - World Values Survey (2017-2022) database wave 7 (EVS, 2022; Haerpfert et al., 2022), we merged ten income groups (respondents assigned themselves based on their income) into five groups that reflected standard income classes (i.e., low-income class, lower-middle, core- middle, upper- middle, and high-income class).
3. Testing for consistency of variables with normal distribution (Kolmogorov-Smirnov test, see Marsaglia et al. 2003).
4. Having established the homogenous groups of countries or income classes (strata), we applied statistical tests to test the differences between one variable observed in two samples. These are parametric Z and non-parametric: Mann-Whitney U and Wilcoxon W statistics (Aczel, 1996). Finally, to check if subjective income inequalities differ between income classes in Europe and MENA regions, the Kruskal Wallis test was applied.
5. For Independence and correlation analysis, we applied the chi-squared independence test to decide any relationship between variables of interest. Spearman's rho rank correlation coefficient was used to analyze the relations between objective and subjective inequality measures. All coefficients were tested for statistical significance (Aczel, 1996).

4. Results

The results refer to different dimensions of inequality, starting from objective and subjective inequality measures observed at the country group level, then within the groups of countries, and finally delimited according to the income class level (income strata). We present the report in subsections without numbering to make it as straightforward as possible.

4.1. Objective and subjective income inequalities – a comparison

Income inequalities based on all the objective measures reveal higher income inequalities in MENA than in European countries, particularly income concentration, in the top tail of income distribution. The share of the top 10% is almost 15 percentage points higher in MENA than on average in European countries. Similarly, a more than two times higher ratio of s90_s50 reflects that the top decile has almost two times higher share in total income than the bottom 50% in MENA than in the European countries group. Interestingly, the top 1% comparison shows a lower difference between Europe and MENA than the other measures. The results are presented in Figure 1 and Table A2 (in the Appendix).

Based on four measures of subjective income inequalities, as defined in Table 1, the acceptance of income inequalities in MENA countries is more favorable. This means that, on average, people from highly unequal countries prefer more incentives for individual action and, to a lesser extent, expect the state to take care of the individual's financial security than European countries. Moreover,

taxation of the rich and income equalization by the state are, to a lesser extent, considered essential features of democracy from the perspective of MENA countries' inhabitants. The descriptive statistics based on the entire sample of individual responses (51,972 in Europe and 9,906 in MENA) are presented in Figure 2 and Table A3 (in the Appendix). Additionally, to illustrate the issue, the share of individual responses on a scale of 1-10 to the question about income inequality (INC_INEQ) is presented in Figure A1 (in the Appendix). It can be observed that more than 10 percent points of respondents in Europe than in the MENA region are concerned that income distribution should be more equal (answers 1-5; Figure A1 in the Appendix).

Additionally, we checked the variables of perceived inequality (i.e., INC_INEQ, GOV_RESP, DEM_EQUAL, and DEM_TAX) for normality using the Kolmogorov-Smirnov test. It is typically required when parametric test statistics are used. The results for Europe and MENA did not confirm that the distribution of answers can be perceived as normal. Therefore, the methodology based on the Spearman correlation coefficient and non-parametric tests is justified. The details are presented in Table A1 in the Appendix.

The relationships between objective and subjective measures with Spearman correlation were examined to address the first research question. The results are presented in Table 2.

It can be seen from the table that all subjective measures of income inequality are correlated with the objective ones, being significant at a 10% significance level, while the relatively highest values refer to DEM_EQUAL (the state makes people's income equal).

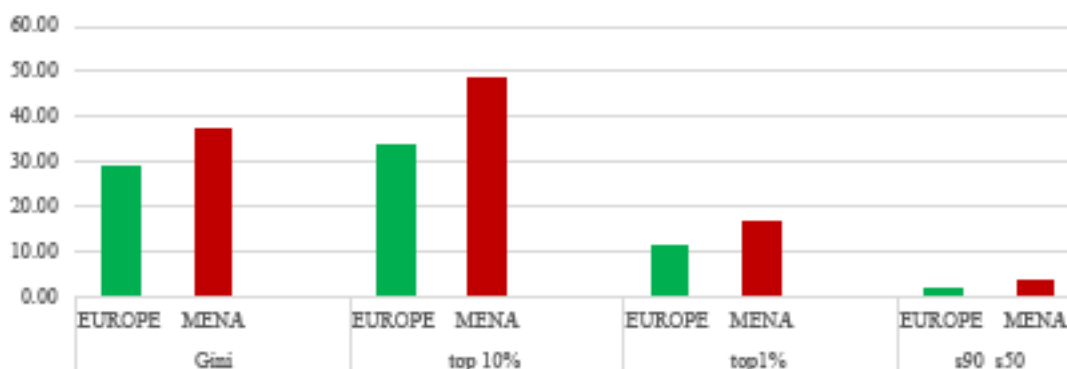


Fig. 1. Objective income inequalities (average measures) in Europe and the MENA

Source: own study

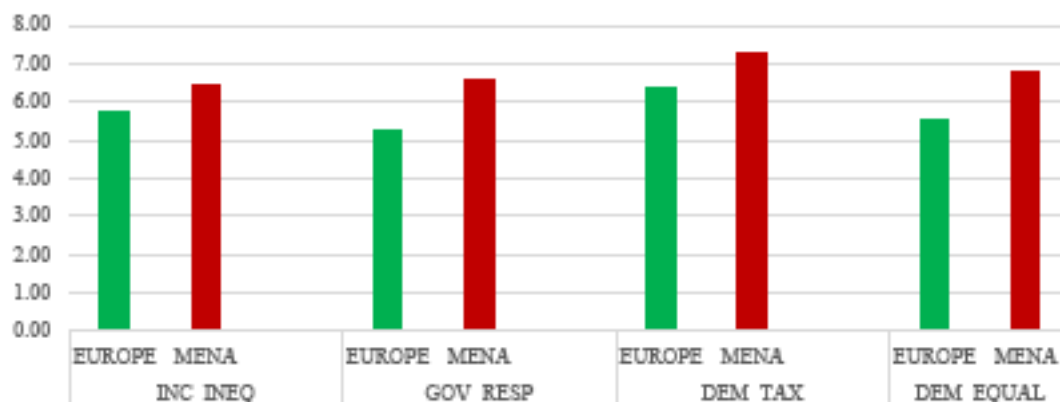


Fig. 2. Subjective income inequalities (average measures) in European and MENA regions
Source: own study

Table 2. Spearman's correlation between subjective and objective measures of income inequalities

Corelation	top 10%	Gini	s90_s50	INC_INEQ	GOV_RESP	DEM_EQUAL	DEM_TAX
top 10%	--						
Gini	0.848**	--					
s90_s50	0.982**	0.869**	--				
INC_INEQ	0.388*	0.377*	0.383*	--			
GOV_RESP	0.356*	0.396*	0.360*	0.453**	--		
DEM_EQUAL	0.429*	0.349*	0.424*	-0.048	0.205	--	
DEM_TAX	0.385*	0.368*	0.390*	0.178	0.312	0.504**	--

Note: *, **, and *** denote that the relationship is statistically significant at 10, 5, and 1%, respectively.

Source: own study

4.2. Subjective inequalities perception – a comparison between Europe and MENA

To check if subjective income inequalities significantly differ between the groups, we tested the hypothesis that differences in the perception of inequality between European and MENA regions do not exist. Statistical analysis is based on the Mann-Whitney U and Wilcoxon Z tests (Table 3). The results refer to all subjective income inequalities measurements.

It has been confirmed that a considerable difference exists in income inequality perception between Europe and MENA.

4.3. Classification of countries according to objective inequality measures

The next step of our analysis was to cluster the European and MENA countries regarding objective measures and check if the perception of income inequalities significantly differs. The dendrograms (Figure 3) were built using hierarchical cluster analysis using Ward linkage in SPSS Software. The 25 countries under the study of European countries and 8 MENA countries were grouped into clusters based on three predictors describing the objective measures of income inequalities, namely Gini, Top10% share, and s90_s50 indicators (Table A2). The two groups were distinguished in Europe, and based on the distance between clusters observed on the dendrogram, two were in MENA. The tree diagram was cut at a level where the height of the branches was considerable.

Table 3. Perception of inequalities – the difference between Europe and MENA

H₀: There are no differences in perceptions of inequality between Europe and MENA				
	GOV_RESP	INC_INEQ	DEM_TAX	DEM_EQUAL
Mann-Whitney U	32.000	46.000	25.500	28.500
Wilcoxon W	357.000	371.000	61.500	64.500
Z	-2.,57	-2.270	-3.130	-3.005
P value	0.004	0.023	0.002	0.003

Source: own study

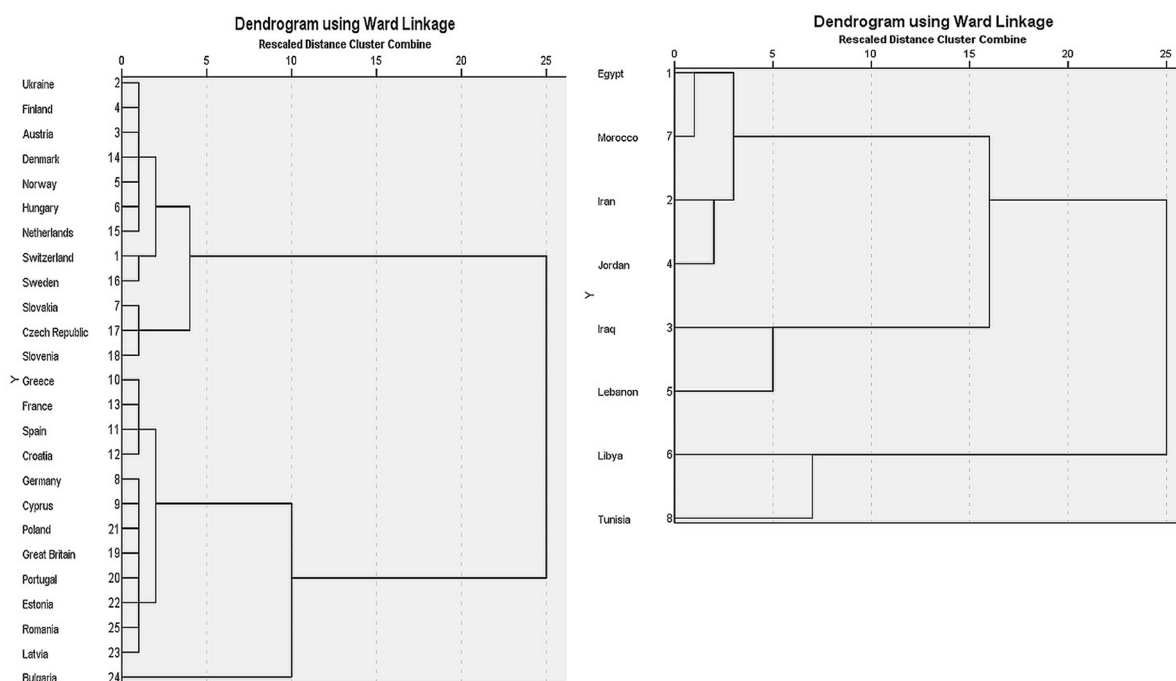
Table A4 (in the Appendix) presents the mean values of objective and subjective inequality measures according to the groups of countries diversified regarding the measures. Group I in Europe corresponds to more equal countries. In MENA, Group 2 refers to more equal countries, whereas only two countries, Libya and Tunisia, are included. It is worth noting that Tunisia is viewed as a good performer in reducing income inequality. The Gini index reached 33.7 in 2021.

Then, the perception of subjective income inequalities was compared between the subgroups in Europe and MENA, as reported in Figure 4 and Table A4 (Appendix). The data are based on individual responses. The results of the Mann-Whitney U and Wilcoxon Z tests (Table 4) show no statistically significant differences between subgroups of European countries. Also, the differences between

the subgroups of MENA countries do not exist in any dimensions of subjective income inequalities. That means that Europe and MENA are homogenous in terms of subjective income inequality.

4.4. Income stratification and perception of inequalities in Europe and MENA

To enhance the analysis, we employed an economic approach to class stratification. Using data from the EVS-WVS (EVS, 2022; Haerpfer et al., 2022) on the income groups, we categorized the population into five income classes. This classification, consistent with the approach outlined by OECD (2019) and Vaughan-Whitehead (2020), grouped individuals into low-income, lower-middle-income, core-middle-income, upper-middle-income, and

**Fig. 3.** Hierarchical classifications of European (left-hand side) and MENA countries (right-hand side) regarding objective income inequalities

Source: own study

Table 4. Perception of inequalities – the difference within the groups in Europe and MENA

Test	EUROPE				MENA			
	GOV_RESP	INC_INEQ	DEM_TAX	DEM_EQUAL	GOV_RESP	INC_INEQ	DEM_TAX	DEM_EQUAL
Mann-Whitney U	62.000	76.000	60.000	75.000	5.000	5.000	4.000	4.000
Wilcoxon W	140.000	167.000	138.000	166.000	26.000	8.000	25.000	7.000
Z	-0.870	-0.109	-0.979	-0.163	-0.333	-0.333	-0.667	-0.667
P value	0.384	0.913	0.328	0.870	0.739	0.739	0.505	0.505

Source: own study

high-income classes. Given that an alternative – sociological approach to class stratification incorporates occupation as a class identification criterion (Erikson & Goldthorpe, 1992; ILO, 2022), we further developed the concept of class stratification by including information on the educational and occupational composition of the various income classes in Europe and the MENA regions, as presented in Table A5 in the Appendix. When Europe shows a stronger alignment between higher education and higher income levels, in MENA, individuals with lower or middle education are still in upper-income classes. Moreover, professional and administrative roles dominate Europe's high-income classes, while in MENA, occupations are more evenly distributed, with a notable presence of farm-related work and service occupations (see Table A5 in the Appendix).

Subsequently, we examined whether subjective perceptions of income inequality varied across these income classes within Europe and the MENA regions.

Table 5 shows the mean values of responses representing attitudes towards income inequalities regarding income class stratification and presents differences in the attitudes towards income inequalities between defined income classes, namely the low, lower middle, core middle, upper middle, and high-income classes. The results reveal inequality views follow the class gradient. In Europe, the results showed the higher the income class, the more positive attitude toward income inequality

in Europe (INC_INEQ). However, no such trend was observed in the MENA countries group. Moreover, in Europe, greater inequality aversion than in MENA was identified in all income classes. Interestingly, when it comes to the perception of the role of government that individuals are provided for, the lower the income class, the more people from the bottom of the income distribution concern themselves with providing for themselves in both regions. However, when comparing both regions, the mean of GOV_RESP is higher in each income class in MENA than in EUROPE, demonstrating that individuals from MENA believe more that individuals should be responsible for themselves. In the case of the perception of income inequality, from the perspective of characteristics of democracy, in both questions (DEM_TAX and DEM_EQUAL), the higher the income class, the more people were concerned that the state's role in decreasing income inequalities is not an essential characteristic of democracy. Higher concern for this is observed more in Europe than in MENA. However, in MENA, there is less concern that equalizing income distribution is an essential characteristic of democracy.

Taking the income classes, we checked the distribution of the subjective inequality variables using the Kruskal-Wallis test. The results demonstrated that the distribution of subjective income inequality varies between income classes in Europe and MENA in all dimensions of subjective income inequalities (Table 6).

Table 5. Attitudes towards income inequalities in income classes in Europe and MENA regions – mean values

Income class	INC_INEQ		GOV_RESP		DEM_TAX		DEM_EQUAL	
	Europe	MENA	Europe	MENA	Europe	MENA	Europe	MENA
Low	5.3	6.4	5.6	7.3	3.3	2.4	3.9	2.9
Lower middle	5.6	6.1	5.5	6.5	3.4	2.7	4.2	3.1
Core middle	5.8	6.7	5.3	6.7	3.5	2.8	4.4	3.2
Upper middle	5.9	6.7	5.0	6.2	3.6	2.8	4.7	3.4
High	6.2	6.6	4.5	5.6	3.6	3.2	5.4	3.3

Source: own study

Table 6. Kruskal-Wallis test results

H0: The distribution is the same across all income classes in:	Variables							
	INC_INEQ		GOV_RESP		DEM_TAX		DEM_EQUAL	
	Statistics	p-value	Statistics	p-value	Statistics	p-value	Statistics	p-value
EUROPE (N=50671)	469.74	<0.001	825.44	<0.001	122.15	<0.001	866.96	<0.001
MENA (N=9715)	70.37	<0.001	155.41	<0.001	51.79	<0.001	41.21	<0.001

Source: own study

Finally, we tested for statistical independence between subjective income inequality and income class affiliation in Europe and MENA regions. The idea is related to determining the association between the corresponding variables. Pearson's chi-squared test statistics were used with corresponding p-values. All results (with an exemption for GOV_RESP in the high-income class in MENA) indicated a significant relationship. The results of the testing are presented in Table 7.

The results confirmed that income strata determine the perception of income inequalities in terms of inequalities themselves, government responsibility for the financial security of individuals, and the state's role in income redistribution.

5. Discussion and conclusions

The research explored the differences in how people perceive income inequalities in the European and MENA regions, which are the most equal and unequal regions in the world. While most of the focus is on objective income inequalities and their consequences (OECD, 2019; Piketty, 2020), it is subjective income inequality that affects not only different aspects of an individual's life, i.e., life satisfaction (Schneider, 2019), migration decisions (Mazilli et al., 2024) but also trust and expectations toward government to implement redistribution policies (Przeworski et al., 2000). Our study aimed to fulfill the identified gap by exploring and comparing the relationships between objective and subjective inequalities, also applying income class stratification in the European and MENA regions.

The conducted analysis successfully addressed all the research questions. Regarding RQ1, we identified statistically significant correlations between subjective and objective measures of income inequality, including all the dimensions of subjective and measures of objective inequalities considered. Referring to RQ2, our findings reveal distinct and meaningful variations in attitudes towards income inequality among countries with the lowest and highest levels of objective income

inequalities globally, namely Europe and MENA. Notably, significant differences were observed between European and MENA countries; however, no significant differences were detected within each region when comparing subjective inequality in each dimension in the groups of countries based on hierarchical classification. This suggests homogeneity within each region regarding the acceptance of income inequalities.

It should be noted that in our study, a multidimensional approach to studying subjective inequalities was applied. For example, it considers not only the attitudes toward income inequalities of individuals but also how they are viewed from the perspective of characteristics of democracy. Given that such a study was conducted in the two regions, including free and democratic states, i.e., Europe, and mostly not free and autocratic states, i.e. MENA, this context is particularly interesting because democracies and autocracies typically alter individuals' subjective inequality in different ways (Boix, 2003). Our results align with Gugushvili and Reeves (2021), who revealed that democracies (as opposed to autocracies) are more inclined to frame inequalities negatively rather than positively. Inequality tends to be lower in democracies than in autocracies, but people also appear to be more worried about the gaps between the rich and poor in democracies (Gugushvili & Reeves, 2021). Democracies do a better job than autocracies in reducing income inequality. Low income inequality is even understood as an intrinsic characteristic of democracy (Coppedge et al., 2011). However, subjective income inequalities are less recognized in MENA than in Europe. Recently, the findings of Panaro and Vaccaro (2022) revealed that political institutions and higher state capacity led to lower income inequalities in authoritarian contexts.

What people believe about the level of inequality and whether inequality is good or bad is informed by various factors, such as socioeconomic position. The analysis of income class stratification applied in our study revealed that attitudes toward income inequality and preferences for redistribution varied significantly across different income classes (RQ3). Higher-income classes tend to have more

Table 7. The results of testing for the relationship between subjective inequality measures (INC_INEQ, GOV_RESP, DEM_STATE, DEM_TAX) and income class affiliation in Europe and MENA, and in European and MENA groups (Pearson's chi-square test results)

Region/Group	Income group	Variable								N
		INC_INEQ		GOV_RESP		DEM_STATE		DEM_TAX		
		Statistics	p-value	Statistics	p-value	Statistics	p-value	Statistics	p-value	
EUROPE and MENA	All classes	1976.98	<0.001	4542.09	<0.001	1575.82	<0.001	1473.29	<0.001	55559
	Low	540.36	<0.001	951.25	<0.001	259.70	<0.001	346.20	<0.001	8349
	Lower middle	233.64	<0.001	673.05	<0.001	296.78	<0.001	230.36	<0.001	12262
	Core middle	770.77	<0.001	1455.09	<0.001	506.41	<0.001	420.41	<0.001	14225
	Upper middle	347.24	<0.001	654.81	<0.001	305.85	<0.001	292.33	<0.001	9156
	High	214.15	<0.001	345.72	<0.001	292.08	<0.001	188.06	<0.001	5398
EUROPE; groups 1 and 2	All classes	696.90	<0.001	717.40	<0.001	211.90	<0.001	144.52	<0.001	45858
	Low	62.07	<0.001	55.94	<0.001	28.01	0.002	27.97	0.002	7048
	Lower middle	229.75	<0.001	137.27	<0.001	88.81	<0.001	40.14	<0.001	9643
	Core middle	192.92	<0.001	311.11	<0.001	154.90	<0.001	81.75	<0.001	10374
	Upper middle	152.58	<0.001	142.27	<0.001	61.23	<0.001	36.25	<0.001	7640
	High	75.51	<0.001	106.93	<0.001	32.60	<0.001	34.61	<0.001	5124
MENA; groups 1 and 2	All classes	125.58	<0.001	102.43	<0.001	320.27	<0.001	331.41	<0.001	9701
	Low	58.24	<0.001	72.65	<0.001	51.54	<0.001	88.72	<0.001	1301
	Lower middle	20.78	0.014	86.58	<0.001	66.44	<0.001	65.95	<0.001	2619
	Core middle	56.58	<0.001	29.63	<0.001	173.29	<0.001	148.01	<0.001	3851
	Upper middle	50.13	<0.001	27.34	0.001	67.92	<0.001	59.33	<0.001	1516
	High	26.25	0.002	6.84	0.653	24.35	0.007	27.87	0.002	274

Source: own study

positive attitudes toward income inequalities. More pronounced egalitarian preferences are observed in Europe, which has the lowest inequality globally. This supports the Tocqueville paradox, demonstrating a significant positive relationship between attitudes toward income inequality and income levels in European countries. Moreover,

higher equality observed in democratic and free country groups correlates with lower acceptance of income inequality, which is consistent with Gugushvili and Reeves (2021). These results align with the findings of Sachweh and Olafsdottir (2012), who noted that individuals in higher socioeconomic positions view stratification more positively and are

less likely to support egalitarian stratification than those in lower socioeconomic positions. Our study showed that individuals from different countries and regions form beliefs about inequalities against some economic and systemic background, which permeates the societies in which they live. Political systems, for example, democracies and autocracies, reinscribe those values in everyday convictions and actions (Gugushvili & Reeves, 2021).

The study's findings have significant policy implications. To address income inequalities, governments should implement integrated policies that empower the most vulnerable groups. Policymakers must consider both subjective attitudes and objective measures of inequality, especially given the higher tolerance for inequality among wealthier classes. Class-targeted policy interventions are particularly crucial in the European region, where the income-class gradient was observed to a greater extent. Undertaking policy interventions to reduce income inequalities is particularly important for highly unequal MENA countries, where progress toward sustainable income growth remains stagnant (SDG 10). For instance, Target 10.1 of SDG 10, which aims for income growth of the bottom 40% to exceed the national average, has not been achieved in the MENA region, leading to a widening divide, unlike in Europe, where sustainable reduction in income inequality has been observed (United Nations, 2023).

The study is based on a comprehensive data set taken from reliable sources. However, the respondents do not represent all the European and MENA countries. This is particularly severe in the case of the MENA region, where many countries are omitted for different reasons. This limitation of the study is challenging to overcome nowadays.

Moreover, this study limits class stratification to an economic approach. While the respective income classes were analyzed in terms of educational levels and occupational groups, these criteria were not directly utilized in the analysis. Future research could expand on this by incorporating additional stratification criteria, such as education levels or occupational categories, and employing alternative methodologies, such as logit models, to explore whether different stratification frameworks influence the perception of income inequalities. Furthermore, future studies should investigate the cultural and socioeconomic factors that shape attitudes toward income inequality, including regional variations in the relationship between subjective income inequalities and life satisfaction. An additional area for future research is the analysis of how the perceptions of income inequalities have evolved in

the post-COVID-19 pandemic period, particularly in light of the increase in objective income inequality during this time.

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Appendix

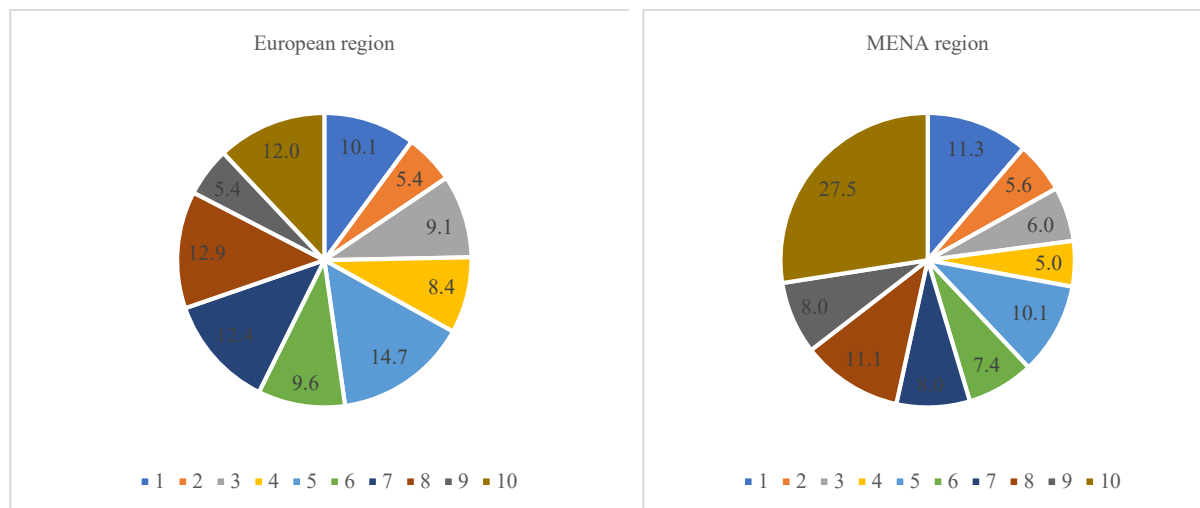


Fig. A1. The structure of the answers to the question about attitudes towards income inequalities (INC_INEQ)

Note: The data structure related to GOV_RESP, DEM-EQUAL, and DEM_TAX is not presented to save space. It is available on request.

Source: own study

Table A1. The results of the Kolmogorov-Smirnov test for normality

Country Group	Variable	INC_INEQ	GOV_RESP	DEM_EQUAL	DEM_TAX
Europe and MENA	Statistic	0.108	0.094	0.141	0.108
	df	53352	53352	53352	53352
	P value	<0.001	<0.001	<0.001	<0.001
Europe	Statistic	0.108	0.107	0.101	0.133
	df	43950	43950	43950	43950
	P value	<0.001	<0.001	<0.001	<0.001
MENA	Statistic	0.150	0.157	0.142	0.184
	df	9402	9402	9402	9402
	P value	<0.001	<0.001	<0.001	<0.001

Source: own study

Table A2. Objective measures of income inequalities in the European and MENA countries – a summary

Country group/ number of countries	Measure of inequality	Source	Min	Max	Mean	Standard deviation
EUROPE/ 25	Gini coefficient	SWIID*	22.90	38.40	29.02	3.52
	the share of the top 10%	WID**	27.24	44.94	33.82	3.67
	the share of the top 1%	WID**	7.55	19.85	11.15	2.51
	s90_s50	Own calculations based on WID**	1.12	2.91	1.71	0.39
MENA/ 8	Gini coefficient	SWIID*	32.50	41.00	37.13	3.01
	the share of the top 10%	WID**	41.37	54.17	48.57	4.19
	the share of the top 1%	WID**	10.91	20.53	16.77	3.37
	s90_s50	Own calculations based on WID**	2.59	5.41	3.69	0.89

* The Standardized World Income Inequality Database (Solt, 2019).

** World Income Inequality Database (WID, 2023).

Source: own study

Table A3. Subjective income inequalities in Europe and MENA - a summary

Country group/ respondents' number	Variable name	Min	Max	Mean	Std. Deviation
EUROPE/ 51,872	INC_INEQ	4.81	7.53	5.73	0.67
	GOV_RESP	4.11	7.28	5.25	0.77
	DEM_TAX	5.17	7.51	6.36	0.62
	DEM_EQUAL	3.24	7.15	5.56	0.93
MENA/ 9,906	INC_INEQ	4.72	7.96	6.46	0.91
	GOV_RESP	3.11	8.46	6.61	1,64
	DEM_TAX	6.25	7.93	7.29	0.52
	DEM_EQUAL	6.09	7.38	6.79	0.56

Source: own study

Table A4. Objective and subjective income inequalities in European and MENA region subgroups – mean values

Income inequalities measures	Variables	EUROPE	MENA	EUROPE	MENA
		Group 1 (12 states)	Group 2 (13 states)	Group 1 (6 states)	Group 2 (2 states)
Objective	Gini	26.3	31.5	37.7	35.5
	Top 10%	31.1	36.3	50.5	42.7
	s90_s50	1.4	2.0	4.0	2.7
Subjective	INC_INEQ	5.7	5.8	6.4	6.5
	GOV_RESP	5.1	5.4	6.5	7.0
	DEM_TAX	6.5	6.3	7.4	6.9
	DEM_EQUAL	5.4	5.7	6.9	6.6

Source: own study

Table A5. Structure of income classes in European and MENA regions in terms of occupational groups and educational level - % within the income class

Region	Income Class	Occupational group - % within the income class											Educational level - % within the income class		
		Professional and technical	Higher administrative	Clerical	Sales	Service	Skilled worker	Semi-skilled worker	Unskilled worker	Farm worker	Farm owner	Lower	Middle	Upper	
EUROPE	Low	8.7	0.8	10.6	10.4	10.7	14.8	12.5	20.3	8.2	8.2	35.9	45.5	18.7	
	Lower middle	14.9	2.3	14.3	10.4	12.4	17.1	12.7	11.2	3.2	3.2	27.5	46.2	26.3	
	Core middle	20.2	4.4	17.8	11.5	12.4	16.9	8.4	5.1	1.5	1.5	17.6	46.2	36.2	
	Upper middle	33.8	8.8	17.6	9.0	9.1	11.8	4.3	2.8	1.3	1.3	11.4	39.5	49.1	
	High	45.9	18.0	13.8	7.9	5.1	3.7	2.5	1.9	0.4	0.4	6.9	29.4	63.7	
MENA	Total	22.8	5.3	16.0	10.4	11.2	14.5	8.6	7.3	2.4	2.4	22.3	42.3	35.4	
	Low	10.9	2.3	9.1	11.5	10.6	12.2	14.1	18.1	9.0	9.0	51.2	32.2	16.6	
	Lower middle	15.5	3.1	13.2	16.1	11.4	10.1	9.8	12.6	6.4	6.4	44.9	31.4	23.7	
	Core middle	22.8	3.2	16.7	15.9	11.3	9.5	7.5	6.3	5.6	5.6	32.1	35.9	31.9	
	Upper middle	27.2	7.1	17.2	19.4	11.4	6.2	4.4	2.6	4.2	4.2	21.3	33.1	45.6	
	High	29.3	8.6	16.2	17.2	8.1	6.6	4.5	4.0	5.1	5.1	23.0	32.0	45.0	
	Total	20.5	3.9	14.9	15.9	11.1	9.2	8.4	8.6	6.1	6.1	36.3	33.7	30.0	

Source: own study

