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Inequality and Life Satisfaction in Low- and Middle-Income Countries: The Role of Opportunity

Teresa Maria García-Muñoz [1,*], Juliette Milgram-Baleix [2] and Omar Odeh-Odeh [2]

[1] Department of Quantitative Methods for the Economy and Business, Faculty of Economics and Business, University of Granada, 18011 Granada, Spain
[2] Department of Theory and Economic History, University of Granada, 18011 Granada, Spain; jmilgram@ugr.es (J.M.-B.); omodjod@correo.ugr.es (O.O.-O.)
* Correspondence: tgarciam@ugr.es

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Abstract: This study delves into the relationship between income inequality and subjective well-being by gauging the role played by opportunities at the country level. Using data from the World Value Survey, we estimate multilevel models to explain cross-country differences in individuals' life satisfaction. Opportunity and inequality exert a significant effect *per se* on life satisfaction, and their joint effect explains the puzzling positive relationship between income inequality and life satisfaction in low- and middle-income countries. Income inequalities reduce the well-being of individuals if opportunities are low, but inequality is not relevant for life satisfaction if opportunities in the country are high. Among the aspects of opportunity that really matter, we show that inclusiveness and access to advanced education play a more major role than political freedom or personal rights. Results apply for different social, income, and education groups.

Keywords: life satisfaction; subjective well-being; income inequality; opportunity

1. Introduction

Extant research in recent years has questioned whether inequalities really matter for life satisfaction, apart from ethical reasons. The issue is important because adverse effects of inequality on well-being provide a major rationale for redistribution policies. However, if citizens care more about other factors, then priority should be given to other issues. Empirical studies seem to converge to the conclusion that national income inequality harms [1–3] or is irrelevant [4,5] to the subjective well-being (SWB) of individuals in developed countries in ordinary circumstances. Nonetheless, there is recent growing literature focusing on developing countries that suggests inequality exerts either a neutral effect [6] or a positive effect on SWB [4,7–10]. Other researchers also report a positive relationship in a mixed sample of developed and developing countries [11,12]. The empirics for developed countries appear clear enough or, at least, respond to different functioning from the one operating in developing countries. In turn, further research is needed to understand why more inequalities would make individuals living in developing countries more satisfied.

The negative impact of inequality on life satisfaction (LS) has been justified by different approaches, which we will further develop later on. In an economic framework, the income of individuals is expected to be inversely related to the income of other individuals (Easterlin [13]). In a sociological framework, the deprivation hypothesis [14] suggested that individuals feel deprived if they observe that others are better off. Additionally, (rising) inequalities would bring about indirect negative effects such as political instability, social distrust, status anxiety, alteration in the perceptions of justice, and social status. Notwithstanding, the reason why income inequality would make individuals more satisfied with their lives remains an intriguing issue. An attractive rationale can be found in the "tunnel

hypothesis" proposed by Hirschman and Rothschild [15]. The authors argue that societies experiencing rapid development may initially show tolerance for higher inequality because they interpret it in terms of greater opportunities. Several studies have suggested that income inequality may have a positive effect on Life Satisfaction (LS), in particular, if it is perceived as a positive signal of moving up the socioeconomic ladder [4,16,17] and for individuals who believe that hard work pays off [2]. Therefore, the relationship between income inequality and SWB could be related to the perception of social mobility [1,18] or the perception of fairness [11]. For Europe, Ravazzini and Chávez-Juárez [19] tackled the issue more directly by computing an index of inequality of opportunity. The authors stressed the positive impact of inequality of opportunity on LS of individuals from the upper class, meaning that equality of chances would threaten their status.

The relationship between inequality and SWB may well be based on perceptions of the environment [2,11,20–22], rather than on a rational reaction to economic outcomes precisely assessed. In particular, the SWB of individuals may be influenced by social inequalities, in other words "socially produced differences in life chances", and not only by income inequalities as suggested by Veenhoven [23], or by personal freedom as pointed out by Haller and Hadler [8] and Beja [2]. We take this road and advocate using an indicator that takes into account socioeconomic factors that make it possible for people to meet their potential. Indeed, we argue that the context that enhances people to climb the social ladder based on their own merits is not well accounted for by economic freedom but is more related to social or political aspects, which are better captured by the Opportunity Index provided by the Social Progress Imperative. Following Porter et al. [24], this context refers to different areas: personal rights, personal freedom and choice, inclusiveness, and access to advanced education. People may dislike inequality if they suffer from it, or when they consider incomes are not based on merits, but could be more tolerant if they have prospects of improving their life conditions. This study tackles a similar issue to Ravazzini and Chávez-Juárez [19] for Europe, however, for a sample of developing countries. Here, we test how differences in social opportunities between countries explain why individuals living in more unequal countries would be more satisfied. To this end, we estimate multilevel models with data from the last wave of the World Value Survey (WVS) for 25 low- and middle-income countries.

Results confirm that the standard characteristics of individuals significantly explain variations in the life satisfaction of the individuals across countries, while other macroeconomic indicators, such as country income and growth, are not significant. In addition, opportunity and inequality exert significant positive effects *per se* on LS, and their joint effect is highly significant and explains the puzzling positive relationship between income inequality and life satisfaction. More precisely, income inequality reduces the well-being of individuals if opportunities are low, while inequality is not relevant for life satisfaction if opportunities in the country are high. Among the aspects of opportunity that really matter, we show that inclusiveness and access to advanced education play a more major role than political freedom or personal rights. Once we take into account these macroeconomic indicators, inequality affects, in the same manner, the life satisfaction of individuals from different social status, income groups, and education groups.

The study proceeds as follows: Section 2 describes the background, the empirical strategy is explained in Section 3, Section 4 presents the results, and concluding remarks are drawn up in Section 5.

2. Literature Review: Income Inequality and Subjective Well-Being

In recent years, researchers have paid increasing attention to the factors that may determine the SWB of individuals, measured by either life satisfaction or happiness. The empirical literature on the relationship between income inequality and SWB have reached inconclusive findings (see Table A5). Long before, economists questioned whether money brings happiness or not. The Easterlin paradox states that increasing the income of all does not increase the happiness of all, a finding confirmed by Easterlin et al. [25] for developed and developing countries. As pointed out by Easterlin [13], what matters for individuals' happiness is the relative terms rather than the absolute terms because

happiness is directly determined by one's own income and inversely with others' incomes. The social comparison indeed dominates the well-being of individuals and their decisions [26], implying that individuals in a society have their own social preferences and compare their utility levels with those of others [27]. From a sociological perspective, the deprivation theory, introduced by Runciman [14], states that the feelings of individuals are determined by their reference groups and thus they may relatively feel deprived when they observe that others have better socioeconomic positions than they do. Based on Runciman's perspective, Yitzhaki [28] assumed the Gini coefficient to be a quantification of the relative deprivation, implying that when inequality goes up, the relative deprivation increases and thus SWB decreases. Morawetz et al. [29] were the first to empirically test the inequality–happiness relationship in two communities living in Israel, with different distributions of income and with similar characteristics regarding age structure and per capita income. They found that income inequality was negatively associated with the happiness of an individual in the more unequal community. Preference for equality may well be a social norm *per se* or alternatively, equality could be considered as unfair if "equity or social justice [are] not necessarily tied to economic self-interests", Schneider [20] (p. 13).

Researchers have indeed suggested that higher income inequality may trigger social and economic problems and would eventually damage SWB. For instance, less equalitarian societies would bring about adverse effects in terms of political stability, investment, and economic growth [30,31]. Moreover, Wilkinson and Pickett [32] argue that higher inequality leads to increased status competition and status anxiety, an argument confirmed by Delhey and Dragolov [33], who find that inequality leads to provoking status anxiety and distrust in Europe and hence decreases Europeans' SWB. In the case of USA, Oishi et al. [34] suggest that inequality induces negative effects on the happiness of lower-income individuals, as it increases the perceived unfairness and lack of general trust. Roth et al. [35] find that higher inequality provokes economic worries, which, in turn, harm individuals' happiness in Germany. Schneider [21] argues that the individuals' perception of their social status can explain why individuals are less satisfied in European societies with higher inequality.

On the other hand, the tunnel effect theory proposed by Hirschman and Rothschild [15] considers the "hope factor" as a key element to determine the effect of income inequality on the SWB of individuals. Individuals may tolerate income inequality when they interpret it as an opportunity to climb the socioeconomic ladder. However, if their expectations have not been met, that tolerance fades away and lowers their SWB. Grosfeld and Senik [16] found that the prediction of the tunnel theory fits well with the case of Poland. During the first stage of the transition period, the increasing income inequality was not translated into lowering the satisfaction of individuals as it signaled a hope factor for individuals to move up the socioeconomic ladder. However, in the final stage of the transition process, the expectations of individuals were not met, and they considered the process of income distribution as unfair and corrupted, which in turn decreased their overall satisfaction. Wang et al. [17] found further support for the tunnel theory in China. Their empirical findings underline the inverted U-shaped association between the individual's self-reported happiness and income inequality in both rural and urban China. Kelley and Evans [4] suggested that the positive effect of inequality exists only in developing countries, as these countries experience rapid institutional and social changes, which in turn could make their individuals interpret inequality as a signal of moving up. On the other hand, income inequality is irrelevant for individuals living in developed countries because of "the relatively stable opportunity structures and existential security".

An important indication from the tunnel theory is that the tolerance of individuals toward inequality is contingent upon the perceptions of individuals for mobility in their society. In the seminal work by Wilkinson and Pickett [32] (p. 157), the social mobility expresses whether "people can move up or down within their lifetime" and "the idea that anybody, by their own merits and hard work, can achieve a better social or economic position for themselves and their family". Inequality can make people more or less satisfied, depending on how they perceive the potential for social mobility from their social positions [18,21]. For instance, a study by Alesina et al. [1] evidenced that inequality has no effect on the poor in the US against a negative effect on the rich, whereas, income inequality

hampers the SWB of the poor in Europe. The authors' interpretation is that Americans believe that their society is mobile, and accordingly, that they can move upward and downward on the socioeconomic scale, while Europeans consider social status as steady, meaning that it is difficult for the poor to improve their situations. Graham and Felton [36] argued that income inequality signals a persistent disadvantage for the poor and a persistent advantage for the rich in Latin America. For industrialized and emerging countries, Beja [2] considered different subjective measures of opportunity to examine their roles in the overall SWB. Their findings suggested that the negative effects produced by inequality can be lessened for individuals who believe that hard work brings success and that equal access to opportunities is guaranteed.

Indeed, few studies have really examined the role of actual social mobility in the association between inequality and SWB. In a large panel of countries, Bjørnskov et al. [11] conjectured that higher SWB is the outcome of the positive interaction between perceived fairness and income inequality, and the positive interaction is larger in countries with low actual social mobility and weaker for countries with high actual social mobility. They empirically found support for their perspective. Ravazzini and Chávez-Juárez [19] studied the relationships between SWB and income inequality, on the one hand, and between SWB and inequality of opportunity, on the other hand, in Europe. Their measure of inequality of opportunity compares the relative importance of inequality due to circumstances over inequality due to effort. They find that inequality of income negatively affects SWB and the effect is lower for people with low income meaning that a normative distaste for inequality would prevail over the possibility to gain more in the case of upward mobility. Inequality of opportunity also hurts the SWB of individuals with lower socioeconomic positions but positively influences the SWB of individuals with higher socioeconomic positions confirming that inequality of opportunity would mean for the rich a lower risk of losing income. Nikolaev and Bennett [37] found that individuals who live in countries with greater economic freedom have a higher perception of more procedural fairness and chances of upward mobility and the effect of economic freedom on SWB becomes larger in societies where individuals consider that hard work pays off and competition is something good [22]. Hence, the willingness of individuals to accept inequality is contingent upon whether their efforts are better rewarded [38].

As shown above, the literature has proposed several new mechanisms to explain the relationship between inequality and SWB. According to Schneider [20], a common caveat of these studies was that they assumed that individuals follow a strict economic rationale. According to this author, it was unlikely that individuals had an accurate and precise assessment of income inequalities, however, instead would be influenced by perceptions of external outcomes based on goals and preferences, as corroborated in the studies of [2,11,21,22]. On the other hand, Haller and Hadler [8,39] considered a different perspective and questioned what makes individuals happy in countries with high inequality (Latin American countries), and unhappy in countries with low inequality (post-communist countries). They argued that other factors exist that can explain the SWB of individuals, namely non-material social and cultural factors, and suggested that the situations that influence the personal life context matters more for the SWB of the individuals than those influencing the society as a whole. For instance, people became happier when their personal and societal circumstances provided them the feeling of personal freedom. In addition, Veenhoven [23] pointed out that happiness and happiness dispersion could also be affected by non-monetary dimensions of inequality (social inequality), such as unequal work chances, inequality in "power, prestige, education", and gender inequality. In fact, Beja [2] echoed this argument by evidencing that objective and subjective freedom are positively associated with the SWB of individuals in both industrialized and emerging countries, and that unequal access to education leads to social cleavages. In contrast, income inequality can be perceived as something acceptable or not, depending on whether it signals chances to move up or down. All in all, there is a need for more studies about the underlying mechanisms linking inequality and SWB. Indeed, SWB may be influenced by social inequality, a broader context evoking fairness in different spheres that are not only related with economic outcomes.

3. Empirical Strategy

3.1. Empirical Model

We use multilevel regression analysis to model the life satisfaction of people as a function of both individual and country characteristics. Multilevel analysis allows us to control variability from several nested sources (individuals and countries) and to model hierarchical data that do not satisfy the basic assumption of independence of observations [40].

Individual-level variables include life satisfaction (LS) as our main dependent variable, and a set of control variables (X) to account for individual characteristics (see Table A4 in Appendix A). At country levels, we include income inequality measured by Gini and other macroeconomic characteristics. Table A1 (in Appendix A) presents descriptive statistics.

The following empirical model is estimated:

$$LS_{ij} = \beta_0 + \beta_1 X_{ij} + \beta_2 Gini_j + \beta_3 Z_j + \beta_4 Opportunity_j + \beta_5 Gini_j Opportunity_j + U_j + \varepsilon_{ij} \quad (1)$$

where subscript i is for individual and j for country. Z is a vector of the control variables at the macroeconomic level including GDP per capita, GDP growth, inflation, social trust, fairness, and opportunity. Lastly, β_0 is the fixed intercept, U_j is a random effect at the country level, and ε_{ij} is a random effect at the individual level. In addition, β_2 captures the effect of cross-country differences in the average levels of income inequality and β_4 accounts for the effect of opportunity on life satisfaction, while β_5 reveals whether the role of inequality for life satisfaction depends on the degree of opportunity in the countries.

3.2. Data

3.2.1. Individuals' Characteristics

As standard in the literature, SWB refers either to happiness or life satisfaction. However, there are some nuances between these two concepts. The latter, according to Haller and Hadler [8], is seen more as the fruit of an evaluation process including material and social aspirations and achievements, while the former results from positive experiences, particularly close personal relationships. We then focus on life satisfaction (LS), which seems more connected to the economic situation of individuals and so more in line with the purpose of the present study.

The analysis is based on cross-sectional data from the sixth wave of the World Values Survey (WVS). We selected the data for the 25 low- and middle-income countries that have been surveyed during the years 2010–2014. For an overview of the countries included in the dataset, see Appendix A Table A2. The dependent variable, LS, is measured with the question, "All things considered, how satisfied are you with your life as a whole these days?", and the answers use an ordinal scale ranging from 1 (completely dissatisfied) to 10 (completely satisfied).

The survey provides information about individual characteristics, such as gender, age, education level, employment status, income level, marital status, number of children, subjective social status, religion, trust in other people, and thinking about whether most people would try to take advantage of you if they got a chance. We have also included variables that better describe the situation of people in low- and middle-income countries: frequency without enough food, frequency without cash, and the possibility of saving money. Information about how these variables are coded is reported in Appendix A, Table A4.

3.2.2. Contextual Variables

Apart from the individual characteristics, literature on life satisfaction has identified a set of contextual variables that are usually included to explain life satisfaction [5,10,33,41,42]. It is common to control for wealth and socioeconomic development by including GDP per capita and for conjectural

economic context by taking into account GDP growth, unemployment rate, and inflation. All these variables and Gini were obtained from the World Development Indicators for the year 2009.

Following Bjørnskov et al. [11] and Grosfeld and Senik [16], the macroeconomic variables social trust and social fairness have been included in the models. These are derived from averaging the individual-level variables obtained through the following questions: "Generally speaking, would you say that most people can be trusted, or that you need to be very careful in dealing with people?" and "Do you think most people would try to take advantage of you if they got a chance, or would they try to be fair?", respectively. High levels of both variables indicate more social trust and fairness (see details in Table A4, in Appendix A).

As explained in Section 2, previous studies have suggested that income inequality may have a different effect on SWB depending on social or political contexts. Previous studies have focused on inequality of opportunities [19], actual social mobility [11], economic freedom [37], and political and civil liberties [2]. Rather than focusing exclusively on economic outcomes, individuals are also affected by other social dispersions such as inequalities in work chances, "power, prestige, education" or gender [23] affecting their personal life more directly.

Therefore, we consider the Opportunity Index provided by the Social Progress Imperative. This component of the Social Progress Index reflects how countries "create the conditions for all individuals to reach their full potential" [24] (p. 13). This index provides information on real social progress rather than measuring potential mobility or economic variables such as the basic needs of individuals, as well as access to education and health care. Additionally, this index not only measures the ease with which individuals ameliorate their positions based on their merits, but also the social barriers that may limit these efforts.

Opportunity, for the year 2014, has been retrieved from the Social Progress Imperative that provides several indexes measuring Social Progress (see Porter et al. [24] for the methodology). Opportunity measures to what degree individuals in a country can exercise their own personal rights and freedoms, whether they have control over their own personal decision making, and to what degree social problems within a society, such as prejudices or hostilities, refrain individuals from achieving their potential. Opportunity also considers whether individuals, who seek to enhance their skills and knowledge, have the possibility to access advanced forms of education. The Social Progress Index provides distinguishing features that often tend to be ignored and considers opportunity as an element of human well-being that mirrors the social progress based on social factors rather than economic outcomes.

4. Results

Data from the last wave of the World Value Survey (Figure 1) confirm the puzzling positive relationship between inequalities and average life satisfaction for low- and middle-income countries. As already stressed by many authors, there is a huge heterogeneity in SWB among countries and an important variance among income inequalities as well. Neither income nor Gini seem to justify these divergent patterns in life satisfaction.

Figure 2 presents scatterplots of average LS against opportunity. Opportunity also varies considerably among countries but the relationship with life satisfaction appears clearer. Countries with higher levels of opportunity register higher average levels of LS (in particular middle-income countries). The relationship between opportunity and income levels is less ambiguous than for Gini, i.e., low-income countries systematically display lower levels of opportunity while they display more heterogeneous levels of inequalities.

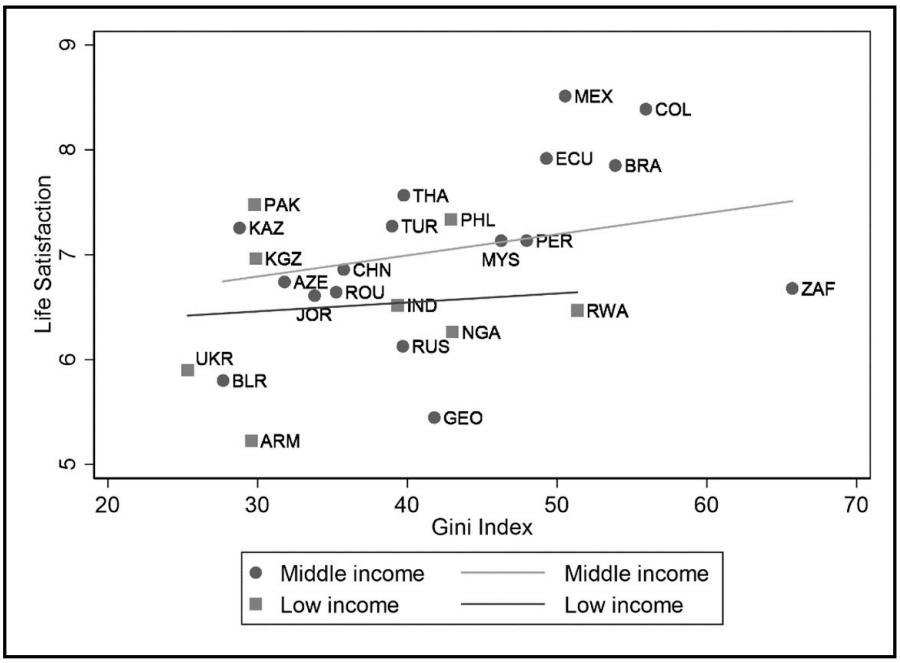

Figure 1. Life Satisfaction versus Gini index, source: authors' calculation, abbreviation for countries available in Table A2.

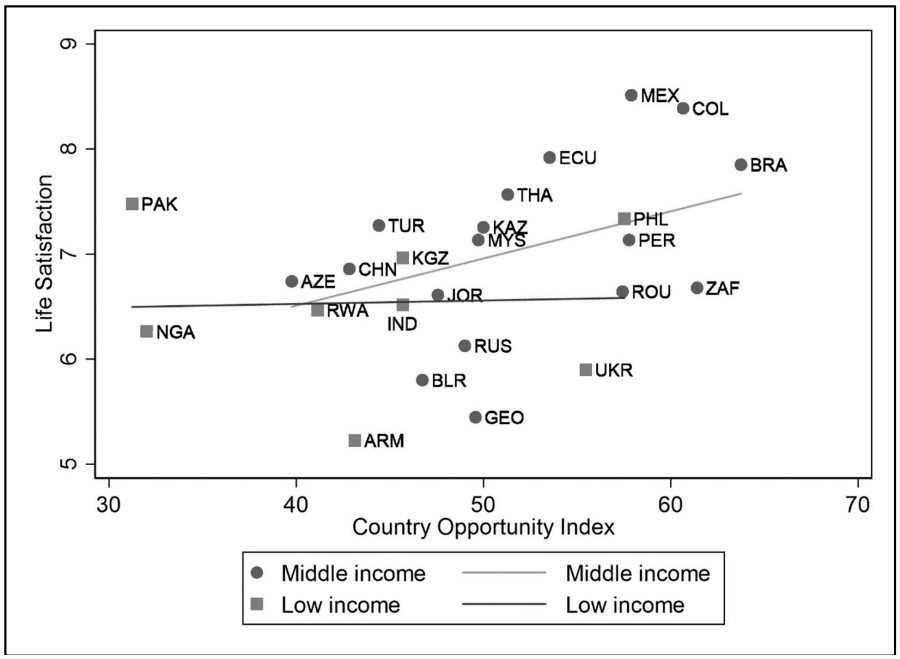

Figure 2. Life satisfaction versus Opportunity Index, source: authors' calculation, abbreviation for countries available in Table A2.

Table 1 reports the coefficients and robust standard errors for the individual characteristics and aggregate/macro level variables included. Models 1, 2, 3, and 4 present results of the model with Gini, opportunity, Gini and opportunity, and the interaction term between both indicators, respectively. We have used robust standard errors because variances of the residual errors have been found different among countries. The Levene's tests about equality of variance rejected this hypothesis for the four models ($T = 37.1$, $p = 0.00$). The robust standard errors were calculated using the White estimate of variance [43]. Models without social trust and social fairness (at both macro and micro levels) can be found in the Appendix A, Table A6.

Table 1. Determinants of life satisfaction, multilevel regression models.

VARIABLES	Model 1	Model 2	Model 3	Model 4
Individual variables				
Male	−0.012	−0.012	−0.012	−0.012
	(0.024)	(0.024)	(0.024)	(0.024)
Age	−0.031 ***	−0.031 ***	−0.031 ***	−0.031 ***
	(0.008)	(0.008)	(0.008)	(0.008)
Age squared	0.000 ***	0.000 ***	0.000 ***	0.000 ***
	(0.000)	(0.000)	(0.000)	(0.000)
Number of children				
No children	Ref.	Ref.	Ref.	Ref.
1 child	−0.010	−0.010	−0.010	−0.010
	(0.045)	(0.045)	(0.045)	(0.045)
2 children	0.055	0.055	0.055	0.054
	(0.052)	(0.052)	(0.052)	(0.052)
3 or more children	0.121 ***	0.121 ***	0.121 ***	0.120 ***
	(0.043)	(0.042)	(0.042)	(0.043)
Education				
No formal education	Ref.	Ref.	Ref.	Ref.
Primary	0.230 ***	0.230 ***	0.230 ***	0.230 ***
	(0.068)	(0.068)	(0.068)	(0.068)
Secondary	0.163	0.161	0.162	0.162
	(0.105)	(0.105)	(0.105)	(0.105)
University	0.191 *	0.188 *	0.189 *	0.189 *
	(0.109)	(0.110)	(0.110)	(0.110)
Labor status				
Full-time	Ref.	Ref.	Ref.	Ref.
Part-time	−0.073	−0.073	−0.073	−0.073
	(0.053)	(0.053)	(0.053)	(0.053)
Self-employed	−0.032	−0.031	−0.031	−0.030
	(0.083)	(0.083)	(0.083)	(0.083)
Retired	−0.128	−0.129	−0.129	−0.128
	(0.080)	(0.080)	(0.080)	(0.080)
Unemployed	−0.219 ***	−0.220 ***	−0.220 ***	−0.220 ***
	(0.065)	(0.065)	(0.065)	(0.065)
Other	0.004	0.004	0.004	0.004
	(0.043)	(0.043)	(0.043)	(0.043)
Household income				
First quartile	Ref.	Ref.	Ref.	Ref.
Second quartile	0.405 ***	0.405 ***	0.405 ***	0.405 ***
	(0.077)	(0.077)	(0.077)	(0.077)
Third quartile	0.612 ***	0.612 ***	0.612 ***	0.612 ***
	(0.107)	(0.107)	(0.107)	(0.107)
Fourth quartile	1.018 ***	1.019 ***	1.019 ***	1.019 ***
	(0.140)	(0.140)	(0.140)	(0.140)
Marital status				
Married	Ref.	Ref.	Ref.	Ref.
Divorced	−0.330 ***	−0.329 ***	−0.329 ***	−0.329 ***
	(0.107)	(0.107)	(0.107)	(0.107)
Separated	−0.432 ***	−0.432 ***	−0.432 ***	−0.432 ***
	(0.077)	(0.077)	(0.077)	(0.077)
Widowed	−0.426 ***	−0.425 ***	−0.425 ***	−0.425 ***
	(0.079)	(0.079)	(0.079)	(0.079)
Single	−0.098 *	−0.097 *	−0.098 *	−0.098 *
	(0.050)	(0.050)	(0.050)	(0.050)

Table 1. *Cont.*

VARIABLES	Model 1	Model 2	Model 3	Model 4
Social status				
Lower class	Ref.	Ref.	Ref.	Ref.
Working class	0.278 ***	0.277 ***	0.277 ***	0.277 ***
	(0.067)	(0.067)	(0.067)	(0.067)
Lower middle class	0.402 ***	0.401 ***	0.402 ***	0.402 ***
	(0.056)	(0.056)	(0.056)	(0.056)
Upper middle class	0.625 ***	0.624 ***	0.625 ***	0.624 ***
	(0.073)	(0.073)	(0.073)	(0.073)
Upper class	0.839 ***	0.838 ***	0.839 ***	0.838 ***
	(0.129)	(0.129)	(0.129)	(0.129)
Religion				
No religion	Ref.	Ref.	Ref.	Ref.
Muslim	−0.023	−0.023	−0.021	−0.017
	(0.148)	(0.147)	(0.147)	(0.147)
Catholic	0.138*	0.139 *	0.138 *	0.137 *
	(0.071)	(0.071)	(0.071)	(0.071)
Protestant	0.113 **	0.115 **	0.115 **	0.115 **
	(0.056)	(0.056)	(0.056)	(0.056)
Orthodox	−0.071	−0.079	−0.077	−0.073
	(0.053)	(0.052)	(0.053)	(0.053)
Jewish	0.108	0.107	0.108	0.110
	(0.375)	(0.376)	(0.376)	(0.377)
Other religion	0.090	0.094	0.093	0.089
	(0.080)	(0.080)	(0.080)	(0.080)
Most people can be trusted	0.046	0.046	0.046	0.046
	(0.121)	(0.121)	(0.121)	(0.121)
Most people would try to take advantage of you if they got a chance (1)/try to be fair (10)	0.112 ***	0.112 ***	0.112 ***	0.112 ***
	(0.012)	(0.012)	(0.012)	(0.012)
Often without enough food	−0.300 ***	−0.300 ***	−0.300 ***	−0.301 ***
	(0.096)	(0.096)	(0.096)	(0.096)
Often going without cash	−0.555 ***	−0.556 ***	−0.555 ***	−0.555 ***
	(0.102)	(0.102)	(0.102)	(0.103)
Saved money during past year	0.187 ***	0.188 ***	0.188 ***	0.188 ***
	(0.035)	(0.035)	(0.035)	(0.035)
Country variables				
Logarithm GDP per capita	0.297*	0.246	0.222	0.155
	(0.178)	(0.157)	(0.161)	(0.166)
GDP growth	−0.004	0.028**	0.019	0.000
	(0.017)	(0.013)	(0.017)	(0.017)
Unemployment rate	−0.055 ***	−0.041 **	−0.046 **	−0.077 ***
	(0.020)	(0.019)	(0.020)	(0.024)
Inflation	−0.007	0.010	0.005	−0.003
	(0.027)	(0.025)	(0.025)	(0.024)
Social trust	−0.583	−0.983	−0.663	−1.014
	(0.785)	(0.741)	(0.740)	(0.711)
Social fairness	0.237	0.312	0.257	0.330
	(0.244)	(0.235)	(0.227)	(0.206)
Gini index	0.028 **		0.010	−0.177 ***
	(0.011)		(0.012)	(0.061)
Opportunity Index		0.043 ***	0.037 **	−0.114 **
		(0.015)	(0.016)	(0.046)
Gini index * Opportunity Index				0.004 ***
				(0.001)
Constant	2.625	1.465	1.880	10.049 ***
	(2.168)	(1.964)	(1.994)	(2.971)
Observations	35,169	35,169	35,169	35,169
Number of countries	25	25	25	25

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

4.1. Individual Characteristics

As standard in the literature, most of the individual characteristics that we observed in the analysis, generated significant effects on life satisfaction e.g., [1,12,44,45]. Concerning individual's age, we find support for the view that life satisfaction traces a U-shaped curve with age. With regard to having children, we find that children seem to bring about higher satisfaction [8,46]. The results also show that higher income and education leads to higher life satisfaction than those with lower levels of income and education [12,18]. Results for employment status show that being unemployed, robustly makes individuals less satisfied with their lives than those who are full-time employees. Regarding marital status, we find that individuals who are divorced, separated, widowed or single, are less satisfied than individuals who are married, emerging from the individual's feeling of being lonely, while being married enhances self-esteem and emotional support [47]. The higher the subjective social class, the higher the life satisfaction. Individual religiosity does not have a dominant role in determining the life satisfaction of individuals. However, we find that being a Protestant, or a Catholic, makes individuals satisfied with their lives, a finding which is consistent with empirical findings by Ngamaba and Soni [48]. As expected, individuals who believe in others' fairness are more satisfied. Serious economic problems (often without enough food or going without cash) lead to lower life satisfaction. Accordingly, people who have had the chance to save in the last year report higher life satisfaction.

4.2. Inequality

Our results provide evidence that income inequality is an important predictor of life satisfaction (model 1). The strength of the association between inequality and life satisfaction better explains cross-countries differences in life satisfaction than national wealth and growth. The GDP per capita, growth, inflation, and average level of social trust and social fairness are not significant. The estimates point toward unemployment rate as having the largest and most negative effect among all the macroeconomic variables on LS, as widely established in cross-section studies. Indeed, unemployment does not only lead to income loss, but also affects an individual's identity in society and self-esteem, which, in turn, negatively affect SWB [49].

More importantly, income dispersion could either hurt or fuel LS due to the competing mechanisms at stake. Our results lend support to the "tunnel effect" hypothesis and corroborate recent empirical findings of others (i.e., [4,7,10]) for developing countries. Hence, we find that more inequality is associated with higher satisfaction in low- and middle-income economies.

4.3. Opportunity

To test if respondents are affected by social inequalities in a broader sense, we include the Opportunity Index in the model. As can be seen from models 2 and 3, opportunity *per se* is positively related to life satisfaction and the inclusion of opportunity makes the Gini coefficient lose significance. Once the interaction term between opportunity and Gini is included (model 4), all three terms appear significant. Hence, the relationship between Gini and LS is contingent upon opportunity. In model 4, the average effects of inequality and opportunity turn out to be negative, whereas, the interaction term is positive. This result deserves cautious analysis and Figure 3 provides a useful tool to interpret these findings.

The picture clearly shows that Gini has a different impact on SWB, depending on the possibilities the society offers to individuals. In countries with a lower level of opportunities, the relationship between inequality and LS is actually negative, while in countries with a higher level of opportunities, people are more satisfied with their lives regardless of the income inequality level. In other words, income inequality reduces individuals' well-being if opportunities are low, but inequality is not relevant for life satisfaction if opportunities in the country are high. Our finding is in line with the intuition formulated by several authors (i.e., [2,11,19,37,39,50]) according to which SWB may be influenced by inequality in "life chances" and not only by income inequality.

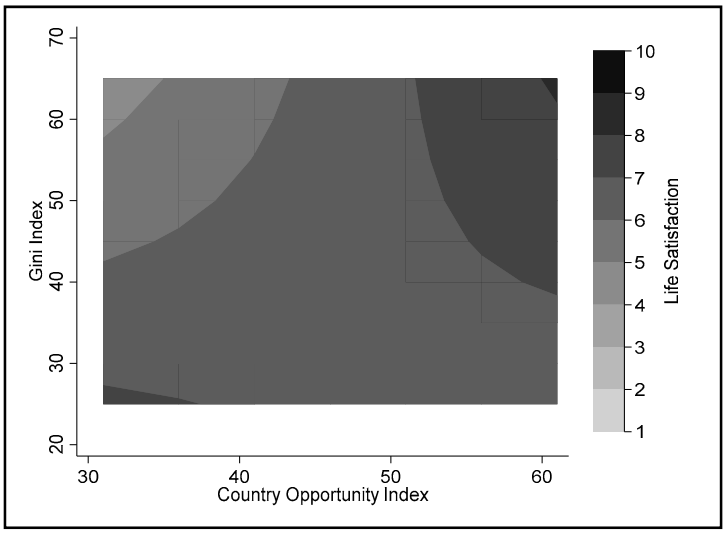

Figure 3. Interaction effect of the Gini index and the Opportunity Index on life satisfaction, source: based on estimates of model 4 in Table 1.

Moreover, this outcome is independent from subjective perception regarding fairness, thus complementing the view of Bjørnskov et al. [11] who found that income disparities contribute to the SWB of individuals with high fairness perception. Hence, our results confirm that the actual system of incentives at the country level matters. Life satisfaction does not only depend on subjective perception or the circumstances of individuals. If people who are living in more unequal societies are more satisfied, it is only because the socio-political context allows them to take their chance, but not because they prefer inequality. Indeed, another reading of our results is that, in low- and middle-income countries with high income disparities, the mechanisms that allow people to achieve their personal goals increase their welfare.

As well as this, information from Figure 3 also puts forward the view that individuals' life satisfaction would be independent of inequality in countries with intermediate levels of opportunity. This is in line with one of the conjectures of Kelley and Evans [4], who suggest that "the relatively stable opportunity structures and existential security" in developed countries make inequality relatively irrelevant to SWB. They also suggest a positive association between inequality and happiness in developing countries due to the hope factor. We confirm that this positive relationship only holds true in countries where individuals have the chance to reach better social positions based on their own merits. Nevertheless, this is not the case in countries where social positions are not obtained on a fair basis. In this case, inequality is viewed as detrimental.

4.4. Components of Opportunity

The Opportunity Index accounts for distinct but interrelated dimensions. Here, we look further into the indicator to tease out which aspects matter the most for SWB. To this end, we replicate the estimation of model 4 (Table 1), substituting the Opportunity Index by each one of its components successively. The four components are personal rights, personal freedom and choice, inclusiveness and access to advanced education. For an overview of the values of these variables for the countries included in the dataset see Appendix A Table A3. Together, these components shed light on the possibilities and limitations for individuals regarding autonomy, freedom, and ability to progress. Results for the newly included variables are displayed in Table 2.

Table 2. Determinants of life satisfaction, components of Opportunity Index.

Component of Opportunity Index: VARIABLES	Personal Rights	Personal Freedom	Inclusiveness	Access to Advanced Education
Individual variables	yes	yes	yes	yes
Country variables	yes	yes	yes	yes
Gini index	0.002	−0.154	−0.200 ***	−0.064 ***
Component of Country Opportunity Index	0.003	−0.105	−0.175 ***	−0.077 ***
Gini index * Component of Country Opportunity Index	0.000	0.003 *	0.005 ***	0.002 ***
Observations	35,169	35,169	35,169	35,169
Number of countries	25	25	25	25

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, individual and country variables are the same as in Table 1.

Again, the data speak rather clearly—not all the components of opportunity play a part in explaining life satisfaction. Specifically, personal rights, and personal freedom and choice do not exert any influence on the inequality–LS nexus. In contrast, inclusiveness and access to advanced education make significant contributions to SWB. According to Stern et al. [51], the components personal rights and access to advanced education reflect how societies can facilitate individuals to achieve their goals, while personal freedom and choice, and tolerance and inclusion measure how societies can limit them. Among the incentives, access to advanced education seems to matter more for LS than personal rights. Regarding the limits, inclusiveness makes more difference than personal freedom and choice.

For the relevant components (columns 3 and 4 of Table 2), the three coefficients of interest have the same significance and signs as in model 4 of Table 1, meaning that they interfere with the relationship between inequality and SWB in the same manner as opportunity measured as a whole. Accordingly, in countries with better universities, where women access education and where access to university is easier, individuals register higher SWB regardless of the level of inequality. Similarly, in countries where there is tolerance towards homosexuals, minorities, and where political power is more equally distributed among genders and socioeconomic positions, citizens are more satisfied with their lives. Likewise, in less inclusive societies or societies where access to advanced education is limited, income inequality damages SWB. In such an environment, there is a threshold level of equality of income that could compensate for the lack of hope and lead individuals to similar LS as individuals living in countries with high prospects of achieving their goals to the best of their ability but with high disparity of income.

4.5. Robustness Check

To check the robustness of our results we have repeated the estimation of model 4 (Table 1), splitting the sample successively into: people with low (no formal or primary) versus high (secondary or universitary) education, people with low (below median) versus high (above median) household income, and people with low (lower/lower middle/working) versus high (upper/upper middle class) subjective social status. The results are presented in Table 3 and corroborate the relationships found between LS, inequality, and opportunity. In general, income inequalities and lack of opportunities would hurt more people with lower education, lower income and lower status levels, however, the differences are only significant among the education groups for the Opportunity Index.

Table 3. Determinants of life satisfaction for different groups.

Groups: VARIABLES	Low Education	High Education	Low Income	High Income	Low Status	High Status
Individual variables	yes	yes	yes	yes	yes	yes
Country variables	yes	yes	yes	yes	yes	yes
Gini index	−0.245 ***	−0.166 ***	−0.196 ***	−0.133 ***	−0.193 ***	−0.130 ***
Opportunity Index	−0.145 ***	−0.104 ***	−0.128 ***	−0.084 **	−0.119 ***	−0.094 **
Gini index * Opportunity Index	0.005 ***	0.003 ***	0.004 ***	0.003 ***	0.004 ***	0.003 ***
Observations	8014	27,155	22,051	13,118	28,590	6579
Number of countries	25	25	25	25	25	25

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, individual and country variables are the same as in Table 1.

5. Conclusions

This study contributes to the research on subjective well-being by examining the influence of income inequality on life satisfaction in low- and middle-income countries where people surprisingly seem more satisfied with their lives when income inequality is higher. Our results show that income inequality is a more obvious predictor of life satisfaction than national wealth and growth, than average trust and fairness perception. Our main contribution consists in corroborating that social opportunities interfere with this relationship.

Our analysis yields a number of interesting results. Opportunity and inequality exert significant effects *per se* on life satisfaction. These effects are positive when considered separately and negative when considered jointly. More interestingly, their joint effect is highly significant, confirming that the impact of income disparities on life satisfaction should be interpreted in light of what possibilities societies offer to individuals to achieve self-improvements. In low- and middle-income countries, inequalities reduce the well-being of individuals if opportunities are low, while individuals seem satisfied when opportunities are high, regardless of the inequality level. If people living in more unequal societies are more satisfied, it is only because the socio-political context allows them to take their chances, but not because they prefer inequality. Our study also sheds light on the aspects of opportunity that really matter, showing that inclusiveness and access to advanced education play a more major role than political freedom or personal rights. Finally, once opportunity at the macroeconomic level is accounted for, we do not find clear evidence that the relationship between income inequality and life satisfaction differs between low- and high-income groups, low and high socioeconomic status and educated and less educated people.

From a policy design point of view and focusing on life satisfaction as the ultimate goal, seeking measures that make it possible for individuals to achieve their goals based on their own merits would be a far more sensible strategy than focusing exclusively on redistribution, wealth or growth. In terms of the debate about how much income inequality is acceptable or justified [52], individuals living in countries with accentuated inequality, such as many Latin American countries, and with very low opportunity, such as many low-income countries, would clearly register lower life satisfaction. For this reason, international institutions and governments should ensure that societies never fall under both thresholds at the same time. This strategy is in line with several targets of the 2030 Agenda for Sustainable Development, adopted by all United Nations member states in 2015 [53]. In particular, achieving jointly target 4 "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" and target 10 "reduce inequality within and among countries" would constitute effective steps towards more satisfaction in low- and middle-income countries.

Another interpretation of our results is that opportunity has an obvious positive effect on life satisfaction when income inequalities are high. Additionally, these opportunities are not restricted to economic mechanisms, involving labor markets functioning, for instance. On the contrary, people are sensitive to social indicators such as inclusiveness and access to advanced education, aspects where low- and middle-income countries usually stand far behind the high-income countries. For instance, in 2014,

the average Opportunity Index was 72.54, 51.83, and 41.38 for high-, middle- and low-income countries, respectively. Bjørnskov et al. [11] have mentioned that the importance of subjective fairness justifies the fact that it is not only important to guarantee social mobility, but also to communicate these policies accurately to make people aware of them, instead of promoting more redistribution. Our findings suggest that people are quite aware of social opportunities, since a high level of opportunities at the macroeconomic level would be able to compensate for the negative effects of inequality in terms of life satisfaction. Nevertheless, when opportunities are low, more redistribution and improvement of life chances for all would definitively prove useful for increasing SWB.

In countries with a medium and high level of opportunities, inequality of income seems relatively irrelevant to SWB, all else being constant. This result should be interpreted cautiously. According to the Tunnel effect [4,15–17], this optimistic perception could vanish in a second step if, despite more opportunities, income inequalities do not subside. In this paper, we have focused on cross-national differences in the inequality–life satisfaction relationship. Further work is needed to explore the soundness of our results in a more comprehensive panel. Indeed, dynamic patterns may be crucial in emerging countries where social conditions, including opportunities, evolve quickly while income inequality may temporarily increase. Another limitation of our study is that our data do not allow us to assess predictions at more local levels, which certainly deserves further investigation. Another promising area of future research is to investigate how the broader access to information facilitated by internet access shapes the perception of inequality. Indeed, there are aspects of globalization that make comparisons easier and accelerate convergence in social values, which may eventually increase the sense of deprivation of individuals in poor countries.

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Appendix A

Table A1. Summary statistics.

Variable	Mean	Standard Deviation	Min	Max
Life satisfaction	6.939	2.292	1	10
Male	0.476	0.499	0	1
Age	40.195	15.534	16	98
Number of children				
No children	0.260	0.438	0	1
1 child	0.180	0.385	0	1
2 children	0.249	0.433	0	1
3 or more children	0.311	0.462	0	1
Education level				
No formal education	0.057	0.230	0	1
Primary	0.171	0.369	0	1
Secondary	0.554	0.497	0	1
University	0.218	0.420	0	1

Table A1. *Cont.*

Variable	Mean	Standard Deviation	Min	Max
Occupational status				
Full-time employee	0.291	0.454	0	1
Part-time employee	0.078	0.268	0	1
Self-employed	0.158	0.365	0	1
Retired	0.095	0.294	0	1
Unemployed	0.110	0.313	0	1
Other	0.268	0.443	0	1
Household income				
First quartile	0.282	0.450	0	1
Second quartile	0.345	0.475	0	1
Third quartile	0.149	0.356	0	1
Fourth quartile	0.224	0.417	0	1
Marital status				
Married	0.658	0.474	0	1
Divorced	0.028	0.165	0	1
Separated	0.018	0.135	0	1
Widowed	0.056	0.230	0	1
Single	0.240	0.427	0	1
Social status				
Upper class	0.019	0.138	0	1
Upper middle class	0.169	0.375	0	1
Lower middle class	0.351	0.477	0	1
Working class	0.287	0.452	0	1
Lower class	0.174	0.379	0	1
No religious denomination	0.126	0.332	0	1
Muslim	0.201	0.401	0	1
Catholic	0.203	0.402	0	1
Protestant	0.042	0.200	0	1
Orthodox	0.136	0.343	0	1
Jewish	0.007	0.040	0	1
Other religion	0.285	0.451	0	1
Most people can be trusted	0.189	0.392	0	1
Most people would try to take advantage of you if they got a chance /try to be fair	5.741	2.674	1	10
Often without enough food	0.059	0.235	0	1
Often going without cash	0.134	0.341	0	1
Save money during past year	0.226	0.418	0	1

Table A2. List of countries and their macroeconomic variables.

Country	ID	Survey Year	Sample Size	Logarithm of GDP Per Capita	GDP Growth	Unemployment Rate	Inflation	Social Frust	Social Fairness	Gini Index	Opportunity Index
Azerbaijan	AZE	2011	967	8.507	9.4	5.74	1.46	0.166	5.36	31.79	39.76
Armenia	ARM	2011	992	8.004	−14.1	18.74	3.41	0.101	5.09	29.58	43.13
Brazil	BRA	2014	1366	9.054	−0.1	8.28	4.89	0.066	4.81	53.88	63.74
Belarus	BLR	2011	545	8.585	0.2	9.90	12.94	0.352	5.67	27.69	46.73
China	CHN	2013	1515	8.253	9.4	4.29	−0.73	0.644	6.90	35.74	42.83
Colombia	CHL	2012	1425	8.541	1.2	12.07	4.20	0.041	6.05	55.92	60.65
Ecuador	ECU	2013	1187	8.356	0.6	6.47	5.16	0.072	5.61	49.28	53.53
Georgia	GEO	2014	1134	7.903	−3.7	16.84	1.73	0.089	6.30	41.79	49.57
India	IND	2012	3408	6.994	8.5	3.75	10.88	0.176	4.97	39.35	45.68
Kazakhstan	KAZ	2011	1468	8.877	1.2	6.55	7.32	0.388	6.07	28.79	49.99
Jordan	JOR	2014	1177	8.158	5.5	12.90	−0.74	0.132	5.52	33.80	47.56
Kyrgyzstan	KGZ	2011	627	6.770	2.9	8.41	6.84	0.380	6.31	29.87	45.68
Malasia	MYS	2012	1296	8.899	−1.5	3.69	0.58	0.085	5.90	46.26	49.72
Mexico	MEX	2012	1895	8.961	−5.3	5.38	5.30	0.124	6.11	50.53	57.89
Nigeria	NGA	2012	1741	7.544	8.0	3.97	11.54	0.148	5.64	43.00	32.02
Pakistan	PAK	2012	1144	6.914	2.8	5.46	13.65	0.239	5.92	29.80	31.24
Peru	PER	2012	1064	8.335	1.1	3.90	2.94	0.083	5.36	47.96	57.77
Philippines	PHL	2012	1186	7.509	1.1	3.86	4.22	0.028	6.60	42.91	57.52
Romania	ROU	2012	1336	9.045	−5.9	6.86	5.59	0.071	5.04	35.24	57.42
Russia	RUS	2011	1894	9.059	−7.8	8.42	11.65	0.292	5.64	39.69	49.00
Rwanda	RWA	2012	1510	6.290	6.3	2.74	12.89	0.166	6.23	51.34	41.14
South Africa	ZAF	2013	3223	8.667	−1.5	23.54	7.26	0.236	6.04	65.70	61.40
Thailand	THA	2013	1065	8.346	−0.7	1.49	−0.84	0.325	5.56	39.75	51.29
Turkey	TUR	2012	1442	9.109	−4.7	12.55	6.25	0.124	5.65	38.97	44.41
Ukraine	UKR	2011	562	7.842	−14.8	8.84	15.88	0.249	5.61	25.32	55.46
		MEAN		8.181	−0.1	8.19	6.17	0.191	5.76	40.56	49.41
		ST. DEVIATION		0.794	6.4	5.38	4.88	0.143	0.51	10.21	8.53

Table A3. Components of the Opportunity Index by countries.

Country	ID	Personal Rights	Personal Freedom	Inclusiveness	Access to Advanced Education
Azerbaijan	AZE	2444	4606	3819	5034
Armenia	ARM	4173	4713	396	4407
Brazil	BRA	7377	6849	6772	4498
Belarus	BLR	2296	5826	4737	5832
China	CHN	1725	7153	3855	442
Colombia	CHL	6509	6659	5954	5137
Ecuador	ECU	5338	6338	6067	3668
Georgia	GEO	6531	5948	2954	4393
India	IND	7069	5622	2636	2946
Kazakhstan	KAZ	285	6093	4847	6206
Jordan	JOR	4403	6082	4104	4435
Kyrgyzstan	KGZ	4913	5443	3662	4254
Malasia	MYS	4561	6247	3892	5188
Mexico	MEX	6587	621	5357	4992
Nigeria	NGA	505	3605	2709	1356
Pakistan	PAK	4466	4171	2017	1839
Peru	PER	7333	6053	5686	4038
Philippines	PHL	8278	6502	5674	4554
Romania	ROU	7292	6153	4124	5398
Russia	RUS	321	5409	3666	7514
Rwanda	RWA	3141	7281	4503	1532
South Africa	ZAF	7471	7014	5386	4688
Thailand	THA	5233	666	3747	4874
Turkey	TUR	4767	5642	3253	4103
Ukraine	UKR	5841	5366	4847	6131
MEAN		51,543	59,058	43,291	44,575
ST DEVIATION		18,522	9,112	11,937	14,160

Table A4. Definition of variables.

Variables	Definition
Life satisfaction	Continue variable related to the respondent's life satisfaction: All things considered, how satisfied are you with your life as a whole these days? Possible answers from 1. completely dissatisfied to 10. completely satisfied
Male	Dummy variable that is set to 1 for male respondents
Age	Age of individuals
Number of children	Four dummy variables, relating to number of children in family: no children, 1 child, 2 children and 3 or more children; with the reference group being no children
Education	Four dummy variables, relating with education level: no formal education, primary education (complete or incomplete), secondary education (complete or incomplete), university education (complete or incomplete); with the reference group being no formal education
Occupational status	Six dummy variables, relating with occupational status: full-time employee, part-time employee, self-employed, retired, unemployed and other; with reference group being full-time employee
Household income	Four dummy variables, relating household income: first (poorest) to fourth quartile (richest); with reference group being first quartile
Marital status	Five dummy variables: married (or cohabiting), divorced, separated, widowed and single; with the reference group including married or cohabiting
Social status	Five dummy variables, relating subjective social status: upper class, upper-middle class, lower-middle class, working class and lower class; with reference group including upper class
Religion	Seven dummy variables: no religion denomination, Muslim, Catholic, Protestant, Orthodox, Jewish and other religion denominations; the reference group is no religion denomination
Most people can be trusted	Dummy variable that is set to 1 for respondents who believe that most people can be trusted
Most people would try to take advantage of you if they got a chance /try to be fair	Answer of the question: Do you think most people would try to take advantage of you if they got a chance, or would they try to be fair? Possible answers: from 1 people would try to take advantage of you to 10 people would try to be fair
Often without enough food	Dummy variable relating to the question: In the last 12 months, how often have you or your family: Gone without enough food to eat? Possible answers: 1 often 2 sometimes 3 rarely 4 never. Dummy variable is set to 1 for respondents who answer 1 (often)
Often gone without cash	Dummy variable relating to the question: In the last 12 months, how often have you or your family: Gone without a cash income? Possible answers: 1 often 2 sometimes 3 rarely 4 never. Dummy variable is set to 1 for respondents who answer 1 (often)
Saved money during past year	Dummy variable that is set to 1 for respondents who saved money during past year
Social trust	It is derived from averaging in each country the answers to the following question: Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people? Possible answers: 1 most people can be trusted and 0 need to be very careful.
Social fairness	It is derived from averaging in each country the answers to the following question: Do you think most people would try to take advantage of you if they got a chance, or would they try to be fair? Possible answers: from 1 people would try to take advantage of you to 10 people would try to be fair

Table A5. Articles on inequality and subjective well-being (SWB), summary of the results.

Reference	Dataset	Region	Time Span	SWB and Inequality Measures	Empirical Methods	Inequality-SWB Results
Alesina et al. [1]	For USA: General Social Survey; for Europe: Euro-barometer survey	USA and Europe	For USA:1972–1992; for Europe: 1975–1992	For USA: happiness; for Europe: life satisfaction. Gini	Ordered logit	(1) Gini has a negative effect on SWB. (2) Gini has no effect on SWB of the poor and political left in the USA, while it has a negative effect on the SWB of the poor and political left in Europe.
Beja [2]	WVS	Industrialized and emerging countries	2005	Life Satisfaction. Gini	Ordered probit	(1) Very high levels of Gini have a negative effect on SWB in both industrialized and emerging countries. (2). People from both regions turn out to tolerate subjective income inequality.
Berg and Veenhoven [7]	World Database of Happiness	119 countries	1993–2004	Life satisfaction, mood, and contentment.	Correlation analyses	(1) Gini has a positive effect on SWB in Latin America, Asia and Eastern Europe. (2) A negative effect in North America, New Zealand and Western Europe. (3) a non-significant effect in Africa.
Bjørnskov et al. [11]	WVS	87 countries	1990–2008	Life satisfaction. Gini	OLS regressions	(1) Gini has a positive effect on SWB, while government redistribution has a negative effect. (2) Tolerance towards inequality differs from one country to another, depending on the country's social mobility.
Delhey and Dragolov [33]	European Quality of Life Survey	30 European countries	2007	Life satisfaction and happiness. Gini	Multilevel mediation analysis	(1) Gini has a negative effect on SWB. (2) The relationship between Gini and SWB is strongly mediated by distrust and status anxiety, while perceived conflict has no effect as a mediator.
Diener et al. [54]	Veenhoven World Database of Happiness	55 countries	Different points in time, 1984–1986	Life satisfaction. Gini	Correlation analyses	(1) Gini has a negative effect on SWB across countries. (2) Gini has no significant effect on students' SWB.
Graham and Felton [36]	Latinobarómetro	18 Latin American Countries	1997–2004	Life satisfaction. Gini	Ordered logit	(1) Gini has a negative effect on SWB in Latin America. (2) When Gini is controlled by relative wealth, the significant effect disappears.
Hajdu and Hajdu [55]	European Social Survey	29 European countries	2002–2008	Life Satisfaction. Gini	OLS regressions	(1) Gini has a negative effect on SWB. (2) The decline in Gini has aposítive effect on SWB. (3) Redistribution has a strong positive effect for the less affluent people and political left. (4) Post-government Gini is not significant in Western Europe, it has a strong negative effect impact in Eastern Europe.
Haller and Hadler [8]	WVS	41 countries	1995–1997	Life satisfaction and happiness. Gini	Multilevel regression	(1) Gini has a positive effect on SWB. (2) SWB is higher in rich countries and in countries where income is more equally distributed. 3) SWB is also high in well-developed welfare states and in countries where political freedom is high.

Table A5. *Cont.*

Reference	Dataset	Region	Time Span	SWB and Inequality Measures	Empirical Methods	Inequality-SWB Results
Mikucka et al. [56]	WVS and EVS	46 countries	1981–2012	Life satisfaction. Gini	Multilevel analysis	(1) In the long run, economic growth has a positive effect on SWB in rich countries when inequality declines and social trust does not decrease. (2) Economic growth has no effect on life satisfaction in non-transition countries and has a positive effect in transition countries. (3) Social trust has a stronger positive effect on life satisfaction in rich countries than poor countries. (4) The relationship between economic growth and life satisfaction is moderated by social trust and Gini.
Kelly and Evans [4]	Pooled WVS-EVS	68 countries	1981–2009	Life satisfaction and happiness. Gini	Random-intercept fixed-effects multi-level models.	Gini is positively associated with SWB in developing countries, while it has no effect in developed countries.
Oishi and Kesebir [3]	Veenhoven's (2015) World Database of Happiness and Latinobarómetro	16 developed countries and 18 Latin American countries	For developed countries: 1959–2006; for Latin America: 2003–2009	For developed countries: Life satisfaction and happiness; for Latin America: Life satisfaction. Gini	Multilevel analysis	Gini has a negative effect on SWB in both regions.
Powdthavee et al. [44]	Gallup World Poll	24 countries	2005–2013	Life evaluation and individual's emotional experiences. Top 1%	fixed-effects filtered (FEF)	(1) Top 1% has no significant effect on life evaluation. (2) only people in Europe do not show tolerance towards rising top income shares than those from other countries.
Ravazzini and Chávez-Juárez [19]	ESS	31 European countries.	Different points in time	Life satisfaction. Gini	Standard panel data models.	Gini has a negative effect on SWB, and especially the top income earners during the downward mobility, while Gini has a positive effect on the poorest.
Reyes-García et al. [10]	PEN	21 developing countries	2005–2010	Life satisfaction. Gini at the country and village levels.	Ordered logit and mixed-effects logistic models	At the macro and micro levels, Gini has a positive effect on SWB and GINI measured at village-level Gini has a negative effect on SWB.
Rözer and Kraaykamp [12]	WVS and EVS	85 countries	1989–2008	Life satisfaction and happiness. Gini	Multilevel analyses	Gini increases SWB, but this positive effect is statistically weak at the individual level when persons' fairness perception is high and in countries where social trust is high.
Schröder [45]	WVS and Cross-National Equivalent	72 countries	1984–2013	Life satisfaction. Gini	Hybrid regressions	A country's long-run level of inequality does not affect life satisfaction, but the fluctuations of inequality over time decrease life satisfaction.
Tavor et al. [57]	World Happiness report	41 developed countries and 98 developing countries	2012–2014	Happiness. Gini	Hierarchical regressions	(1) Extreme values of Gini have a negative impact on happiness regardless of GDP per capita. (2) Ginis with intermediate ranges have an ambiguous effect on happiness regardless of the actual values of GDP per capita.
Verme [58]	EVS and WVS	84 countries	1981–2004	Life satisfaction. Gini	Ordered logit	(1) Gini has a negative effect on SWB. (2) Gini has a negative effect on poor and rich. (3) Gini has a negative effect on Western and non-Western countries.

Table A6. Determinants of life satisfaction without variables of social trust and social fairness.

Variables	Model 1	Model 2	Model 3	Model 4
Individual variables				
Male	−0.020	−0.020	−0.020	−0.020
	(0.026)	(0.026)	(0.026)	(0.026)
Age	−0.033 ***	−0.033 ***	−0.033 ***	−0.033 ***
	(0.008)	(0.008)	(0.008)	(0.008)
Age squared	0.000 ***	0.000 ***	0.000 ***	0.000 ***
	(0.000)	(0.000)	(0.000)	(0.000)
Number of children				
No children	Ref.	Ref.	Ref.	Ref.
1 child	−0.013	−0.014	−0.014	−0.014
	(0.047)	(0.047)	(0.047)	(0.047)
2 children	0.066	0.066	0.066	0.066
	(0.055)	(0.055)	(0.055)	(0.056)
3 or more children	0.125 ***	0.125 ***	0.124 ***	0.124 ***
	(0.047)	(0.047)	(0.047)	(0.047)
Education				
No formal education	Ref.	Ref.	Ref.	Ref.
Primary	0.227 ***	0.227 ***	0.227 ***	0.227 ***
	(0.070)	(0.069)	(0.069)	(0.070)
Secondary	0.162	0.160	0.161	0.161
	(0.096)	(0.096)	(0.096)	(0.097)
University	0.183 *	0.180 *	0.181 *	0.182 *
	(0.099)	(0.099)	(0.099)	(0.099)
Labor status				
Full-time	Ref.	Ref.	Ref.	Ref.
Part-time	−0.063	−0.063	−0.063	−0.063
	(0.054)	(0.054)	(0.054)	(0.054)
Self-employed	−0.031	−0.030	−0.031	−0.030
	(0.078)	(0.078)	(0.078)	(0.078)
Retired	−0.124	−0.124	−0.124	−0.123
	(0.083)	(0.083)	(0.083)	(0.082)
Unemployed	−0.224 ***	−0.225 ***	−0.225 ***	−0.225 ***
	(0.063)	(0.063)	(0.063)	(0.063)
Other	0.006	0.006	0.006	0.006
	(0.045)	(0.045)	(0.045)	(0.045)
Household income				
First quartile	Ref.	Ref.	Ref.	Ref.
Second quartile	0.433 ***	0.433 ***	0.433 ***	0.433 ***
	(0.082)	(0.082)	(0.082)	(0.082)
Third quartile	0.657 ***	0.657 ***	0.657 ***	0.657 ***
	(0.114)	(0.114)	(0.114)	(0.114)
Fourth quartile	1.107 ***	1.108 ***	1.108 ***	1.108 ***
	(0.158)	(0.158)	(0.158)	(0.158)
Marital status				
Married	Ref.	Ref.	Ref.	Ref.
Divorced	−0.372 ***	−0.372 ***	−0.372 ***	−0.372 ***
	(0.109)	(0.109)	(0.109)	(0.109)
Separated	−0.453 ***	−0.453 ***	−0.453 ***	−0.453 ***
	(0.085)	(0.085)	(0.085)	(0.085)
Widowed	−0.437 ***	−0.436 ***	−0.437 ***	−0.436 ***
	(0.082)	(0.082)	(0.082)	(0.082)
Single	−0.103 **	−0.102 **	−0.103 **	−0.103 **
	(0.051)	(0.051)	(0.051)	(0.051)

Table A6. *Cont.*

Variables	Model 1	Model 2	Model 3	Model 4
Social status				
Lower class	Ref.	Ref.	Ref.	Ref.
Working class	0.289 ***	0.288 ***	0.288 ***	0.288 ***
	(0.066)	(0.066)	(0.066)	(0.066)
Lower-middle class	0.424 ***	0.423 ***	0.424 ***	0.424 ***
	(0.056)	(0.056)	(0.056)	(0.056)
Upper-middle class	0.650 ***	0.649 ***	0.650 ***	0.650 ***
	(0.067)	(0.067)	(0.067)	(0.067)
Upper class	0.878 ***	0.876 ***	0.878 ***	0.878 ***
	(0.121)	(0.121)	(0.121)	(0.121)
Religion				
No religion	Ref.	Ref.	Ref.	Ref.
Muslim	−0.043	−0.043	−0.041	−0.036
	(0.154)	(0.154)	(0.154)	(0.154)
Catholic	0.149 **	0.151 **	0.149 **	0.148 **
	(0.074)	(0.074)	(0.074)	(0.074)
Protestant	0.138 **	0.140 **	0.139 **	0.139 **
	(0.052)	(0.053)	(0.052)	(0.053)
Orthodox	−0.047	−0.055	−0.052	−0.047
	(0.059)	(0.057)	(0.058)	(0.059)
Jewish	0.148	0.147	0.149	0.150
	(0.389)	(0.390)	(0.390)	(0.390)
Other religion	0.074	0.077	0.077	0.072
	(0.081)	(0.081)	(0.081)	(0.081)
Often without enough food	−0.305 ***	−0.304 ***	−0.305 ***	−0.305 ***
	(0.095)	(0.095)	(0.095)	(0.095)
Often going without cash	−0.582 ***	−0.582 ***	−0.582 ***	−0.581 ***
	(0.105)	(0.106)	(0.106)	(0.106)
Saved money during past year	0.183 ***	0.184 ***	0.183 ***	0.183 ***
	(0.036)	(0.036)	(0.036)	(0.036)
Country variables				
Logarithm GDP per capita	0.206	0.132	0.127	0.042
	(0.172)	(0.143)	(0.148)	(0.157)
GDP growth	−0.006	0.029	0.015	−0.005
	(0.018)	(0.015)	(0.019)	(0.022)
Unemployment rate	−0.055 ***	−0.037**	−0.047**	−0.076 ***
	(0.020)	(0.018)	(0.021)	(0.025)
Inflation	−0.017	−0.001	−0.006	−0.016
	(0.027)	(0.023)	(0.024)	(0.025)
Gini Index	0.033 ***		0.017	−0.153 **
	(0.012)		(0.013)	(0.069)
Opportunity Index		0.049 ***	0.036 **	−0.103 *
		(0.016)	(0.018)	(0.057)
Gini Index * Opportunity Index				0.003 **
				(0.001)
Constant	4.292 ***	3.577 ***	3.701 ***	11.661 ***
	(1.497)	(1.322)	(1.382)	(3.503)
Observations	35,169	35,169	35,169	35,169
Number of countries	25	25	25	25

Robust standard errors in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

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