UNIVERSITÀ DELLA CALABRIA | DIPARTIMENTO DI ECONOMIA, STATISTICA E FINANZA "GIOVANNI ANANIA"

Working Paper Series

WP n° 6, giugno 2019

COMPARISON IS THE THIEF OF JOY. DOES SOCIAL COMPARISON AFFECT MIGRANTS' SUBJECTIVE WELL-BEING?

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"Comparison is the thief of joy".
Does social comparison affect migrants' subjective well-being?[*]

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Abstract

This paper contributes to the growing strand of literature that investigates migrants' subjective wellbeing by analysing how the social comparison with two reference groups (natives and other migrants) within the host country affects migrants' life satisfaction. Using data from six rounds of the European Social Survey, we constructed two measures of economic distance that compare each migrant's situation with the average of the group of natives and the group of migrants with similar characteristics. Our results indicate that when the disadvantage between the migrant and the reference groups becomes smaller, migrant's life satisfaction increases. The effect of the social comparison with natives appears larger than the social comparison with migrants and, in both cases, it is stronger for individuals with higher levels of education. We also show that social comparison is stronger for second generation migrants than for first generation migrants and, within this latter group, it intensifies as length of stay in the host country increases. Overall, the role of social comparison seems crucial to understanding patterns of integration in an enlarged Europe.

Keywords: subjective well-being, migrants, social comparison

JEL codes: I31, F22

[*] The authors would like to thank the participants at the Session S32 "Health of migrants 2" at the Population Days Conference 2019 held in January 2019 at Bocconi University (Milan) and the members of the EU-FER project funded by the European Research Council (ERC) (p.i. Daniele Vignoli) for their useful comments. Any remaining errors are ours.

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1. Introduction

Happiness is (widely believed to be) the ultimate goal of life, but happiness is not an absolute concept, depending heavily on life circumstances. The former American President Theodore Roosevelt once made this very striking statement: *"Comparison is the thief of joy"*. This famous quotation argues that comparing your work, your life, or whatever else to someone else' situation will only serve to make you unhappy. Starting from this idea, we concentrate in this paper on how social comparison affects the subjective well-being of individuals. In particular, on migrant's subjective wellbeing (hereafter, SWB), a topic which has recently been addressed in the literature.

The literature on economic and social integration and assimilation of migrants across Europe is rich of contributions, exploiting in particular integration parameters such as education (Dustmann *et al.*, 2012; Kunz, 2014), occupation and wage (see, e.g., Borjas, 1990; Semyonov *et al.*, 2014; Margalit, 2012; Creese and Wiebe, 2012), or linguistic distance (Strøm *et al.*, 2017). More recently, a growing strand has begun to focus on migrants' SWB. Questions about "Happiness" and "Life Satisfaction" are typically used to measure the SWB, which is the individual evaluation of one's own life as a whole (van Praag *et al.*, 2003)[1]. Prior studies explored the association between income and SWB (Bartram, 2011); the variability of migrants' life satisfaction by country of origin (Amit, 2010; Amit and Riss, 2014); the decline of life satisfaction as the length of stay in the destination country increases (Obućina, 2013); the change in SWB from the first to the second generation (Safi, 2010).

In this work, we aim to contribute to the study of SWB across Europe by scrutinizing the determinants of migrant's SWB and, in particular, by testing the importance of the relative position of migrants compared to relevant reference groups. In other words, we intend to exploit the role of "social comparison" in shaping migrants' SWB evaluations[2]. A better understanding of reference groups migrants compare themselves with in assessing their SWB is a strategic topic also from a policy point of view, because it is closely related to the level of integration of migrants within the host country.

Despite pervasive references in the literature to migrants' social reference to home countries, little research has been done on the question of migrants' reference groups (Liu *et*

[1] In this paper, we mainly refer to SWB, but we may cite papers in which the focus is on ''happiness'' or ''life satisfaction.'' This is standard practice (e.g., Easterlin, 2004). Subjective well-being is, in fact, a broad category that involves positive and negative feelings, expressions of happiness, as well as cognitive judgments of life satisfaction (Diener *et al.*, 1999). These components of SWB are often substantially correlated one another, and the terms describing its various dimensions are often used interchangeably.

[2] For simplicity, in this paper we use the general term "migrant" to indicate both first and second generation. Second generation migrants are those born in country from one or both parents born abroad.

al., 2019; Gelatt, 2013; Bălţătescu, 2014, 2007, and 2005). Nevertheless, other people's characteristics may exert a positive/negative influence on individual SWB, signalling differences (Hirschman, 1973). This paper considers both comparison with natives and comparison with migrants with some same characteristics in the host country. To outline such an approach, we operationalized the level of "social comparison" by constructing two measures of economic distance that compare each migrant with the average of the group of natives and the group of migrants with the same characteristics. Our research questions are the following: (i) "*Does social comparison play a role in determining migrants' SWB?"*. If yes, (ii) "*Who do they compare themselves with most, with natives or migrants with the same characteristics?"*. Additionally, we want to answer the following questions: (iii) "*Are there differences in the relationship between social comparison and migrants' level of SWB at different lengths of stay in the host country?*"; (iv) *"Are there differences in the relationship between social comparison and migrants' level of SWB at different levels of education?"*.

To address these questions, we use the cumulative dataset of the European Social Survey (hereafter, ESS) from 2002 to 2016 because it provides the possibility to compute the measures of social comparison, the extensive coverage of European countries, and the methodological rigor that ensures a high degree of cross-country comparability (Jowell *et al.*, 2007).

2. Literature review

2.1. Migrants' SWB

Over the recent years there has been an increasing amount of theoretical and empirical research on SWB. Less attention has been paid to migrants (Bak-Klimek *et al.*, 2015) although there is a number of emerging studies focusing on this topic (e.g. Gokdemir and Dumludag, 2012; Herrero and Fuente, 2011; Amit, 2010). One unanimous finding in the literature is that, controlling for many observable characteristics and circumstances, migrants are less happy than natives (see, e.g., Hendriks and Burger, 2018; Arpino and de Valk, 2018; Senik, 2014; Stillman *et al.*, 2015; Bartram, 2011; Safi, 2010; Baltatescu, 2005 and 2007; De Jong *et al.*, 2002).

Another relevant strand of literature focuses on the migrants' length of stay in the host country. Some scholars (see, e.g., Diener *et al.*, 1999; Bohnke, 2008) have shown that the economic position and level of SWB of the migrant increased with the length of stay in the

destination country or, even more, the differential with natives diminishes across generations (Arpino and de Valk, 2018). In contrast, other scholars (Melzer, 2011; De Jong *et al.*, 2002) find that, according with the rational choice hypothesis in the field of neoclassical economics, migrants will report higher SWB after the move than before. In a similar vein, it has been suggested that the SWB of international migrants in developed countries generally does not increase as their stay in the host country is extended (Hendriks and Burger, 2018; Calvo and Cheung, 2018; Stillman *et al.* 2015; Obućina, 2013; Safi, 2010).

Only recently a growing body of migrant literature has focused on Europe. Using ESS data, Bălţătescu (2005) discovers that in 12 of 13 Western European countries, migrants report lower subjective well-being than natives (the differences are not always significant due to small sample sizes). Safi (2010) uses the same data as Bălţătescu (2005, 2007) and confirms long-lasting effects of immigration on happiness: even after 20 years in the host country, migrants are still less satisfied than natives. Still using ESS data, Senik (2014) uncovers similar effects of first and second-generation migrants in France, but finds the level of self-declared happiness of second-generation migrants tends to converge towards that of natives (of their country of residence).

Recently, Hendriks and Burger (2018), using ESS data, show that the SWB assimilation of first-generation migrants in European countries is impaired by the gradual development of less positive perceptions of the host country's economic, political, and social conditions. Adaptation processes cause a shift in aspirations and reference points (Graham, 2009), so the impact of events or changing circumstances on a person's subjective wellbeing typically weakens over time (Hendriks and Bartram, 2018). Kogan *et al.* (2018), using the first 6 waves of the ESS (2002-2012), examine the impact of three national-level traits (the climate of migrant reception, the extent of public goods provision, and the level of economic inequality) in explaining the variation in migrants' life satisfaction across countries. They find that migrants are more satisfied in countries that offer more welcoming social settings, but this association is significant only when the social setting is measured by attitudes of the natives towards migrants, rather than by legal immigration regulations and policies.

2.2 Social comparison and SWB

The theoretical framework of social comparison and relative deprivation has been originally elaborated by Festinger (1954) and Runciman (1966), but Clark *et al.* (2008a) date back to some studies of the end of the XIX century the economic analysis of relative income effects. A seminal paper of Easterlin (1974) contributed to the spread of this theory, by suggesting

that income plays a minor role in happiness once an individual rises above subsistence level (the so-called "Easterlin paradox"). In addition, he argued that happiness is strongly influenced by what is known as "relative status".

Clark et al. (2008a) propose an explanation of the Easterlin paradox which is related to the ways in which income translates into utility (proxied as happiness). The authors underline the fact that relative income may be considered as social comparison: individuals compare themselves to other people they consider similar (external reference points) and, in this case, relative income can be interpreted as the 'status return' from income, or the positional or conspicuous consumption aspect of income. In this sense, relative deprivation assumes the meaning of social comparison.

In a very interesting and enlightening work, Prilleltensky (2012) exploits the psychological mechanisms of both upward and downward comparison (among others which mediate the relationship between wellness and fairness), explaining how people make judgments about their own lives by comparing their lot with that of others.

Many scholars have confirmed that happiness depends much more on the relative perception of income in relation to past income and to the perceived incomes of their peers than on their absolute income level (Hendriks and Burger, 2018; Easterlin, 2004; Clark *et al.*, 2008a). Some studies focus on the social comparison of income variables on happiness or SWB (Scoppa and Ponzo, 2008; Clark and Etilé, 2008; Caporale *et al.*, 2009; McBride, 2001), suggesting that income cannot buy happiness *per se* (Carrieri, 2012) while relative income can. Scoppa and Ponzo (2008) find that individuals care about relative income, in the sense that their happiness is negatively influenced by the average income in their group of reference (that is, individuals of similar age and education, living in the same geographical area). Other studies focused on how social comparison mediates the effect of subjective health on happiness (Carrieri, 2012; Clark and Etilé, 2008; De Mello and Tiongson, 2009). Some find that income comparison is negatively correlated with job satisfaction (Lévy-Garboua and Montmarquette, 2004; Sloane and Williams, 2000; Clark and Oswald, 1996).

Results concerning the question which has larger effect on happiness- absolute versus relative income- are not univocal. Clark *et al.* (2008a, 2008b) suggest that increases in relative income improve happiness, but increases in absolute income do not. On the same lines, Ball and Chernova (2008) suggest that absolute and relative income are both positively and significantly correlated with happiness, but changes in relative income have a much larger effect on happiness than changes in absolute income. On the other hand, Scoppa and Ponzo (2008) find that the effect of absolute income is larger than relative income.

Luttmer (2005), matching individual data on well-being to information about local average earnings, finds that when controlling for an individual's personal income, higher earnings of neighbours are associated with lower levels of self-reported happiness. Clark et al. (2008a), suggested that income may be evaluated relative to others (social comparison) or to oneself in the past (habituation) and conclude their work by saying that taking relative income seriously leads models and empirical analysis to move closer to how real people feel and behave, thereby making an important step towards greater behavioural realism in Economics. As regards the reference groups, Luttmer (2005) finds that upward comparisons lead to more critical evaluations and reduce SWB, while downward comparisons lead to less critical evaluations and increase SWB. Caporale *et al.* (2009) find that the income of a reference group exerts a negative effect on well-being, even after controlling for absolute income and other personal and demographic characteristics. In the same way, Senik (2009) finds that income comparisons exert an impact on subjective well-being per se and that people suffer from relative deprivation rather than from general income inequality.

2.3 Social comparison and migrants' SWB

In this article, we argue that the role of social comparison has been underestimated in European research on migrants' SWB. Economic research on integration of migrants adopts Alba and Nee (1997)'s definition of assimilation: a migrant group assimilates if there is a "reduction of differences between similar groups over time". Migrant performance in the labour market (i.e. wage, occupation, tenure in employment) is compared to the one of a native worker with the same individual characteristics in term of gender, age, education, family, workload etc. In addition, to avoid spurious correlation, also the economic cycle at arrival should be controlled by comparing groups entering the labour market in the same period and thus facing the same job options. With this point of departure, all the integration policies are meant to reduce the objective differential to migrant-native assimilation.

Despite the dominant role of integration and assimilation theories in the migration literature and the growing body of research on migrants' SWB, surprisingly little empirical research has been conducted on the question of migrants' reference groups and the relationship between social comparison and SWB. The theoretical framework of social comparison and relative deprivation of Festinger (1954) and Runciman (1966) has been applied to migration and further developed by Stark and others (Stark, 1991; Stark and Taylor, 1989; Stark and Bloom, 1985) in order to explore the relationships between migration, integration, and changes in SWB.

Recently, we located a few examples in the literature that addresses the issue of migrants SWB from a social comparison perspective. Bălţătescu (2005) uses data from the ESS first round and refers to "social comparison" using the variables about the individual evaluation of socio-economic environment (satisfaction with present state of economy in country; satisfaction with the government, satisfaction with the way democracy works in country; current state of education in country; current state of health services in country). He finds that migrants have higher satisfaction with societal conditions than natives, supporting the thesis of social comparison. Gelatt (2013) suggests that migrants maintain simultaneous reference groups in both the US and the country of origin, with different intensity according to the country of origin. For Germany, Obućina (2013), considering different reference groups, finds that the negative association between duration of stay and life satisfaction is persistent, regardless of the way the reference groups are defined. For China, Liu *et al.* (2019) find that self‐rated socio‐economic status is important in explaining migrant's SWB and, more importantly, that including this variable in the regression cancels the effect of absolute income. The way individuals perceive their condition, therefore, is more important than the real condition itself in explaining their level of life satisfaction.

Melzer and Muffels (2012), examining the impact of adaptation, social comparison and relative deprivation on the change in SWB associated with moving from Eastern to Western Germany after reunification in 1989 (considered as a "natural experiment"), find that people compare themselves with their colleagues and gain dissatisfaction from an increase in their peers' incomes confirming the existence of a social comparison effect. Some papers have found evidence of differences in the impact of social comparison and in the relevant reference groups across generations or at different lengths of stay in the host country. For instance, Hendriks and Burger (2018) suggest that, while migrants initially have as reference group of comparison mainly people back home, afterwards – over time – their frame of reference partially shifts toward natives and other migrants in the host country.

One limitation of these analyses is the use of a subjective measure of social comparison. Given that the rankings are subjective, it remains unclear what people were referring to when evaluating their social position. In this paper, we go further and propose two *objective* measures of social comparison (not based on a subjective evaluation of one's individual condition) in the host country. We argue that migrants' happiness is influenced more by their relative level of income vis-à-vis reference groups than from the absolute level. The relative happiness of the migrant depends on who they compare themselves to, and the researcher needs to sort out these effects. The answer to how happy (or unhappy) migrants are

will crucially depend on the reference group. In the following, we explore SWB differentials by comparing the economic distance of each migrant with the average of the group of natives and the group of migrants with the same characteristics.

2.4 Other determinants of SWB

The association between social comparison and SWB may be due to other factors as well. Some of these factors are well known in the general literature of the field, while others are specifically related to migrants.

Demographic confounders include age, gender, marital status, and presence of children in the household. Regarding age, the results in the literature are ambiguous (for a review, see López Ulloa *et al.*, 2013): some find a U shape, some other an inverted U shape, some others a linear relation, and these differences may be due both the dataset used in the various papers and to the other covariates in the models which can moderate the age effect. The literature on the field find that women are generally less satisfied with their life than men (Tesch-Römer *et al.*, 2008). At the same time, women tend to be less competitive than men (see, e.g., Croson and Gneezy, 2009; Niederle and Vesterlund, 2007, 2011; De Paola *et al.*, 2017; De Paola *et al.*, 2015) and this may affect the way social comparison is related to women and men's level of SWB.

The empirical literature supports theoretical predictions regarding a positive link between being in a partnership and life satisfaction (e.g., Vignoli *et al.*, 2014). Kohler et al. (2005) found that men and women who were currently in a partnership were definitely happier than those who were not, disregarding unobserved endowments such as preferences and capabilities due to genetic dispositions, family background, and so forth. The connection between having children and SWB has recently received growing attention (Kohler and Mencarini, 2016; Margolis and Mirskala, 2014). While some studies have found a positive association between parenthood and happiness (Saraceno *et al.*, 2005; Kotowska *et al.*, 2010), others that have removed bias resulting from selection into parenthood have shown that having children has either non-significant or negative effects on levels of SWB (Clark and Oswald 2002; Clark *et al.*, 2008b), even if the negative effect is mitigated for women with moderate work-family conflict (Matysiak *et al.*, 2016).

Other selectivity factors are related to the individuals' socio-economic position. In particular, education and professional status have attracted considerable attention because they represent valid markers of individual autonomy, intellectual abilities, and independence of social norms. Clark and Oswald (1996), also find that SWB declines with the level of

education. The authors suggest that this may be caused by the fact that higher education induces higher aspiration. Employment status is known to be positively correlated with SWB (Clark and Oswald 1996; Argyle 1999). Being employed is crucial for defining the opportunities people have for maintaining themselves and for achieving personal goals. In the case of migrants, the literature suggests that those with higher education have more contacts with the indigenous community (De Palo *et al.*, 2007).

The relationship between religion and SWB has been widely explored in the literature (for a review see, e.g., Tay *et al.*, 2014). Most findings confirm the positive association between religious involvement and life satisfaction (Lelkes, 2006), in terms of religious activities (Gruber, 2005; Myers, 2000); religious beliefs and intrinsic religiousness (Diener *et al.*, 2011; Helliwell, 2003, 2006; Dehejia *et al.*, 2007); and church attendance and its frequency (Ferris, 2002; Lim and Putnam, 2010; Smith *et al.*, 2003). Other findings highlight differences in terms of religious affiliation (see, e.g. Ngamaba and Soni, 2018).

3. Data and methods

3.1. Data and descriptive findings

For this analysis, we rely on the cumulative dataset of the ESS (2002-2016), a repeated cross section survey that involved 32 countries[1] conducted every two years since 2002. Thanks to the great effort to ensure standardization of questionnaires across countries and years, the ESS provides a comparative perspective (see, e.g., Immerzeel and van Tubergen, 2013; Mc Daniel, 2013; Safi, 2010, Soons and Kalmijn, 2009). In the ESS, life satisfaction[2] is measured by using a standard question (available in each of the six rounds) *"All things considered, how satisfied are you with your life as a whole nowadays?"*, measured through an 11-point scale, ranging from 0 (extremely dissatisfied) to 10 (extremely satisfied)[3].

We have decided to concentrate our attention only on a sample of migrants[4] for many

[1] The countries included in the analysis are: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Lithuania, Luxembourg, Netherlands, Norway, Poland, Portugal, United Kingdom, Russia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, Turkey.

[2] In this paper we will use the terms life satisfaction and subjective wellbeing interchangeably.

[3] The ESS contains also a question about happiness, measured on the same 11-point scale of life satisfaction. As robustness check, we have run some additional regressions with Happiness as dependent variable (results not reported to safe space) and results are mostly unchanged.

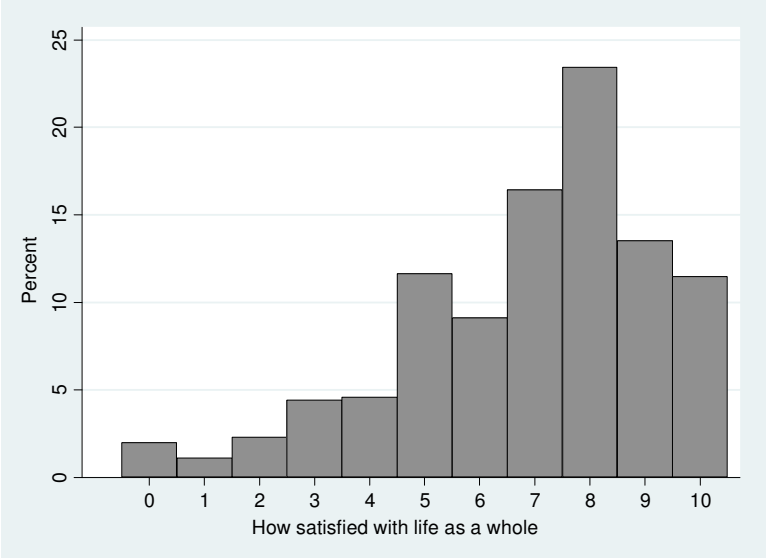
[4] We have run regressions also on the native sample, finding that, as expected, the social comparison is relevant in explaining their level of SWB. Results are not reported to save space and because they are outside the specific scope of this article, which focuses on migrants (but available upon request).

reasons: *(i)* while the literature on natives is full of contributions, it lacks papers specifically focused on the subgroup of migrants; *(ii)* we are interested in evaluating whether the migrants consider as reference group in the host country more the natives or the migrants; *(iii)* our aim is to concentrate, in particular, on the effect of years since migration in mediating the relationship between social comparison and SWB.

We have preliminarily worked at the harmonization of variables which modalities or coding have changed through the different waves. After cleaning the data from inconsistencies and deleted observations for which we had a missing value for the variables included in the analysis, there remains a final sample of 41,265 migrants across the 32 countries under consideration[1]. Among these, 52.95% are women (n=21,759), the mean age is 45.14 years, 53.84% of the individuals in the sample work, for an average number of hours per week equal to 39.47.

Figure 1 shows the distribution of the dependent variable (life satisfaction) in the selected migrant's sample. The modal value of the migrants' life satisfaction is 8, the median is equal to 7 and the average value is 6.62 (s.d. 2.42). Both the explanatory variables vary from -9 to +9 and, obviously, have an average value around zero[2].

Figure 1. Distribution of migrant's SWB in the ESS sample



[1] Complete descriptive statistics of all the variables are reported in Table A1 in the Appendix.

[2] We do not obtain a "perfect" zero value because the social comparison variables are built as the distance between the income position of each individual from the median position of the reference groups, not to the mean value. The average values are -0.07 for social comparison with natives and 0.17 for social comparison with migrants.

3.2. Methods

Following standard practice (see, e.g., Caporale *et al.*, 2009; Ball and Chernova, 2008; Clark and Etilé, 2008; Clark et al., 2008a, 2008b; Scoppa and Ponzo, 2008; Luttmer, 2005), we have *proxied* social comparison through relative income measures, scrutinizing whether migrants' SWB is influenced by their relative status compared to reference groups of natives and migrants residing in the same host country. Because each one of these two groups is very heterogeneous, we decided to make the comparison within groups that have the same characteristics, in order to reduce bias deriving from considering the reference groups as a whole.

Very often researchers are forced to construct reference groups based on a set of assumptions, especially because the lack of data to develop empirically definitions of reference groups (Gelatt, 2013). In the literature, reference groups have been defined as others in the same geographical area, including neighbours (Firebaugh and Schroeder, 2009; Luttmer, 2005), others with similar sociodemographic characteristics, such as age or sex (Ferrer-i-Carbonell, 2005; Firebaugh and Schroeder, 2009; Veenhoven ,1991), or others with the same education (Ferrer-i-Carbonell 2005), or in the same or similar occupations (Clark *et al.*, 2008a), or in the same social class (Veenhoven, 1991). Some others have used as reference group colleagues (Melzer and Muffels, 2012; Brown *et al.*, 2008).

In order to obtain a refined measure of social comparison, we have built groups taking into account many characteristics at the same time. The two references groups used to compare migrants are:

1) natives of the same gender, age[1], level of education[2], residing in the same host country;
2) migrants of the same gender, age, level of education and area of origin[3], residing in the same host country.

[1] We have used five age classes: <=30 years old, >30 & <=40 years old, >40 & <=50 years old, >50 and <=60 years old, >60 years old. McBride (2001), using 1994 data from the General Social Survey, has defined comparison income as average earnings of the individual's cohort, defined as those who are between 5 years younger and 5 years older than her. We don't have cohort data, but we have used the same 10 years age classes (except the first and last open ones).

[2] In order to simplify the procedure for the creations of groups and the calculation of median values for each subgroup in this case we coded education as a dummy: low education (highest level of education lower than EISCED 3, so lower secondary education as highest level) and high education (those who have at least EISCED 3). The decision to cut at this point is justified by the fact that the median of the distribution fall at EISCED 3 level: We decided to consider low educated those who have an education lower that the median of all migrants in the considered countries. We use the same "cut-point" to estimate regressions for subsample by level of education (section 4.3).

[3] We decided to use area of origin instead of country mainly for two reasons. First of all, the small sample size of some nationalities in some receiving countries can lead to biased or imprecise estimations. Secondly, for round 1

In papers dealing with social comparison, the relative income is calculated as the share of income on the mean or median value of the reference group (Clark *et al.*, 2008a; Scoppa and Ponzo, 2008). D'Isanto *et al.* (2016), concentrating on legal and illegal migrants in the south of Italy, use a measure of relative income within the group of migrants, the relative measure calculated as the individual's income in relation to the sample's average.

Although we followed this well-established approach in the literature and use an in-sample reference group, we have had to adapt the strategy because of the fact that in the ESS the only income measure is the decile of income to which the individual belongs. So, for each individual *i*, the two variables of social comparison are built as the distance between the decile of income in which the individual currently is and the median value of the corresponding reference group, according to the following formulas:

$$SCnatives_i = I_i^{g,a,e,c} - \bar{I}_{natives}^{g,a,e,c} \quad [1]$$

$$SCmigrants_i = I_i^{g,a,e,o,c} - \bar{I}_{migrants}^{g,a,e,o,c} \quad [2]$$

where *g* is gender, *a* is the age class, *e* is the level of education, *o* is the area of origin and *c* is the residing in the host country.

Each variable of social comparison assumes values ranging from -9 to 9. Namely, growing values of the social comparison variable indicate that the disadvantage of migrant with respect to the reference group diminishes, eventually becoming an advantage. So, each variable of social comparison expresses the relative income of each individual with respect to the relative group.

Some papers in the literature have relied directly on OLS models (e.g., Hendriks and Burger, 2018; Arpino and de Valk, 2018; Senik, 2014; Gelatt, 2013; D'Isanto *et al.*, 2015). Others have used ordered models (e.g, Ponzo and Scoppa, 2008) and run additional OLS regressions as robustness checks which lead to unchanged results. Following a common practice in SWB literature, we have decided to estimate our regression through an OLS

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only the area of origin was available. So in order to avoid problems in the estimation and to lose the first wave of observations, we have decided to build area of origin variables. Arpino and de Valk (2018) use the same strategy with ESS data, coding area of origin as continent (Africa, Asia, Europe, North America, South America and Oceania). We have used a more differentiated coding of area of origin to take into account possible differences within the same continent. Also Senik (2014) uses the same strategy of using large areas (although with different aggregations, namely Africa, Asia-Australasia, Europe, Latin America and the Caribbean, North America), justifying this choice with the fact that the sample of migrants is too small to allow controlling for each country of origin.

model, assuming cardinality of our life satisfaction measure[1]. Thus, in order to explore the relationship between migrants' SWB and the social comparison with the two reference groups we adopt a linear model (ordinary least square) with robust standard errors. SWB_i is estimated through the following formulas:

$$SWB_i = \alpha + \beta_1 \cdot SCnatives + \beta_2 \cdot X_i + \varepsilon_i \quad [3]$$

$$SWB_i = \alpha + \beta_1 \cdot SCmigrants + \beta_2 \cdot X_i + \varepsilon_i \quad [4]$$

In both the equations, individual SWB is affected by the level of social comparison (SC) with the specific reference groups, natives in equation [3] and migrants in equation [4], *proxied* as a relative measure of income.

In equations [3] and [4], X_i is a vector of covariates included in the model to adjust for possible confounders of the relationship between social comparison indicators and SWB:

1. demographic controls: gender, age, age squared[2], health (5 dummies ranging from very bad to very good);
2. family background: marital status (married, separated/divorced, widow, nubile), number of persons living in the household, age of the youngest child living in the household (three dummies: 0-3; 3-6; more than years old[3], with "no children" as reference);
3. socio-economic conditions: years of education, working status (a dummy taking value 1 if the person is currently working), number of working hours;
4. religion: declared level of religiosity (recoded as three dummies: "Not at all religious", "low degree of religiosity", "high degree of religiosity"), religious affiliation (Catholic, Protestant, Orthodox, Islamic, Other religions and "No religion");

[1] We have run ordered logit models as robustness check, finding that results for the main explanatory variables and the other covariates are substantially unchanged.

[2] We did not apply any upper age restriction, first of all because we want to consider migrants of all ages and secondly because old migrants are, indeed, very few. No differences in estimation appear if we apply an upper age restriction (for instance, 65 years). The square age was included to identify a possible non-linear effect.

[3] These variables were built crossing the variable about the relationship of each member of the household with the respondent and the variable about the age of each member of the household, and finally building the three dummies.

5. migrant experience: length of stay in the host country (coded as four dummies: 0-5, 6-10, 11-20, >20 years, with second generation as reference[1]), area of origin (coded as seven dummies: Europe 27, Other European countries, North America and Oceania, Southern and Central America, Asia, North Africa, Other African countries, with born in country as reference).

The model also includes standard controls due to the pooled nature of data: country of destination dummies, year dummies. ε_i is an error term which captures idiosyncratic shocks or unobserved respondent's characteristics. All the estimations (including descriptive findings) are properly weighted, by means of a combined weight resulting from the product of design weight and population weight (ESS, 2014).

4. Empirical findings

4.1. Main models

Table 1 reports the results of the main models ran on the whole sample. In Column (1), in line with equation [3] we introduce as main explanatory variable the social comparison with natives of the same gender, age, class and level of education, residing in the same country, built as explained in equations [1]. It is possible to note that, as the distance between the income of the respondent and the median value of income of the natives (of the same age, same host country) reduces (and eventually becomes positive), his/her life satisfaction increases.

In column (2), in line with equation [4], we run the same model using as main explanatory variable the social comparison with migrants of the same gender, age, class and level of education, coming from the same area and residing in the same country, built as explained in equation [2]. We observe a similar effect, although of a lower value than social comparison with natives. Both values are statistically significant at 1% and clearly indicate that the social comparison with the two reference groups is strongly related with the migrant's life satisfaction, although, as can be noted, the relationship between social comparison with natives and SWB is stronger than the relationship between social comparison with migrants and SWB.

[1] This strategy, useful to avoid problem of collinearity, has been already used (see, e.g., Holland and de Valk, 2013). This way we can exploit differences between first and second generation, accounting at the same time for length of stay in the destination country.

Table 1. Migrant's SWB and social comparison (to be continued)

		(1)	(2)
Social comparison variables	Social comparison with natives	0.121***	
		(0.013)	
	Social comparison with migrants		0.106***
			(0.011)
Individual characteristics	Female	0.014	0.046
		(0.029)	(0.034)
	Age of respondent	-0.070***	-0.073***
		(0.003)	(0.004)
	Age of respondent squared	0.001***	0.001***
		(0.000)	(0.000)
Health and socio-economic conditions	Health *(ref. very bad)*		
	Very good	3.090***	3.134***
		(0.191)	(0.178)
	Good	2.573***	2.599***
		(0.168)	(0.159)
	Fair	1.858***	1.873***
		(0.158)	(0.147)
	Bad	1.010***	0.997***
		(0.220)	(0.216)
	Years of full time education	0.019***	0.020***
		(0.004)	(0.005)
	Work	0.271***	0.309***
		(0.039)	(0.042)
	Total hours normally worked	-0.002*	-0.002
		(0.001)	(0.001)
Family	Marital status *(ref. nubile)*		
	Married	0.333***	0.361***
		(0.105)	(0.103)
	Disruption	-0.171*	-0.190*
		(0.091)	(0.094)
	Widow	-0.080	-0.089
		(0.055)	(0.055)
	Number of family members	-0.007	0.008
		(0.026)	(0.026)
	Age of the youngest children *(ref. No children)*		
	[0-3) years	-0.006	-0.032
		(0.088)	(0.085)
	[3-6) years	-0.042	-0.071
		(0.097)	(0.097)
	> 6 years old	-0.194***	-0.207***
		(0.065)	(0.065)
Religion	Level of religiosity *(ref. not at all religious)*		
	Low	0.021	0.0143
		(0.056)	(0.0567)
	High	0.364***	0.3629***
		(0.062)	(0.0647)
	Religion *(ref. no religion)*		
	Catholic	0.016	0.018
		(0.089)	(0.090)
	Protestant	0.055	0.045
		(0.064)	(0.068)
	Orthodox	-0.136	-0.161*
		(0.098)	(0.092)
	Islamic	-0.100	-0.141

Table 1. Migrant's SWB and social comparison (continued)

		(0.081)	(0.092)
	Other religion	0.083	0.088
		(0.069)	(0.070)
Migration background	Years since migration *(ref. second generation, born in country)*		
	0-5 years	-0.148	-0.195
		(0.143)	(0.151)
	6-10 years	-0.049	-0.087
		(0.085)	(0.089)
	11-20 years	-0.191**	-0.223**
		(0.088)	(0.088)
	>20 years	-0.039	-0.043
		(0.078)	(0.084)
	Area of origin *(ref. second generation, born in country)*		
	Europe 27	0.122	0.147
		(0.106)	(0.111)
	Other European countries	0.181	0.172
		(0.124)	(0.118)
	North America and Oceania	0.339***	0.444***
		(0.102)	(0.099)
	South and central America	0.124	0.064
		(0.101)	(0.102)
	Asia	0.035	-0.002
		(0.074)	(0.080)
	North Africa	-0.104	-0.170
		(0.114)	(0.110)
	Other African countries	-0.410***	-0.457***
		(0.046)	(0.045)
	Constant	5.236***	5.132***
		(0.220)	(0.234)
	Country dummies	YES	YES
	Year dummies	YES	YES
	Observations	41,265	41,265
	R-squared	0.257	0.251
	Number of clusters	32	32

Notes: The Table reports coefficients of OLS estimates based on ESS data (2002-2016). The dependent variable is "Life satisfaction". All models control also for all country dummies and year dummies (not reported). Robust standard errors (corrected for heteroskedasticity) are reported in parentheses. The symbols ***, **, * indicate that coefficients are statistically significant, respectively, at the 1, 5, and 10 percent level, respectively.

We have run some preliminary models (results are not reported to save space but available upon request) without social comparison variables, including nine dummies for the deciles of income (first decile as reference). For the total population and for both genders we find that the negative effect of a low income decreases as the decile of income increases, with a turning point at the median value, when the effect become positive and increasing until the tenth decile. As in many other findings (see, e.g., Hagerty, 2000; Scoppa and Ponzo, 2008), the magnitude of the social comparison effects is smaller than the main effect of income. Despite this, the results indicate that – at net of all the individual characteristics – the social

comparison, measured as the distance between the median reference group situation and the individual situation, still exerts an effect on the respondent's wellbeing.

Importantly, we have run a model with both measures of social comparison (results are not reported to save space but available upon request). We find that, while the magnitude of social comparison with natives remains at the same level as the previous estimations and highly statistically significant, the coefficient of the social comparison with migrants loses both magnitude and significance. This result suggests that migrants have a *mixed* system of reference with the reference groups, and within this system, the comparison with natives exerts a stronger effect on SWB than the comparison with other migrants. This is consistent with Luttmer (2005) who finds that upward comparisons lead to more critical evaluations and reduce SWB, while downward comparisons lead to less critical evaluations and increase SWB. Thus, the effect of social comparison may be stronger when looking up (to natives) and weaker when looking down (on other migrants)[1].

The other covariates included in the model are in line with the classical findings of the happiness literature in terms of age, gender, marital status and employment status – providing an indirect validation of the model itself. Gender is not significant, while age has a non-linear pattern, having first a negative sign and a positive one in the squared term in both regressions. Being married compared to being single is related to higher SWB, while being divorced or widowed is negatively related to SWB (although the latter is not significant). Regarding children, in line with much of the literature (Clark and Oswald 2002; Clark *et al.*, 2008a), we find that having children is generally negatively related to migrants' SWB compared to have none. In particular, having the youngest child aged 6 and over shows a negative and highly significant relationship with migrants' SWB statistically, while the other two coefficients albeit negative are not significant at the usual thresholds. Regarding socio-economic confounders, life satisfaction increases with education, and having a job increases life satisfaction, while the relationship with the working hours is negative. Health shows the expected pattern, with SWB increasing as perceived health conditions improve.

The variables on declared level of religiosity show that being religious is associated with higher SWB (the coefficient for low religiosity is positive but not significant, while the one for high religiosity is still positive and highly significant statistically). Notwithstanding the imprecise estimates, signs of covariates concerning religious affiliation are consistent with

[1] Although in the model with both variables run on the whole sample, the social comparison with migrants loses magnitude and significance, we have decided to keep using the two variables separately throughout the paper. This is because in models on subgroups (by gender and level of education), the social comparison with migrants remains significant for women and for those with medium-high level of education.

previous findings, which suggest that Protestants, Catholics and Buddhists (in our specification included in "other religions") are happier and more satisfied with their lives compared to other religious groups, and Orthodox has the lowest SWB (Ngamaba and Soni, 2018).

Given the focus is on migrants, we have added some covariates specifically referring to their background. Although the variable "years since migration" is in general not significant (with the exception for the long term migrants 11-20 years), what emerges is that, compared with second generation migrants (reference), first generation migrants appear to have lower values of SWB. The findings about years since migration are in line with previous findings which show that the SWB of international migrants in developed countries generally does not increase with length of stay in the host country (see, e.g., Hendriks and Burger, 2018).

Turning to area of origin, and concentrating only on variables which provide more precise estimates, we note that in comparison with the second generation born in the host country (i.e. the reference group), first generation migrants from North America and Oceania are positively associated with SWB, while the SWB of those from Other African Countries in both models, and those from North African Countries in the model with social comparison with migrants is negative. This suggests that forced migration (which may be more common from Africa) and chosen migration (which is, on the contrary, typical from richer countries, such as North America and Oceania) have an opposite relation with the SWB in the host country, being negative and positive respectively. Country-fixed effects (not reported to save space) are all statistically significant, but with different signs: living in Switzerland, Denmark, Finland, Iceland, Luxemburg, Netherlands, Norway, and Sweden is positively related to migrants' SWB, while for the remaining countries the relationship is negative. This result is consistent with Kogan *et al.* (2018) who find that migrants are likely to be more satisfied in countries that offer more welcoming social settings.

In the appendix, for completeness, we have reported separate estimations by gender (Table A2). Coefficients for both types of social comparison and for both genders are always positive and highly significant statistically. For both genders the social comparison with natives is higher than the social comparison with migrants. The difference between the two levels of comparison is slight for women (0.121 and 0.119, respectively), but more evident for men (0.124 and 0.097, respectively)[1].

[1] The coefficients, however, are not very different between gender and the chi2 test on the gender difference within the two models is not significant.

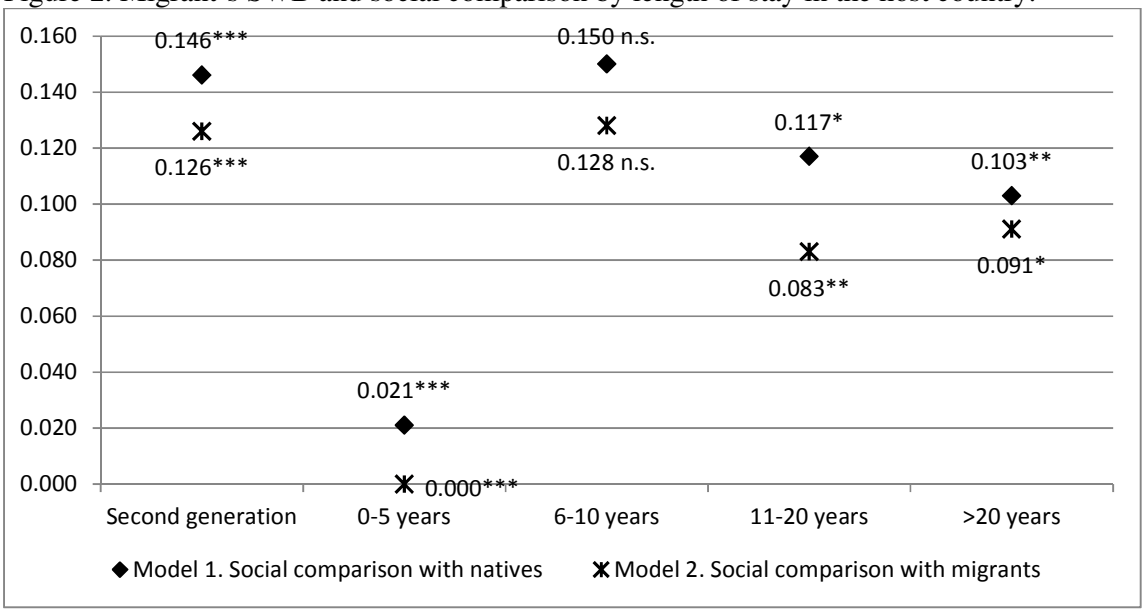
4.2. Differences in terms of years since migration

Results obtained in the main models on length of stay in the host country suggest a difference between the first and the second generation, although most of the coefficients for the first generation are not significant. Indeed, when the length of stay dummies as controls in the regression (as in Table 1) are included, it is not possible to evaluate the social comparison effect within different subgroups of migrants.

A more accurate evaluation of the association of length of stay with the SWB with reference to the social comparison value may be obtained by estimating models augmented by the interaction terms between each dummy of length of stay and the specific variable of social comparison. This allows us to disentangle and interpret the difference in the effect of each variable.

Complete results are reported in Table A3 of the Appendix, while Figure 2 shows the results obtained by combining the coefficient for the main explanatory and each interaction tem. Coefficients for the second generation are both statistically significant at the highest threshold and higher than in the main specification (they were 0.121 and 0.106, respectively), indicating that for the second generation the social comparison effect is higher than for the first.

Figure 2. Migrant's SWB and social comparison by length of stay in the host country.



Notes: The figure reports coefficients of OLS estimates based on ESS data (2002-2016). The dependent variable is "Life satisfaction". See Table A3 in the Appendix for complete results on the variables and interaction terms. Both models also control for all the variables in section 3.2 and included in main models (not reported, see Table 1). The symbols ***, **, *, n.s., indicate that coefficients are statistically significant, at the 1, 5, and 10 percent level and not significant, respectively.

The interaction terms between length of stay in the host country and social comparison are significant except for the intermediate duration (6-10 years)[1] and generally indicate that the relationship between social comparison and SWB is lower for first generation migrants. Concentrating on the social comparison with natives, the effect of social comparison is very low for recent migrants with a length of stay between 0 and 5 years (0.021, t-stat=-4.73, p-value=0.000), but increases over time (0.117, t-stat= -1.97, p-value=0.058 for migrants with a length of stay between 11 and 20 years; 0.103, t-stat=-2.09, p-value= 0.045 for migrants with a length of stay longer than 20 years).

As regards comparison with migrants a similar pattern is detected. In this case, the social comparison coefficient for recent migrants is almost equal to zero (0.0002, t-stat= -4.28, p-value=0.000), while it grows for migrants with a length of stay between 11 and 20 years (0.083, t-stat=-2.50, p-value=0.018) and for migrants resident in the host country for over 20 years (0.0913, t-stat=-1.83, p-value=0.078).

In general, our results indicate that for very recent migrants the effect of social comparison on SWB is very low, while it increases over time. For the second generation, who have lived in the host country and society for all their lives, with a consequent rise in expectations and aspirations, the relationship between social comparisons is much higher, both with natives and migrants with the same characteristics.

To test our results, we have run alternative regressions, using a different specification (as proposed in Arpino and de Valk, 2018): G1, first generation migrants (born outside the country); G2, "strict" second generation migrants (born in country from both migrant parents); G2.5, mixed-second generation (born in country, from one migrant parent). The results (not shown), still indicate the existence of generational differences, with social comparison having a stronger impact on SWB for the second generation.

4.3. Differences by education

In order to investigate differences in terms of educational levels, we have decided to run separate models splitting the sample between those with medium and high levels of education

[1] Between the interaction terms, this coefficient shows a contrasting pattern, although it is just slightly positive and not statistically significant. This may be due to the small size of this group (around 6% of migrants fall into this class). When we run additional regressions, putting together the first and the second group of length of stay this inconsistency disappears. However, we have decided to continue with the same categories used in the main models, because we think that within the first five years migrants face a different situation than migrants with longer durations, so this specific category must be considered.

and those with lower levels[1]. As a cut off point for the distribution of the education variable in our sample[2], we decided to split the sample in two groups: Low educated (those who have less than EISCED 3) and Medium-High educated (those who have at least EISCED 3).

Table 2. Migrant's SWB and social comparison. Separate estimations by level of education (low versus medium-high)

	Total		Women		Men	
	(1)	(2)	(3)	(4)	(5)	(6)
	Low education	Medium-high education	Low education	Medium-high education	Low education	Medium-high education
Social comparison with natives	0.100***	0.135***	0.098***	0.134***	0.093***	0.142***
	(0.013)	(0.016)	(0.020)	(0.015)	(0.019)	(0.021)
Full controls	YES	YES	YES	YES	YES	YES
Observations	9,108	32,157	4,689	17,070	4,419	15,087
R-squared	0.221	0.273	0.251	0.292	0.214	0.258
Number of clusters	32	32	32	32	32	32
	Total		Women		Men	
	(7)	(8)	(9)	(10)	(11)	(12)
	Low education	Medium-high education	Low education	Medium-high education	Low education	Medium-high education
Social comparison with migrants	0.078***	0.118***	0.104**	0.130***	0.050*	0.112***
	(0.013)	(0.014)	(0.040)	(0.014)	(0.026)	(0.019)
Full controls	YES	YES	YES	YES	YES	YES
Observations	9,108	32,157	4,689	17,070	4,419	15,087
R-squared	0.217	0.267	0.250	0.289	0.209	0.248
Number of clusters	32	32	32	32	32	32

Notes: The Table reports coefficients of OLS estimates based on ESS data (2002-2016), separately for total, men and women and for two levels of education. The dependent variable in all the models is "Life satisfaction". All regressions are run with corresponding full set of controls (see Table 1), not reported, except years of education which was not included in the regressions. The symbols ***, **, * indicate that coefficients are statistically significant, respectively, at the 1, 5, and 10 percent level.

The social comparison is higher for those with a higher level of education (Table 2). As regards the comparison with natives, the coefficient of low educated is 0.100, while it is 0.135

[1] The decision to run separate models by level of education is supported by the results of a chi2 test on difference between the coefficients across the two models (with full controls) by level of education. This test has shown that the differences between the two subgroups with high and low education are statistically significant for the total sample both in the case of social comparison with natives (models 1 and 2) and in the case of social comparison with migrants (models 7 and 8), with a p-value higher than 5% level. For men the test is also significant in the case of social comparison with natives (models 5-6), at 1% level, and in the case of social comparison with migrants (models 11 and 12), at 10% level. For women, the differences by level of education are less clear although in the case of comparison with migrants (models 9 and 10) not far from the conventional statistical threshold.

[2] As previously explained, the median value was 3, which corresponds to EISCED3, so we decided to cut considering low educated those who have a value lower than the median.

for medium-high educated. In the case of social comparison with migrants, the values are 0.078 and 0.118, respectively. Differences are more marked for men, for both measures of social comparison. In particular, in the case of social comparison with migrants, the coefficient for low educated men is 0.050 (significant a 10% level), while it grows to 0.112 for medium-high educated ones.

These results also show that, even when splitting the sample, the pattern found in the previous estimations is confirmed: for each subgroup, the social comparison with migrants is lower than the social comparison with natives. Only for low educated women, the comparison with migrants of the same reference groups is slightly higher than the comparison with natives, while we find the opposite pattern for medium-high educated women. Nonetheless, for women both levels of social comparison are relevant and the differences between the social comparison with natives and the social comparison with migrants are very little. While for men, these differences are more prominent, especially for the less educated.

5. Robustness checks

Several additional regressions proved the robustness of our results (not reported to save space). First, we have run the main models using ordered logit models rather than linear models. We find almost unchanged results and, more importantly, the variables of social comparison still show a positive and highly statistically significant coefficient.

Second, we have run the main models changing the dependant variable, using happiness instead of life satisfaction. We run these regressions both using the linear models than the ordered logit ones. Despite a reduction in the magnitude of the effect, the social comparison variables are still found to be highly significant statistically and positively related to migrants' happiness.

Third, in order to check whether our results also hold in reduced subsamples, we have run the main models in specific subsamples (only families with children and only workers). We still find that the coefficients of the social comparison variables are positive and highly statistically significant.

Forth, when building the social comparison variables, we refer to some specific group, homogeneous in terms of gender, age class, level of education, country of destination and area of origin (the latter only in the case of social comparison with migrants). The only variable we had to make some assumptions for and decide how to slit the groups is level of education. In

order to test the sensitivity of social comparison measures to this choice and attest whether this variable (and the regressions) is (are) robust to alternative specifications, we recalculated the variable of social comparison using two different cut-off points, EISCED 3 and EISCED 4 respectively. We ran the main models again and found that the variables of social comparison (even if some characteristics of the reference group to which they belong changed, they are still significant. No matter which characteristic we use to segment the groups, the social comparison is related to migrants' SWB.

Fifth, we have considered that those who are in the extreme deciles of the distribution very low or very high) may feel the social comparison less. So, we ran the main models on two restricted subgroups, excluding from the analysis first individuals in the lowest and the highest decile of income and then excluding those in the two lower and the two higher deciles of income. Still our social comparison variables are significant.

Sixth, we have run the main models with the social comparison variables (see Table 1), adding a supplementary variable measuring "Feeling about household income nowadays" (coded as four reversed categories: "Living comfortably on present income", "Coping on present income", "Difficult on present income", "Very difficult on present income").

Finally, we ran the same models (see Table 1), adding the individual's income deciles of income. In both the two final tests, we observe a reduction in the magnitude of the coefficients of social comparison with natives and with migrants but, despite this reduction, the coefficients still remain positive and statistically significant. These results may be interpreted as an indication that the variables of social comparison really *catch* something beyond the absolute value of income and its subjective perception.

6. Discussion and conclusions

Migrant's SWB is a growing, important area of research, because a convergence of migrants' SWB to the level of native could also be useful in creating other benefits (Hendriks and Burger, 2018), such as better integration (Richardson, 1967; De Neve *et al.*, 2013). In this paper we concentrate on the topic of migrant's SWB and, in particular, on how the social comparison with two reference groups (namely, natives and other migrants) with the same characteristics may affect their life satisfaction. We have built two measures of social comparison as the distance between the decile of income in which the individual currently is and the median value of the corresponding reference group and then estimated linear regression model to assess the relationship between migrant's SWB and these two measures

of social comparison, controlling for a wide set of potential confounders. Several insights have emerged from our analysis.

First, our results show that both levels of social comparison are related to migrants' SWB: the more the distance between individual income and the median income level of the reference groups diminishes, the more his/her life satisfaction increases. The social comparison with natives displays a higher magnitude than the social comparison with other migrants. This result is in line with previous findings, according to which upward comparisons lead to more critical evaluations and decreased subjective well-being, while downward comparisons lead to less critical evaluations and increased subjective well-being (Luttmer, 2005). So, comparisons with natives (who have a better "average" situation) exert a stronger effect than comparisons with migrants.

Second, we have scrutinized possible differences by length of stay in the host country, by estimating additional models augmented by interaction terms between each social comparison variable and the years in the host country. Results show that for the second generation migrants, who have lived in the receiving country and society for all their lives (with a consequent rise in expectations and aspirations), the relationship between social comparison and SWB is higher than for first generation migrants, both in the case of social comparison with natives and in the case of social comparison with migrants with the same characteristics. For recent migrants (between 0 and 5 years) the social comparison effect is almost equal to 0, suggesting that probably in the initial phases, migrants mainly compare their situation with people back home, and then, over time, they tend to partially shift their frame of reference toward natives and other migrants living in the host country (Hendriks and Burger, 2018).

Our results confirm recent findings in the literature on the different level of SWB of first and second generation migrants. For instance, Arpino and de Valk (2018) find that the gap in SWB is bigger between first generation migrants and natives than between second generation migrants and natives, suggesting a convergence in the level of subjective well-being. We can assume that this process of convergence probably also involves the social comparison. Obućina (2013), considering four classes of years since migration (0-10 years, 10-20 years, 20-30, more than 30 years), finds that – no matter which reference group considered –life satisfaction (as well as the income satisfaction) decreased the longer the time spent in the host country.

Third, interesting differences emerged by splitting the sample between those with medium and high levels of education and those with lower levels. Results show that the social comparison is higher for those who have the highest level of education and this may due to the fact that better educated migrants have higher expectations and aspirations, and therefore may be more sensitive to their relative position in comparison with the reference groups. Differences between the two levels of education are more marked for men, for both measures of social comparison. More educated individuals might have higher expectations (related to the higher level of education) than those with a low level of education (Clark and Oswald, 1996). In addition, the empirical research show that migrants with higher education have more contacts with the native community, which is not the case for their less educated peers, who tend to socialize inside the ethnic community (De Palo *et al.*, 2007) and this behaviour can affect their perception.

Although this study provides important insights into migrants' SWB in relation to their social comparisons, it has limited power to inform us on the causal relationships. It is important to note that none of the analyses presented account for the fact that individuals who have an innate predisposition to report a higher level of SWB may also systematically vary in their sense of belonging to certain comparison groups. However, our goal in this paper was to describe variations in migrants' SWB under the lens of social comparison across Europe. A descriptive study is a necessary first step; future efforts should be directed at verifying the associations evoked in this cross-sectional research through the use of panel data and the adoption of causal approaches. Further developments of this work might also consider a measure of income level at country of origin (maybe selected ones to overcome the problems of small sample sizes by country), to assess how this additional level of comparison may affect the SWB of migrants especially in the initial phase of their migration experience.

Overall, the role of social comparison seems crucial to understanding patterns of integration of migrants in an enlarged Europe. This paper confirms the famous statement of Theodore Roosevelt "Comparison is the thief of joy", by showing that social comparison with reference groups with the same characteristics is related to the individual's level of SWB. The more the gap between migrants' level of income and the median level of the reference group declines (and eventually becomes positive) the higher their life satisfaction. Using a multi-country dataset, we have provided new evidence, that social comparison is related to migrants' SWB and, in particular that the comparison with natives is stronger than the one with fellow migrants.

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Appendix

Table A1. Descriptive statistics of the sample (N. total= 41,265; N. women= 21,759; N. men= 19,506)

	Total		Women		Men	
Variable	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Life satisfaction	6.619	2.421	6.559	2.456	6.686	2.380
Social Comparison with natives	-0.065	2.606	0.097	2.589	-0.249	2.614
Social Comparison with migrants	0.169	2.214	0.247	2.242	0.081	2.179
Female	0.529		-		-	
Age of respondent	45.142	16.899	45.490	1659.953	44.750	16.852
Age of respondent squared	2323.379	1641.792	2356.100	3.028	2286.561	1620.364
Health: very good	0.209		0.196		0.224	
Health: good	0.412		0.390		0.437	
Health: fair	0.291		0.314		0.266	
Health: bad	0.073		0.083		0.060	
Health: very bad	0.015		0.017		0.013	
Years of full time education	13.055	4.034	13.028	4.016	13.086	4.054
Work	0.538		0.475		0.610	
Total hours normally worked	39.469	14.569	36.213	0.292	43.000	13.745
Nubile	0.259		0.235		0.287	
Married	0.554		0.528		0.584	
Disruption	0.102		0.123		0.078	
Widow	0.062		0.095		0.025	
Number of family members	3.004	1.495	2.973	1.486	3.038	1.504
Youngest children 0-3 years old	0.083		0.082		0.083	
Youngest children 3-6 years old	0.061		0.066		0.055	
Youngest children >6 years old	0.319		0.352		0.281	
Level of religiosity: not at all religious	0.136		0.114		0.161	
Level of religiosity: low	0.416		0.400		0.435	
Level of religiosity: high	0.448		0.486		0.404	
Catholic	0.214		0.224		0.203	
Protestant	0.081		0.089		0.071	
Orthodox	0.118		0.141		0.092	
Islamic	0.111		0.095		0.128	
Other religion	0.076		0.077		0.075	
No religion	0.400		0.373		0.431	
Years since migration: 0-5 years	0.069		0.066		0.073	
Years since migration: 6-10 years	0.061		0.061		0.060	
Years since migration: 11-20 years	0.129		0.128		0.130	
Years since migration: more than 20 years	0.270		0.272		0.267	
Area of origin: Europe 27	0.147		0.150		0.144	
Area of origin: Other European countries	0.108		0.117		0.097	
Area of origin: North America and Oceania	0.011		0.011		0.011	
Area of origin: South and central America	0.036		0.038		0.034	
Area of origin: Asia	0.105		0.097		0.115	
Area of origin: North Africa	0.042		0.036		0.050	
Area of origin: Other African	0.052		0.048		0.056	

countries						
Austria	0.010		0.010		0.009	
Belgium	0.029		0.028		0.031	
Bulgaria	0.001		0.001		0.001	
Croatia	0.002		0.002		0.002	
Cyprus	0.000		0.000		0.000	
Czech Republic	0.009		0.009		0.008	
Denmark	0.007		0.007		0.007	
Estonia	0.003		0.003		0.003	
Finland	0.004		0.004		0.004	
France	0.156		0.154		0.159	
Germany	0.198		0.187		0.211	
Greece	0.009		0.008		0.009	
Hungary	0.005		0.005		0.004	
Iceland	0.000		0.000		0.000	
Ireland	0.007		0.007		0.007	
Israel	0.036		0.039		0.033	
Italia	0.015		0.014		0.016	
Lithuania	0.002		0.002		0.002	
Luxemburg	0.001		0.000		0.001	
Netherland	0.031		0.032		0.031	
Norway	0.009		0.008		0.010	
Poland	0.024		0.023		0.024	
Portugal	0.007		0.007		0.006	
Russia	0.125		0.138		0.111	
Slovakia	0.002		0.002		0.002	
Slovenia	0.004		0.004		0.004	
Spain	0.053		0.050		0.056	
Sweden	0.025		0.024		0.026	
Switzerland	0.032		0.030		0.034	
Turkey	0.007		0.006		0.007	
Ukraine	0.049		0.059		0.039	
United Kingdom	0.139		0.135		0.143	
Year 2016	0.155		0.149		0.162	
Year 2014	0.127		0.128		0.127	
Year 2012	0.166		0.173		0.158	
Year 2010	0.149		0.155		0.142	
Year 2008	0.149		0.146		0.152	
Year 2006	0.108		0.107		0.108	
Year 2004	0.080		0.075		0.086	
Year 2002	0.066		0.067		0.065	

Note: weighted descriptive statistics

Table A2. Migrant's SWB and social comparison. Separate estimations by gender.

	Women		Men	
	(1)	(2)	(3)	(4)
Social comparison with natives	0.121***		0.124***	
	(0.011)		(0.017)	
Social comparison with migrants		0.119***		0.097***
		(0.0127)		(0.014)
Full controls	YES	YES	YES	YES
Observations	21,759	21,759	19,506	19,506
R-squared	0.275	0.272	0.240	0.232
Number of clusters	32	32	32	32

Notes: The Table reports coefficients of OLS estimates based on ESS data (2002-2016). Separate models by gender. The dependent variable is "Life satisfaction". All models control also for all the variables in Table 1 (not reported). Robust standard errors (corrected for heteroskedasticity) are reported in parentheses. The symbols ***, **, * indicate that coefficients are statistically significant, respectively, at the 1, 5, and 10 percent level.

Table A3. Migrant's SWB and social comparison by length of stay in the host country. Results of models with interaction terms.

	(1)	(2)
Social comparison with natives	0.146***	
	(0.019)	
Social comparison with migrants		0.126***
		(0.015)
Years since migration *(ref. second generation, born in country)*		
0-5 years	-0.234	-0.207
	(0.151)	(0.149)
6-10 years	-0.029	-0.090
	(0.077)	(0.089)
11-20 years	-0.194**	-0.225**
	(0.088)	(0.088)
>20 years	-0.037	-0.042
	(0.076)	(0.082)
Interaction terms (Years since migration* social comparison) *(ref. second generation, born in country)*		
0-5 years	-0.125***	-0.126***
	(0.026)	(0.029)
6-10 years	0.004	0.002
	(0.034)	(0.052)
11-20 years	-0.029*	-0.043**
	(0.015)	(0.017)
>20 years	-0.043**	-0.035*
	(0.021)	(0.019)
Full controls	YES	YES
Observations	41,265	41,265
R-squared	0.258	0.252
Number of clusters	32	32

Notes: The Table reports coefficients of OLS estimates based on ESS data (2002-2016). The dependent variable is "Life satisfaction". In column (1) year since migration dummies are interacted with the variable social comparison with natives, in column (2) they are interacted with the variable social comparison with migrants. All models control also for all the variables descripted in section 3.2 and included in main models (not reported, see Table 1). Robust standard errors (corrected for heteroskedasticity) are reported in parentheses. The symbols ***, **, * indicate that coefficients are statistically significant, respectively, at the 1, 5, and 10 percent level.